The Developing Social Context of Infant Helping in Two U.S. Samples

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Theories about the development of helping make different assumptions about infants' everyday experiences. Yet little research has investigated early helping at home. Two studies investigated the presence, encouragement, and social reinforcement of helping in 11- to 25-month-old infants in U.S. middle-class families. In Study 1, 76 mothers provided descriptions of infant helping. Study 2 involved videotaping of naturalistic interactions in 51 families. From around the first birthday, most infants helped at home. Instances of helping were frequently accompanied by encouragement, thanking, or praising. Longitudinal and cross-sectional findings were consistent with the view that family members' involvement contributes to infant helping, although the role of family members may depend on infant age. These findings have implications for theories and research about infant helping.

The origins of helping and other prosocial behaviors have been a source of speculation since antiquity (Aristotle, 350 B.C./2011). Helping emerges in infancy and develops through the life span (Eisenberg, Fabes, & Spinrad, 2006; Warneken & Tomasello, 2009a). *Helping* is here defined as an action that primarily serves to facilitate the acquisition of another person's goal. The developed tendency to help is beneficial from an evolutionary, societal, and interpersonal perspective. The multiple benefits of helping have led researchers to propose both genetic and experience-based explanations for why humans help (Eisenberg et al., 2006; Nowak & Sigmund, 2005; Oliner & Oliner, 1988; Tomasello & Vaish, 2013; Trivers, 1971). Accordingly, there is little agreement about how helping develops in human infants, despite a large body of laboratory research (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011; Rheingold, 1982; Svetlova, Nichols, & Brownell, 2010; Warneken & Tomasello, 2006, 2007, 2008, 2013). The present research was premised on the idea that systematic investigations of the everyday lives of infants are crucial for explaining how humans begin to help others.

Helping behavior has been demonstrated as early as the first half of the 2nd year. At 14 months of age, most infants will retrieve an out-of-reach object accidentally dropped by an adult experimenter (Warneken & Tomasello, 2007). Later in the 2nd year, infants tested in laboratory tasks help at greater frequencies and in more complex helping tasks, for instance, by opening a cabinet door for someone or by remedying accidents not noticed by the person in need of help (Rheingold, 1982; Warneken, 2013; Warneken & Tomasello, 2006).

The Natural-Tendency View

The early emergence of helping has been used to support the proposition that infants begin to help others without encouragement and other forms of social support (Tomasello & Vaish, 2013; Warneken & Tomasello, 2006, 2009a). For instance, Warneken and Tomasello (2006, p. 1302) argue that "infants 18 months of age are too young to have received much verbal encouragement for helping from parents" and that 1-year-old infants "generally do not have many opportunities for helping and its reinforcement through their parents" (Warneken &

Tomasello, 2009a, p. 464). It has also been suggested that social reinforcement may either have no effect or even undermine infants' intrinsic motivation to help (Warneken & Tomasello, 2008, 2009a). (Social reinforcement here refers to praise, thanking, or material rewards. In this article, I use the term *social reinforcement* purely descriptively: Unlike behaviorists [Skinner, 1953], I do not assume that these behaviors *necessarily* "reinforce," or strengthen, infant tendencies to help.) The view being proposed by these researchers is that infant helping reflects a *natural altruistic tendency* that has evolved because of its fitness value and emerges independently of specific social experiences (Bloom, 2010; Warneken & Tomasello, 2009a, 2009b).

The Social-Interactional View

The present research was motivated by an alternative, social-interactional view of infant helping. The central idea is that infants have specific social experiences, involving requests, participation, and praising, that contribute to the emergence and development of helping. On this account, infant helping is facilitated by processes akin to what Rogoff (2003) calls *guided participation*: Through conversations and structuring of activities, caregivers and other community members invite children to participate in ways adapted to children's abilities. As a result, infants are guided to engage in helpful acts in everyday life from early on (see Dahl, Campos, & Witherington, 2011, p. 151, for an illustration), although children's opportunities and tendencies to help varies between communities (Callaghan et al., 2011; Rogoff, 2003). Several researchers have proposed similar interactional views of infant helping (Brownell et al., 2013; Carpendale, Hammond, & Atwood, 2013; Dahl et al., 2011; Rheingold, 1982).

A social-interactional view does not deny that infants have predispositions at birth or that genetic factors play a role in social development (Brownell, 2013). Consistent with developmental systems theory, the present perspective sees development as the interweaving of biological and environmental processes, none of which *by themselves* suffice for the acquisition of a particular skill (Gottlieb, 1991; Johnston, 2010; Oyama, Griffiths, & Gray, 2003; Spencer et al., 2009). This interweaving begins in the prenatal period and continues throughout the life span. In concert with genetic and other biological processes, infants' social environment is thus considered an ever-present contributor to the ontogeny of helping behavior.

