Infants' Use of Looking, Reaching, Pointing, and Language to Seek Help in Problem Solving Contexts

K. H. Grobman and Ulrich Mueller

Social experiences shape children's development (Meacham, 1993; Vygotsky, 1978), and children take an active role in guiding their development through social interactions (Rogoff, 1990). How does the ability to seek help relate to the ability to solve problems independently? Fajan (1933) incidentally observed infants and toddlers become increasingly active when they near a desired toy or when another person moved closer to the desired toy. Vygotsky (1934) interpreted these findings as illustrative of the special developmental status of social experience. In the present study, we systematically observed infants to uncover the origins of help-seeking, problem-solving, and the social context.

Method

Sixty-seven 3- to 21-month-olds participated in six 90-second trials in which a desired toy was out of reach. In four trials the toy was impossible to retrieve independently; it hung either near (10cm) or far (110cm) from the infant. For the last 30 seconds, either the experimenter or a control object (coatrack) moved behind the toy. Two additional trials placed the toy either near or far upon a cloth, thus allowing the infant to solve the problem independently by pulling a cloth. For the last 30 seconds, the experimenter moved behind the toy.

We measured help-seeking in two conventional, adult-like, ways (i.e., pointing, words) and defined three ways infants coordinate means (i.e., parent, experimenter) and ends (i.e., toy). We defined "multi-modality" (MM) as the time infants focused on a means or end with their hands while focusing on the other with the eyes (e.g., reach toward the toy while looking at parent), $\alpha = .693$. We defined "sustained sequential" (SS) as the total time within a modality (i.e., look, reach) in which infant switched focus between a means or ends to the other (e.g., look at parent and then the toy), $\alpha = .811$. "Rapid switch" means the number of

changes, within modality, between a means or ends to the other (e.g., look back-and-forth repeatedly between the toy and parent), α = .805.

Results

Unlike the coordination of means and ends, pointing increased with age (r=.400, p=.001). We omitted word-use from analyses because it was exceptionally rare. Omitting trials with the coatrack, we conducted four 2 (problem-solving context) * 2 (distance) repeated-measure ANOVA to predict pointing, MM, SS, and RS. All 4 ANOVA showed main effects of problem-solving context such that help-seeking was 1/2 to 1/8 as likely when the problem was independently solvable (p's < .01). No other effects were significant. Similarly, omitting trials when toy-retrieval was possible, there were no significant effects in four 2 (distance) * 2 (approach) repeated-measure ANOVA. Hierarchical linear regressions revealed comparable results; problem-solving context yields large effect sizes (Δr^2 from .06 to .44.). Despite the parallel between common notions of masculinity (i.e., agency) and femininity (i.e., communality), boy and girl infants did not differ in any measure.

Discussion

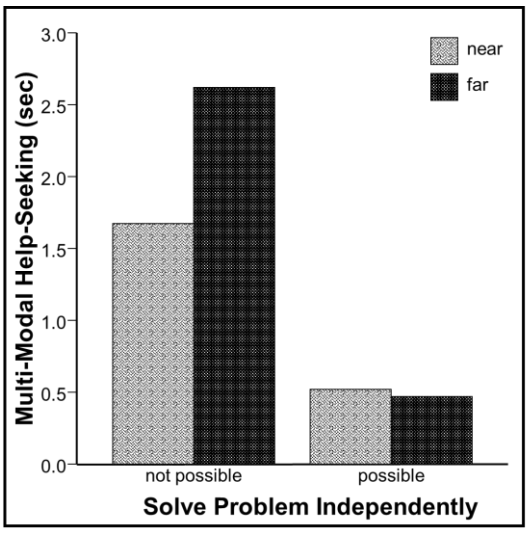
Neither being close to a toy nor seeing a person approach the toy changed infants' communication. Infants were much less likely to seek help when they could try to solve problems independently. This study helps us understand the origins of the connection between independent problem solving and help-seeking.

Citation

Grobman, K. H. & Mueller, U. (2007, March). Infants' use of looking, reaching, pointing, and language to seek help in problem solving contexts. Poster presented at the Biennial Meeting of the Society for Research in Child Development, Boston,

Correspondence

Katie Hope Grobman, California State University – Monterey Bay, kgrobman@csumb.edu
CopernicanRevolution.org



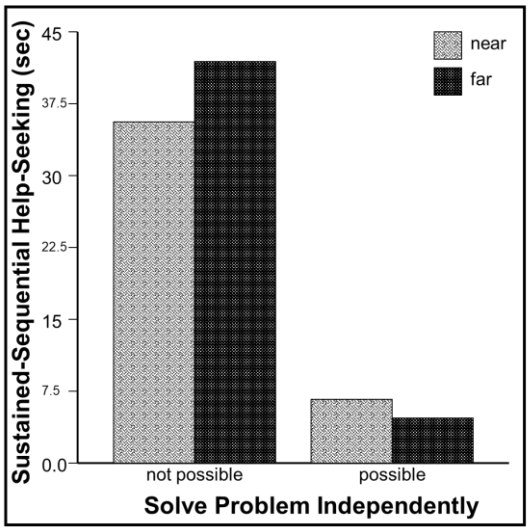
Multi-Modal

ANOVA

ps: $F(1,44)=13.305$, $p=.001$
dist: $F(1,44)=1.439$, $p=.237$
p•d: $F(1,44)=1.498$, $p=.227$

Hierarchical Linear Regression

ps: $F(1,661)=38.763$
$\Delta r^2 = .055$
(n=67; control for gender, age, distance, & 30-sec time segment)



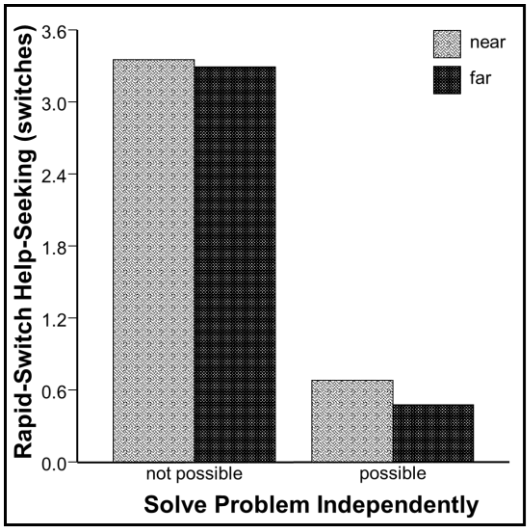
Sustained Seq

ANOVA

ps: $F(1,44)=13.305$, $p=.001$
dist: $F(1,44)=0.570$, $p=.454$
p•d: $F(1,44)=0.022$, $p=.882$

Hierarchical Linear Regression

ps: $F(1,651)=529.034$
$\Delta r^2 = .445$
(n=67; control for gender, age, distance, & 30-sec time segment)



Rapid Switch

ANOVA

ps: $F(1,44)=13.305$, $p=.001$
dist: $F(1,44)=1.439$, $p=.237$
p•d: $F(1,44)=1.498$, $p=.227$

Hierarchical Linear Regression

ps: $F(1,651)=267.843$
$\Delta r^2 = .291$
(n=67; control for gender, age, distance, & 30-sec time segment)