

CHILDREN'S AND PARENTS' VISUAL-TACTILE BEHAVIOURS FOR GETTING AND SUSTAINING ATTENTION IN DEAF FAMILIES WITH DEAF INFANTS - 0 - 18 MONTHS

Carin Roos

Department of Education, Karlstad University
Carin.Roos@kau.se

Kerstin W. Falkman

Department of Psychology, Göteborg University
Kerstin.Falkman@psy.gu.se

ABSTRACT

This study is part of a larger longitudinal project (Roos & Falkman, 2012) focusing on early social interaction and development of deaf infants with deaf parents. The specific aim of the study presented here is to explore different strategies used by deaf parents and their deaf infants to get others' attention in a Sign Language based communicative context.

The study was carried out using video observations of natural interactive situations. Twelve children were observed between the ages of 2 to 18 months. This is the whole population of deaf children with deaf parents born 2008 - 2010 in Sweden. Data was collected every 8-10 weeks and the total number of recordings was 70, mean length 30 – 45 minutes. For each child the recordings made between the ages of 1-3, 6-8, 11-13, and 16-18 months was selected and the mid 10 minutes of each of these recordings were then analysed in depth. Preliminary findings will be reported in this paper.

INTRODUCTION

The importance of early interaction between caregivers and infants has been well documented (Green, Nip, Wilson, Mefferd & Yunusova, 2010; Meins, 1997; Trevarthen, 1993), including research identifying the communicative behaviour of deaf parents with deaf children (Harris, 2001; Koester, Brooks & Traci, 2000; Lieberman, Hatrak & Mayberry, 2014). Previous research has also reported on the impact of these behaviours on the on-going dyadic interaction as well as on the infant's later development and learning.

Engaging in *joint attention*, i.e. shared focus on an object, person or event, early in life is a fundamental cognitive process and necessary for social interaction and language development (Brooks & Meltzoff, 2005; Dunham & Dunham, 1995; Heimann, Strid, Smith, Tjus, Ulvund & Meltzoff, 2006; Tasker, & Schmidt, 2008). When the dyad interacting is deaf this process becomes more complex as both talking about and looking at the target of the joint attention requires visual perception (Lieberman, Hatrak & Mayberry, 2014). In interactions deaf parents have been observed to use touching, signing on the infant's body and trying to establish eye contact with their infants to attract attention (Holzrichter & Meier, 2000; Lieberman, Hatrak & Mayberry, 2014). These parental strategies, and especially mothers' strategies, are well documented. However, the way in which deaf children learn to respond to and understand the intentions of parents is not very well documented, and this is especially true for attention-getting strategies used by children before the age of 18 months. The aim of the present study has therefore been to identify and describe specifically the visual-tactile strategies used by infants younger than 18 months to *initiate interaction* and to *initiate joint attention* with their parents.

Previous research on visual-tactile strategies

Attention-getting strategies in deaf dyads are known to change depending on factors such as age, language used by the caregivers, and situation (Loots & Devisé, 2003a). Deaf mothers, for example, are reported to adjust their way of signing when interacting with their infants. They sign more slowly, using simpler signs and more repetitions. They also exaggerate their movements and use unconventional sign placements in the visual field of attention of the child (Koester & Lahti-Harper, 2010). Lieberman, Hatrak and Mayberry (2014) have studied the gaze behaviour in dyadic interaction between deaf mothers and their deaf children and state that the children's rapid gaze shifting was a "behavioural adaption unique to deaf children who sign to achieve joint attention in

the visual mode” (p.27). The control of gaze appears to be fully adapted and developed by the age of 24 months.

There are several *visual-tactile strategies* reported in research on caregivers’ communication with infants and preschool children. Loots and Devisé (2003b) present an overview of these:

1. tapping the child/or object to attract or keep the child’s attention
2. repositioning the child to visually show the interaction behaviours
3. taking the child in the arms, taking the child onto the lap and/or turning the head of the child to visually show interaction behaviours
4. placing the hands on the upper body of the child to stimulate and to check the child’s vocalization
5. using other touching, like tickling, caressing, moving the limbs of the child
6. placing the hands of the child in the form of gestures/sign configurations, called *molding*
7. making gestures/signs on the body of the child
8. placing and moving the hands or body of the parent into the child’s field of vision,
9. placing and moving the objects into the child’s field of vision,
10. waiting until the child watches (up) to the parents before starting the interaction. This means that the parent does not start to express the communicative intention, until the child is looking.

