

Development of a Culturally Sensitive Research Methodology in Early Communication and Language Development

Bodo Frank, Chantal Polzin, Josephat Mbuli Semkiwa & Ulrike Lütcke

Institute for Special Education, Department of Speech and Language Pedagogy and Therapy

BabyLab Hannover

Leibniz University Hannover, Germany

Background

- In 2009, Germany and Tanzania ratified the UN Convention on the Rights of Persons with Disabilities. Main aim: to guarantee participation in society and education for every handicapped person over the lifespan.
- The challenge: to build special resources within the health care system and to strengthen pedagogical and therapeutical expertise for the realization of inclusive education.
- On the base of the long lasting cooperation between the Sebastian Kolowa Memorial University (SEKOMU) and the Leibniz University of Hannover/Institute for Special Education, an approach for mastering these challenges has been developed.
- The aim of the research cooperation is the establishment of a 'Child Development Lab' for basic research in the field of Early Childhood Education and Health as well as Inclusive Education.
- The presented sub-project (see Fig. 1) pursues 2 main aspects:

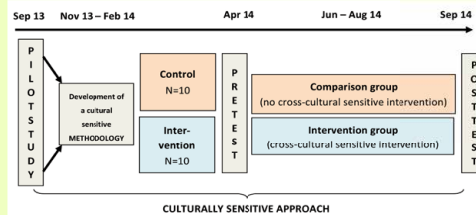


Fig. 2: Overview over the complete study design

Design and Methods

A self-developed 3-camera system (Frank 2013) will be used for the synchronised capturing of caretaker-infant-interactions from three different perspectives: face and hand movements of the caretaker and the infant and the whole interaction from a distant perspective. This capturing will occur in different everyday situations, e.g. washing, feeding, napkin changing.

The recorded data will be analysed visually (movements) with INTERACT and acoustically with PRAAT. Based on these analysis we can get a better insight into the origin of disturbed development of speech and language in later developmental stages.

Technical and methodological preparatory work:

Fig. 3 (top) shows an example of an analysis of a communicative situation between two adults using INTERACT, while Fig. 3 (bottom) displays the acoustic analysis of the voice of one subject (intensity) with PRAAT. The arrows indicate the overlapping of relative low intensity and end- and turning-points of hand movements. This overlapping of energetic turning points in voice, body movements (in narratives) is a constitutive element for gestures in intersubjective communication (Frank 2011) and for the relation between Language Development and motor skills (Iverson & Braddock 2011; Gratier & Trevarthen 2008; Parladé & Iverson 2011).

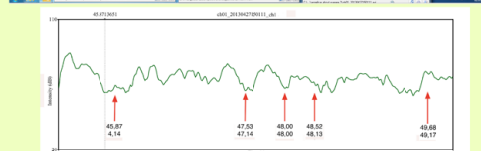
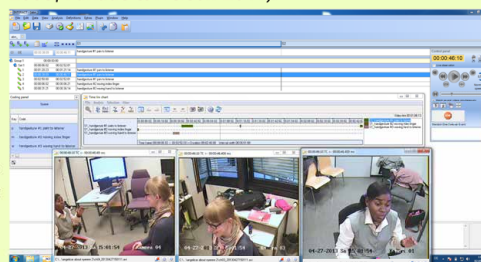


Fig. 3: Analysis of movement patterns in relation to voice intensity. With commercial software (INTERACT, Mangold) three videostreams with high synchronisation for investigating emotional conditions of communicative interaction are analysed. Here: Energetic turning points in single narratives.

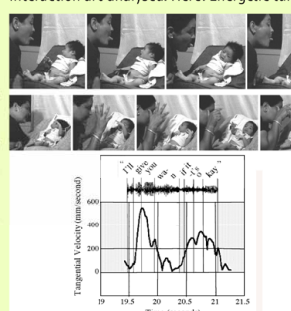


Fig. 4: Proto-conversation and gestures. An infant (36 hours after birth) regulates its arm movement (measured as the tangential velocity of the wrist) to synchronise with the pattern of syllables in an adult voice (Trevarthen et al. 2011; Frank & Trevarthen 2012)



Fig. 5: First analysis of caretaker-infant-interaction in the Child Development Lab at SEKOMU by MA students of SEKOMU

