

18-month-old infants warn others in anticipation of negative action effects

Previous research has shown that infants spontaneously point to things they like in order to request them or to align their interest with others. Likewise, infants point in response to a searching adult to objects the adult is looking for. Yet one can also point spontaneously to warn others proactively of things they should avoid. Structurally, instead of merely responding to a partner's search behaviors, warning requires anticipating another's action and the evaluation of its outcome in relation to the current state of affairs. The aim of the current study was to test whether infants point proactively to warn others.

Over four trials, 18-month-olds watched an Experimenter (E) inserting three marbles successively into a chute toy. When reaching for a fourth marble, E's hand bumped into an aversive object (only visible to the infant). E emoted negatively (disgust or pain) and pushed the object to the opposite side of the table behind an occluder. Then E inserted one last marble and left the room. A confederate appeared, cleaned the table, and accidentally pushed the object back to its original location. In a Knowledge condition E returned in time to witness the object being moved, while in a Warning condition E stayed out of the room and remained ignorant about the new state of affairs. At test, E re-entered the room and announced her intention to continue playing. We measured infants' spontaneous pointing to the aversive object and to the desired marbles. We expected that only infants in the Warning condition would point to the aversive object to warn E of its location.

Preliminary data show (Figure 1&2) that infants pointed significantly more often to the aversive object in the Warning condition ($n=10$, Mean=.61) than in the Knowledge condition ($n=10$,

Mean=.18), Mann-Whitney U, $p=.029$. Also, significantly more infants pointed at least once to the aversive object in the Warning condition (8/10) compared to the Knowledge condition (2/10), (Fisher's Exact, $p=.023$). A repeated measures ANOVA (Referent x Condition) revealed a highly significant interaction effect ($p<.001$). Infants pointed more to the aversive object in the Warning condition, whereas they pointed more to the desired marbles in the Knowledge condition.

Current results show that 18-month-olds spontaneously and altruistically help others to avoid an aversive object through proactive warning. At 18 months infants not only anticipate others' actions, in addition they evaluate the anticipated action outcome in relation to current reality and warn others when appropriate.