

Establishing a common locus of attention in mother-infant-dyads: British and Ugandan infants' early responding to joint attention skills in response to naturalistic maternal attention directing signals

Ms. Joanna Buryan-Weitzel , Ms. Maisie Thurman , Dr. Ed Donnellan , Dr. Kirsty Graham , Maggie Hoffman , Eve Holden , Charlotte Knapper , Nicole Lahiff , Sophie Marshall , Gideon Salter , Claudia Wilke , Prof. Katie Slocombe

The ability to follow another person's gaze or pointing gesture is an important skill for young infants to acquire, as it allows infants and caregivers to establish a common locus of attention: a crucial part of joint attention. Our current understanding of point or gaze following (usually referred to as 'responding to joint attention; R-JA') is largely based on studies conducted in controlled laboratory settings with infants from WEIRD populations (e.g., Morissette et al., 1995; Mundy et al., 2007). These controlled set-ups - where an adult is typically instructed to try to direct an infant's attention to an object by giving a strict predetermined sequence of cues - do not necessarily reflect the way that adults naturally direct the attention of young infants in their everyday life though. The present study therefore aimed to examine the R-JA abilities of infants in two different cultures using a more naturalistic set-up where mothers were asked to direct their infants' attention to objects using whichever strategies they would normally use.

Fifty-three British and 45 Ugandan mother-infant dyads participated in an R-JA task in their own homes when the infants were 6, 10, and 12 months old. The task consisted of four trials: two during which a toy was placed close (~50cm) to the infant's left or right (proximal trials) and two during which a toy was placed further away (~1.5-2m) to the infant's left or right (distal trials). Mothers sat opposite their infants on the floor and did not receive any instructions on how to direct their attention, except for being asked not to touch the toys and to remain where they were sitting.

If children followed their mother's attention directing attempts to correctly locate the toy on both sides, they passed that type of trial. Only children with two valid trials at each time point up to the age where they passed that condition were included in analysis. This meant that our analysed sample for proximal trials included 36 British and 24 Ugandan infants, and for distal trials included 23 British and 20 Ugandan infants.

Preliminary analyses revealed that at 6m, 31% of British and 67% of Ugandan infants passed both their proximal trials. By 10m, 92% of British and 88% of Ugandan infants had passed and by 12m, 100% of British and 96% of Ugandan infants had passed. With regards to distal trials, at 6m, 9% of British and 40% of Ugandan infants passed. By 10m, 87% of British and 90% of Ugandan infants had passed both their distal trials and by 12m, 100% of British and 95% of Ugandan infants had passed. At 6m, significantly more Ugandan than British infants passed proximal trials ( $\chi^2(1) = 7.59, p = .008$ ) and distal trials ( $\chi^2(1) = 5.87, p = .028$ ), indicating that R-JA skills might develop earlier in Ugandan infants.

We also coded how mothers directed their infants' attention at 6m - an age at which R-JA skills were less developed and mother were therefore more likely to try out different strategies. We found that they used a variety of strategies (UK: M = 6.81, range: 3-10; Uganda: M = 6.22, range = 3-9), but all Ugandan mothers and 98% of British mothers used pointing gestures.

Our results show that when in a familiar home environment, infants can follow the rich attention directing signals of their mothers to find their locus of attention at an early age and that this ability might emerge earlier in Ugandan than in British infants. Moreover, infants in this study passed this R-JA task at an earlier age than infants in previous studies (e.g., Carpenter et al., 1998; Morissette et al., 1995), indicating that we might have previously underestimated the age at which infants start to develop R-JA skills in their everyday lives.