The study presented here builds on the previous work by Loots and Devisé (2003b) in three ways. First, while earlier studies have most often focused on parents’ visual communication strategies the present study also includes an analysis of the attention-getting strategies of the children. Second, while earlier research mostly includes children older than 18 months of age the present study looks at children younger than 18 months. Third, an aim of the present study is also to observe if parents use different or additional strategies considering the young age of the participating.

METHOD

The study is a qualitative study following twelve deaf children (four boys and eight girls) and their deaf parents between two and 18 months of age. Video-observations were carried out in the families’ own homes and consisted of natural interactive situations of dyads consisting of parent and child. In some cases a sibling was also present. The total number of recordings was 70, mean length 30 – 45 minutes (see Table 1).

An analysis of the interaction between caregivers and children was carried out using the overview table *Visual-Tactile Communication Strategies* (in Loots & Devisé, 2003b). We registered all visual-tactile communication strategies used by parent or child, i.e. every initiation and following interaction turns, as labels on the videos using ELAN (from Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands). We coded the child separately from the adult so that we could look at the visual-tactile communication strategies of the children specifically. At 1-3 months we only have data from five of the twelve children. This is due to difficulties getting in contact with and arranging for a first visit in the family home.

Participants

The participating families were recruited through direct contact or via health authorities and to the best of our knowledge they constitute the whole cohort of deaf children born into deaf families during 2008-2010, in Sweden (Roos, 2009).

Table 1 The participants of the study

Child's name ¹ , gender, year of birth	Number of video recordings Total 70	Age first recording (months)	Hearing status ²	Parents hearing status	Siblings during the first 18 months	Primary mode of communication in the family
1 Laura, girl, 2007	4	10	severe hearing loss	Mother severe hearing loss Father deaf	-	SSL
2 Neal, boy, 2008	3	10	deaf	Mother deaf Father deaf	one older deaf brother	SSL
3 Ally, girl, 2008	8	1	deaf	Mother deaf Father deaf	-	SSL
4 Kalin, boy, 2008	6	8	deaf	Mother severe hearing loss Father deaf	-	SSL
5 Lilly, girl, 2008	8	2	deaf	Mother deaf Father deaf	one younger sister	SSL
6 Amy, girl, 2008	6	6	deaf	Mother deaf Father deaf	-	SSL
7 Ashlee, girl, 2009	6	5	deaf	Mother deaf Father deaf	-	SSL
8 Miles, boy, 2009	5	6	severe hearing loss	Mother severe hearing loss Father deaf	several older siblings all hearing	SSL, Swedish
9 Eva, girl, 2010	9	3 weeks	deaf	Mother deaf Father deaf	older deaf sister	SSL
10 Emmy, girl, 2010	7	1	deaf	Mother severe hearing loss Father deaf	older deaf sister	SSL
11 Leonard, boy, 2010	4	1	deaf	Mother deaf Father deaf	older deaf sister	SSL
12 Rose, girl, 2010	4	4	deaf	Mother severe hearing loss Father deaf	older deaf brother	SSL

¹ Fictitious names, ² All early diagnosed, 3 months

Data collection

Data was collected when the participating children were between the ages of 2 and 18 months. Family members were videotaped while interacting with the infant. Most of the video sessions consisted of mother-infant dyads. The video sessions always took place in the families' own homes and data was collected as often as the family could accept. Our aim was to videotape every 6 – 8 weeks. The most common situation in the video sessions is parent and child playing together on the floor with the child's own toys.

