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STAATLICH ANERKANNTE FACHHOCHSCHULE

IS THERE CONTINUITY IN CHILDREN'S SOCIAL-COGNITIVE DEVELOPMENT? A LONGITUDINAL STUDY

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EARLY ACTION UDERSTANDING AND LATER THEORY OF MIND




Two positions

- continuity
  - early understanding of intentional action as precursor ability to a mentalistic action understanding (e.g., Flavell, 2004; Tomasello, 1999; Wellman & Phillips, 2001; Woodward, 1998)
- domain-specific processing
  - structural action analysis and mentalisitic action interpretation develop independently (e.g., Baird & Baldwin, 2001; Povinelli, 2001; Saxe et al., 2004)

EARLY ACTION UDERSTANDING AND LATER THEORY OF MIND

Longitudinal evidence




- joint attention (22 mo.) related toToM (Charman et al., 2000)
- understanding intentions (14+18 mo.) related to mental state language (3 yrs) and ToM (Olineck & Poulin-Dubois, 2005, 2007)
- declarative pointing (1 yr) is related to understanding intentions (Camaioni et al., 2004; Colonnesi et al., 2008; Kristen, et al., 2011) and ToM (Kisten et al., 2013)
- understanding intentions at 1 and 3 yrs is related (Colonnesi et al., 2008)
- attention to goal-directed action (6 mo.) related to understanding intentions (1 yr) and ToM (Wellman et al., 2004, 2008), and to false belief (Aschersleben et. al, 2008)

SAARBRÜCKEN LONGITUDINAL STUDY

AIMS

1. Does maternal interaction quality influence children's social-cognitive development?
2. **Is there continuity in social-cognitive development? (-> Krakau workshop)**
   - > **early action understanding, putative precursor abilities and later ToM (-> Krakau workshop)**
   - > assess if a potential continuity is explained by a continuity in maternal interaction quality and/or infant temperament
   - > cognitive control tasks to assess specificity of hypothesized relation

SAARBRÜCKEN LONGITUDINAL STUDY

N = 139[1)] (total: 165)

	12 months	18 months	3 years	4 years
n tested (girls)	130 (56)	139 (56)	124 (53)	102 (46)
n sample (girls)	130 (56)	139 (56)	124 (53)	102 (46)
age sample *M (SD)*	11.5 (0.6)	17.7 (0.6)	36.4 (1.3)	48.2 (0.5)

79 % of mothers and 80 % of fathers with higher education (18 months visit)

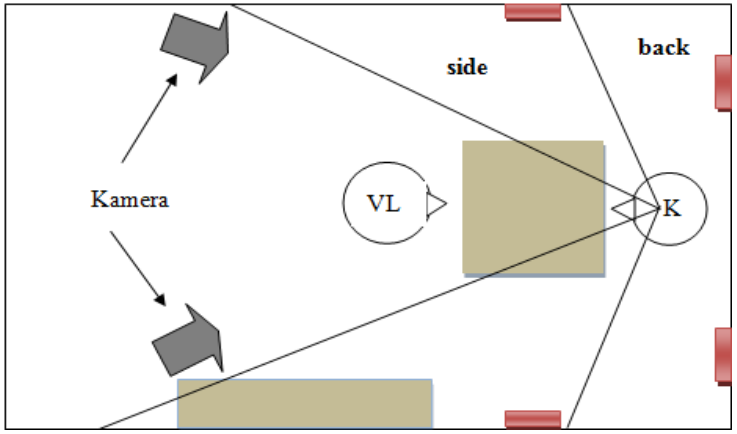
[1)] subset: 6-months visit not included here, N based on all children tested at 18 months

12 MONTHS: JOINT ATTENTION

(Early Social Communication Scale, Mundy, 2003; Carpenter et al., 1998; Charman et al. 1998, 2000, based on Phillips et al., 1992)

Tasks

- Object spectacle
  - Initiating joint attention (eye contact)
  - Show
  - Declarative point
  - Imperative pointing
  - Response to behavior request
- Attention following
  - Gaze following (side / back)
  - Point following (side / back)
- Ambiguous goal
  - Teasing
  - Blocking