Participants:

- Twenty nurse students of a children's home aged 19 to 22 years: 10 intervention group (culturally sensitive intervention) and 10 control group (no cross-culturally sensitive intervention)
- Twenty orphans aged 1 to 6 months with no disabilities recognized by a cross-culturally sensitive adaptation of the Bayley Scales of Infant Development (Bayley 2006): 10 intervention group and 10 control group

Data Analysis and Results

We expect that disturbed attachment patterns correlate with low vitality and a more metronomic temporal structure of the dyad as one precursor of disturbed development of speech and language (Gratier 2003). The refined analysis of communicative situations between caretaker and orphan includes the investigation of critical patterns in vocal sound production and movement (Gratier & Trevarthen 2008). The investigation must be culturally sensitive because intersubjective sharing of vitality and emotions vary in specific features in different cultures (Lütcke 2012).

Conclusion and Outlook

This branch of the project develops a cross-cultural sensitive methodology for infant development in Tanzania which provides a foundation for a culturally specified developmental psychology as well as a theory of communication and language development and Infant Intersubjectivity. It supports the sustainability in the field of international Speech and Language Pathology and also for Capacity Building in staff development in the field of early childhood development (Lütcke 2012).

Summary

- Joint development and application of a cross-cultural sensitive methodology
- Joint development and implementation of a cross-culturally sensitive intervention program
- Joint efforts for a culturally specified developmental psychology in Speech and Language Pathology

REFERENCES

- Frank, B. & Trevarthen, C. (2012). Intuitive meaning: Supporting impulses for interpersonal life in the sociosphere of human knowledge, practice and language. In: Föhlen, A., Lütcke, U., Racine, T. & Zlatie, J. (Eds.). Moving ourselves, Moving others: Motion and emotion in consciousness, intersubjectivity and language, 261-303. Amsterdam: John Benjamins.
- Frank, B. (2011). Zeitliche Struktur, Komplementarität und psychische Entwicklung (Time, complementarity and psychological development). University of Zurich. Frank, B. (2013, in prep.). Audiovisual microanalysis of caretaker-infant dyads in life situations at risk: Development of a three camera system for synchronised multiperspective in-vivo-research in East Africa. In: Lütcke, U. (Ed.): Emotion in language: Theory - research - application. John Benjamins.
- Gratier, M. (2003). Expressive timing and interactional synchrony between mothers and infants: Cultural similarities, cultural differences, and the immigration experience. Cognitive Development, 18, 533-554.
- Gratier, M. & Trevarthen, C. (2008). Musical narratives and motives for culture in mother-infant vocal interaction. Journal of Consciousness Studies, 15 (11), 122-158.
- Iverson, J.M. & Braddock, A. (2011). Gesture and motor skill in relation to language in children with language impairment. Journal of Speech, Language, and Hearing Research, 54, 72-86.
- Lütcke, U. (2012). Relational emotions in semiotic and linguistic development: Towards an intersubjective theory of language learning and language therapy. In: Föhlen, A. et al. (Eds.): Moving ourselves, moving others: Motion and emotion consciousness, intersubjectivity and language, 305-346. Amsterdam: John Benjamins.
- Parladé, M. V. & Iverson, J. M. (2011). The interplay between language, gesture, and affect: during communicative transition: A dynamic system approach. Developmental Psychology, 47 (3), 820-833.
- Trevarthen, C., Delafeld-Butt, J. & Schögler, B. (2011). Psychobiology of musical gesture: Innate rhythm, harmony and melody in movements of narration. In: Gritten, A. & King, E. (Eds.): New perspectives on music and gesture. Aldershot, UK: Ashgate.

Research Question

Intentions and emotions of infants are entirely expressed in the way their bodies move in self-centred time and space for a motive based assimilation of external affordances for prospective actions. There is a strong internal interdependency and connection between the "joint movements" of both partners in a single communication and the tonal quality of the voice during this communication (Trevarthen, Delafeld-Butt & Schögler 2011; Frank & Trevarthen 2012). The analysis of movement patterns and voice will help to elucidate

- the temporal characteristics of emotional-regulative dyads regarding the structure and quality of vocalization and body movements in institutional settings
- the change of this temporal structure after a cross-culturally sensitive intervention (see Fig. 2).