Data Analysis

The interaction between infants and parents was analysed by first scanning every video recording in its entirety. All instances of visual-tactile communicative behaviour, i.e. every initiation and following interaction turns, were registered as labels on the videos using ELAN (from Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands). Data analysis is not yet complete and the next step will be to code each interaction turn of the registered visual-tactile communication behaviours and moments of interaction by using the defined turns by Loots and Devisé (2003a). The child's communication behaviours will be coded separately from the adult's in order to identify strategies specific for them, since this is not previously reported in the literature. The strategies used by the participating adults will also be analysed using Loots' and Devisé's overview (see Loots & Devisé, 2003b, p. 35). This coding process will result in sequences registered as labels in the ELAN format.

PRELIMINARY FINDINGS

As the analysis of our collected data is not yet complete the results reported here are only tentative. The visual communication strategies used by the participating parents to get and maintain attention corresponds well with earlier research reported in Loots and Devisé (2003b), with one exception. In our data there is no example of parents placing the hands on the upper body of the child to stimulate and to check the child's vocalization. So far *tapping* the child to attract or keep the child's attention seems to be the most common strategy found in our data. Parents *reposition the child to visually show the interaction* is used already during the first month of the child's life. *Taking the child in the arms, taking the child onto the lap and/or turning the head of the child to visually show interaction behaviours* is also very common. Children under 6 months seem to be carried around most often lying on the parent's arm with the head in the palm of the parent's hand and one leg on each side of the parent's elbow. There are sequences showing parents signing with one hand and at the same time turning the child's head to make eye contact. Parents often used *other touching*, like *tickling, caressing, moving the limbs of the child to get their attention*. There seems to be few examples of parents placing the hand of the child in the form of gestures/sign configurations, i.e. *moulding*. *To make gestures/signs on the body of the child* is very common in our data. Additionally, preliminary findings suggest that when parents have one hand occupied holding the infant they will sign utterances meant for another adult or siblings on the infant's body. There are also data showing that parents *place and move their own hands or body into the child's field of vision, more specifically in the focus of the child's attention*. Sometimes parents also *move objects to get the child's attention*. Very seldom parents only *wait passively until the child looks up at the parents before starting the interaction*. We presume this strategy is simply too passive when interacting with children of such a young age.

In our data we also found four strategies not reported in Loots and Devisé (2003b); 1) *signing LOOK-AT-ME or LOOK-THERE* or beginning to sign something in the child's field of vision and moving the hand slowly towards the normal placement of the sign, 2) parents *moving the very young child up and down, slightly and very gently shaking the child when he/she is not looking at the parent*. As soon as the child looks at the parent the parent starts to sign, 3) parents *signing in the child's peripheral field of vision without demanding the child to look up at the parent*. The initiative to get attention from the child is simply done by parents starting to sign. The interaction goes on without parent or child looking at each other, suggesting they both are aware of what is going on and the content of the interaction seems to be mutually understood, and 4) parents *signing in the peripheral field of vision of the child with the intention of getting the child's active attention*.

Children's visual-tactile strategies

The most interesting finding in this study, however, is the description of the children's strategies to get the attention of their parents. This analysis is not yet completed, however, there are some preliminary findings. There are first of all strategies where the infant seems to imitate the adult's behaviour in trying to get the attention of the child. Such strategies are 1) *tapping*, 2) *placing and moving the hands or body* or 3) *objects into the parent's field of vision*, 4) *signing in the parent's peripheral field of vision*, and 5) *waiting until the parent is looking at the child before starting the interaction*.

Another interesting find is that there seem to exist strategies that are specific to the child. Such strategies are; 1) the use of *facial expression to get attention*, 2) *infant stops moving, looking intensely at the parent*, 3) *reaching arms up towards or touching the parent*, and 4) *reaching for and looking intensely at an object*. This occurs when the child first look at parent who does not have the attention directed towards the child, but to something or someone else.

The results of the present study are still preliminary, however, the strategies used by the parents included in our study seem to fit well with the strategies previously described by Loots & Devisé (2003b). We also found additional strategies that parents seem to use because of their children's young age. Finally, there also seem to exist some attention-getting strategies that are specific for children under the age of 18 months.

