Conversational research

Gary Morgan shares the findings of some of his recent research into the ways that hearing impairment impacts on the conversational skills of deaf children

This research was carried out following our findings on delayed 'Theory of Mind' (ToM) development in deaf children with hearing parents. We were interested if we could see origins of this delay in the conversations parents had with the two year old deaf children. We did indeed find that both the quality and connectedness of conversations differed in the groups we sampled. Early interventions should include social-cognitive ingredients.

The research paper was co-authored with Marek Meristo, Wolfgang Mann, Erland Hjelmquist, Luca Surian and Michael Siegal and was entitled "Mental state language and quality of conversational experience in deaf and hearing children". It appeared in the Journal of Cognitive Development, Volume 29, January-March 2014, Pages 41-49
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Many studies have noted that deaf children with hearing parents have persistent delays in passing explicit false belief tests and this has been argued to show they are delayed in Theory of Mind (Meristo et al 2012).

Understanding others' thinking is an important skill for many areas of children's lives especially mental health, academic progression, understanding of complex language and pragmatics. Therefore any delays are problematic. Once a deaf child demonstrates atypical development of social understanding this can lead to consequences in other areas of his/her development e.g. appreciation of complex mental state dilemmas in narratives and being able to monitor and regulate one's own emotions.

Explanations for ToM difficulties in deaf children have been based on vocabulary acquisition delay, syntactic delays and interaction problems especially conversations. Many studies of deaf children of hearing parents have reported that young deaf children have delays in establishing and using joint attention with their parents. Connected to the idea that early conversations play a role in the development of ToM skills is work on the importance of the input to young children from their caregivers containing certain mental state words and conversation styles. Taumoepeau & Ruffman, (2006) showed that maternal mental state talk to hearing 15-month-olds correlated with later mental state language and emotion understanding at 24 months age. Furthermore mothers' reference to others' thoughts and knowledge at 24 months was the strongest predictor of children's mental state language at 33 months.

In a new study published in Cognitive Development, Morgan et al (2014) carried out an analysis of conversational experience of deaf and hearing children aged 17-35 months. The majority of the children tested had spoken and signed language although levels varied between children. All deaf children had hearing parents who had minimal familiarity with BSL. The children's language scores were assessed using the BSL and English MacArthur Bates CDI (Woolfe et al., 2010). Language scores in BSL ranged from 20 to 481 signs in comprehension and from 8 to 372 signs in production. Participants' English scores ranged from 4 to 393 words in comprehension and from 3 to 316 words in production. This massive individual variation was also reported for similar aged children in Woll (2013). Morgan et al (2014) asked parents to describe pictures that elicit mental and emotional state language to their children following the Taumoepeau and Ruffman (2006) methodology. The input to the deaf children from their hearing care-givers differed greatly in terms of mental state labels compared with hearing mothers talking to their hearing same age children. Parents of hearing infants referred to cognitions ie. using words like 'think', 'know' or 'remember', significantly more often than did those of deaf infants. There were no differences between groups in references to desires or emotions.

For conversation connectedness the parents with a hearing child produced significantly more connected turns overall than did the parents with a deaf child. Among parents with a hearing child, turns were significantly more likely to be connected than initiated and more likely to be connected than failed. But for the parents with a deaf child, turns were both more likely to be failed than connected and more likely to be initiated. Parents with a deaf child thus have a difficulty maintaining a conversation and initiate turns more. This suggests conversations are more parent led when a deaf child takes part. Morgan et al (2014) also examined the data for language as a variable in a correlation analysis and found no consistent patterns. Thus language itself as measured by vocabulary was not predicting how rich in mental state language these deaf children's interaction was with their parents. There are other things in language especially pragmatics that facilitate how interaction develops in deaf children. This is also reported recently in an Italian study (Rinaldi et al, 2013). The findings from Morgan et al (2014) have consequences therefore for how we think about early language intervention with young deaf children and their caregivers.

An interesting finding came from an analysis of a subgroup of the parents with deaf children who had sets of twins (one deaf and one hearing). Parents talked very differently to their two children depending on the hearing status of each child. When they described pictures to hearing off-spring they used appropriate levels of mental state language (as compared with data reported in Taumoepeau and Ruffman, 2006) but they drastically reduced this input when describing pictures to their deaf children instead using descriptions of colour, sizes and labelling.

In the hearing child-parent dyads only 2-5% of interaction concerned references to cognitive and mental states. Yet this will be sufficient to trigger ToM development. This point highlights how important early intervention in nursery schools and other settings is for deaf children but that training might not need to be a large amount of adaptation.

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