12 MONTHS: JOINT ATTENTION

(Early Social Communication Scale, Mundy, 2003; Carpenter et al., 1998; Charman et al. 1998, 2000, based on Phillips et al., 1992)

Occurrence: number (%) of children

	Attention Following			
	AF Side (n = 127)	**AF Back (n = 122)**	**AF Gaze (n = 124)**	**AF Point (n = 125)**
0 (target not located in either trial)	28 (22)	68 (56)	61 (49)	33 (26)
1 (at least target located in one trial)	51 (40)	38 (31)	38 (31)	58 (46)
2 (at least target located in both trials)	48 (38)	16 (13)	25 (20)	36 (29)

Object Spectacle (3 toys)					Ambiguous Goal	
Initiating JA (look)	**Show**	**Imperative Pointing**	**Declarative Pointing**	**Behavior Request**	**Teasing**	**Blocking**
121 (95) (n = 127)	61 (48) (n = 127)	109 (86) (n = 127)	15 (12) (n = 127)	64 (50) (n = 127)	89 (73) (n = 122)	65 (57) (n =114)

RESULTS: 12 MONTHS

Intercorrelations: joint attention

- (+) initiating JA (gazing at E) & ambiguous goal detection (Blocking)
- (+) production of declarative pointing & understanding behavior request, attention following (Back, Point, Side)
- (+) AF measures (Side, Back, Gaze, Point) were related

18 MONTHS: TASKS




- Pretend Play (Bornstein, Haynes, Legler, O'Reilly, & Painter, 1997)
  - collaborative and solitary
- Imitation (Meltzoff, 1995; s. auch Bellagamba, Camaioni, & Colonnesi, 2006)
  - dumbbell, prong & loop
- Diverse Desires (Repacholi & Gopnik, 1997)
  - mismatch condition
- Mirror self-recognition (Bischof-Köhler, 1994; Povinelli & Simon, 1998)
  - red dot on cheek next to nose

RESULTS: 18 MONTHS

Intercorrelations between putative precursors

- (+) mirror self recognition & pretend play (solitary and collaborative)
- (-) understanding desire & mirror self recognition, solitary pretend play (?)

RESULTS: 12 & 18 MONTHS

Intercorrelations between putative precursors

- 12 and 18 months
  - (+) solitary pretend play (18) & initîating JA, production of imperative pointing (12)
  - (-) solitary pretend play (18) & understanding behavioral request (12)
  - (-) understandig desire (18) & ambiguous goal detection (Teasing, Blocking) (12)
  - (+) ambiguous goal detection (Teasing) (12) & imitation (18)
  - (-) ambiguous goal detection (Teasing) (12) & collaborative pretend play (18)

3 + 4 YEARS: TASKS

- Elicited pretend actions (Harris & Kavanaugh, 1993)
  - dinner script, bedtime script
  - 3 years
- Perspective-taking Level 1 (task in Bayley Scales II)
  - hide from other, hide from self
  - 3 + 4 years
- Theory of Mind-Scale (Wellman & Liu, 2004; German version Hofer & Aschersleben, 2004)
  - 3 years: tasks 1-3
  - 4 years: all 5 tasks and additional explicit FB task

RESULTS:

Longitudinal relations with ToM

- attention following (Back) to a target behind the child correlated with FB understanding at 4 yrs, but not with ToM competence at 3 yrs
- attention following (Point) correlated with perspective-taking level 1 at 4 yrs
- desire understanding at 18 m correlated with ToM competence at 3 yrs (.21 with 4 yrs)
- mirror self recognition at 18 m correlated with FB understanding and ToM competence at 4 yrs, but not with ToM competence at 3 yrs
- perspective-taking level 1 at 3 yrs and ToM competence (but not FB) at 4 yrs

RESULTS:

Longitudinal relations between same or similar tasks

- collaborative pretend play at 18 m correlated with elicited pretence at 3 yrs
- ToM competence at 3 and 4 yrs (scale)
- perspective-taking level 1 at 3 and 4 yrs

CONCLUSION

- social-cognitive competence rather not a unidimensional construct
- preliminary findings suggest some continuity
  - need to further investigate specificity to some abilities / skills

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