References

- Brooks, R., and Meltzoff, A.N. (2005). The development of gaze following and its relation to language. *Developmental Science*, 8(6), 535-543.
- Dunham, P.J., and Dunham, F. (1995). Optimal social structures and adaptive infant development. In C. Moore and P.J. Dunham (Eds.), *Joint attention: Its origin and role in development*. (pp. 159-188). Hillsdale NJ: Lawrence Erlbaum.
- Green, J., Nip, I., Wilson, E., Mefferd, A., and Yunusova, Y. (2010). Lip movement exaggerations during infant-directed speech. *Journal of Speech, Language, and Hearing I*, 53, 129-1542.
- Harris, M. (2001). It's all a matter of timing: Sign Visibility and sign reference in deaf and hearing mothers of 18-month-old children. *Journal of Deaf Studies and Deaf Education*, 6,3, 177-185.
- Heimann, M., Strid, K., Smith, L., Tjus, T., Ulvund, S.E., and Meltzoff, A.N. (2006). Exploring the relation between memory, gestural communication, and the emergence of language in infancy: A longitudinal study. *Infant and Child Development*, 15(3), 233-249.
- Holzrichter, A.S., and Meier, R.P. (2000). Child-directed signing in American Sign Language. In C. Chamberlain, J.P. Morford, and R.I. Mayberry (Eds.), *Language by eye* (pp. 25-40). Mahwah, NJ: Erlbaum.
- Koester, L.S., Brooks, L., and Traci, M.A. (2000). Tactile contact by deaf and hearing mothers during face-to-face interactions with their infants. *Journal of Deaf Studies and Deaf Education*, 5(2), 128-139.
- Koester, L.S., and Lahti-Harper, E. (2010). Mother-infant hearing status and intuitive parenting behaviours during the first 18 months. *American Annals of the Deaf*, 155(1) 5-18.
- Lieberman, A.M., Hatrak, M., and Mayberry, R.I. (2014). Learning to look for language: Development of joint attention in young deaf children. *Language Learning and Development*, 10, 19-35.
- Loots, G., and Devisé, I. (2003a). An intersubjective developmental perspective on interactions between deaf and hearing mothers and their deaf infants. *American Annals of the Deaf*, 148(4), 295-307.
- Loots, G., and Devisé, I. (2003b). The use of visual-tactile communication strategies by deaf and hearing fathers and mothers of deaf infants. *Journal of Deaf Studies and Deaf Education* 8(1), 31-42.
- Meins, E. (1997). *Security of attachment and the social development of cognition*. Hove: Lawrence Erlbaum.
- Roos, C. (2009). Fakta om döva barn? En förstudie om döva små barn. (Rapport till Sveriges Dövas Riksförbund). [Fact about deaf children? A pilot study about deaf young children. Report for Swedish National Deaf Association] Karlstad: Karlstads University, Department of Educational Studies.
- Roos, C., and Falkman, K. W. (2012). Mentaliseringsutveckling och lärande hos döva barn med döva föräldrar. Barns strategier att uttrycka och förstå egna och andras intention, i åldern 0-2 år. [Mentalizing skills and learning in deaf children with deaf parents. Children's strategies to express and understand own and other's intentions, age 0-2 years] In *The Swedish Research Council (Eds.), Resultatdialog 2012 [Results in Dialog]* (pp. 159-166). Stockholm:

The Swedish Research Council.

Smith-Gray, S., and Koester, L.S. (1995). Defining and observing social signal in deaf and hearing infants. *American Annals of the Deaf*, 140(1), 15-29.

Tasker, S.L., and Schmidt, L.A. (2008). The "dual usage problem" in the explanations of "joint attention" and children's socioemotional development: A reconceptualization. *Developmental Review*, 28, 263-288.

Tomasello, M. (2008). *Origins of human communication*. Cambridge MA: MIT Press.

Trevarthen, C. (1993). The self born in intersubjectivity: The psychology of an infant communication. In U. Neisser (Ed.), *The perceived self: Ecological and interpersonal sources of self-knowledge*. (pp. 121-173). New York: Cambridge University Press.

Volterra, V., and Erting, C.J. (1994). *From gesture to language in hearing and deaf children*. Washington DC: Gallaudet University.