The social-interactional view proposes that the social context of infant helping changes with age. Specifically, the nature and consequences of the involvement of family members may depend on the skill level of the child, as suggested by research on skill development (Tzetzis, Votsis, & Kourtessis, 2008). In general, family members will increasingly expect children to help at home as they grow older (Gralinski & Kopp, 1993). According to a social-interactional view, these changing expectations will in turn be reflected in helping interactions through both *increased encouragement* of infant helping (as family members see more opportunities for the infant to help) and *decreased social reinforcement* (as the tendency to help becomes well established). The relation between children's helping and the behavior of their family members is thereby construed as dynamic and bidirectional: While praise is hypothesized to facilitate infant helping early in development, increased infant helping may gradually lead to a decrease in praise.

The contrast between the natural-tendency view and the social-interactional view raises several critical questions about infant helping experiences in everyday life. In this article, three issues will be focal: (a) Do infants help at home the way they help in the lab? If so, skills shown in the lab *could* have been learned through repeated experiences in the home. (b) Are infants encouraged to help by their family members? If so, such encouragement could contribute to infants' helping. (c) How does social reinforcement (praise or thanking) relate to infant helping? Is there generally a negative association between the two, as suggested by proponents of the natural-tendency view, or does the association depend on infant age and helping ability?

Despite their centrality the above questions have not been addressed by past research (Thompson & Newton, 2013). A review of the empirical literature on early helping revealed no systematic investigation of everyday helping behavior in the 2nd year of life, leaving aside anecdotal reports (Dahl et al., 2011; Valentine, 1942) and studies in which helping was pooled with other forms prosocial behavior such as empathy (Dunn & Munn, 1986).

The Presence, Encouragement, and Social Reinforcement of Everyday Infant Helping

Do Infants Help at Home?

The first question is whether infants help at all in their everyday lives before they help in the lab. If infants early in the 2nd year do *not* help at home,

this would limit the kinds of relevant experiences they could have at this age. In that case, it would seem that prior social experiences with helping could not easily explain the prevalence of infant helping in laboratory tasks. As noted, such a "poverty of relevant experience" is precisely what has been predicted by the natural-tendency view.

The social-interactional view hypothesizes that infants generally help in the home from the beginning of the 2nd year of life (and perhaps earlier). The time around the first birthday is characterized by improvements in joint attention (Brooks & Meltzoff, 2005; Campos et al., 2000; Carpenter, Nagell, & Tomasello, 1998), which facilitate joint engagement, and in motoric skills, which make it easier for infants to hand objects to others (Karasik, Tamis-LeMonda, & Adolph, 2011). These skills provide resources that parents can build on as they involve infants in family activities.

Encouragement of Infant Helping

Proponents of the natural-tendency view have hypothesized that infants are typically not encouraged to help at home (Warneken & Tomasello, 2006). In contrast, the social-interactional view hypothesizes that family members do try to encourage infants to help from early on. In addition to the long-term benefits of raising helpful children, another reason for involving children in chores and other household activities is that most caregivers simply enjoy spending time with their infants. In many communities, children's participation in family activities is ultimately important for the functioning of the social unit (Rogoff, 2003). In support of the prediction that caregivers encourage helping in infants, Gralinski and Kopp (1993) found that many mothers of 1-year-olds said that they encouraged their children to try helping with chores such as putting toys away. By the end of the 2nd year, Gralinski and Kopp found that almost 80% of mothers reported general encouragement of participation in family routines (see also Power & Parke, 1986).

Unlike the natural-tendency view, the social-interactional view also hypothesizes that encouragements have a major influence on the emergence of infants' tendencies to help others. These effects may be especially pronounced early in the 2nd year, when infants are less proficient helpers. Thus, the social-interactional view predicts that there is a positive association between encouragement of helping *early* in the 2nd year and infant helping frequency, both concurrently and predictively. Later in the 2nd year, some infants may already have become highly proficient helpers who often help without encouragement, possibly leading to a negative correlation between overall helping frequency and the proportion of helping acts that are encouraged. More generally, a social-interactional view hypothesizes that encouragement contributes to helping behavior at times when helping skills are low, but not when helping skills are high. In support of this proposal, encouragement has no significant effect on helping in a simple out-of-reach task at 24 months, an age when children already master this task (Warneken & Tomasello, 2013).

Social Reinforcement of Infant Helping

The natural-tendency view has proposed that infant helping does not increase with social reinforcement. Warneken and Tomasello (2008) reported that praise had no effect on helping tendencies among 20-month-olds. Proponents of this view have even suggested that social reinforcement can be detrimental to young children's prosocial behavior (Warneken & Tomasello, 2009a), citing correlational evidence from a study of 19- to 27-month-old children (Eisenberg, Wolchik, Goldberg, & Engel, 1992; see also Grusec, 1991).

According to the social-interactional view, the relation between social reinforcement and helping will depend on the child's ability (and therefore age). In particular, social reinforcement is predicted to be especially common when a child's helping ability is low. Indirect support for this hypothesis comes from research showing that praise is taken as a *sign* of relatively low ability, as it implies that the person has exceeded expectations (Meyer et al., 1979).

The above reasoning leads to three related predictions made by the social-interactional view. The first prediction is that social reinforcement (praising and thanking) in response to helping will be more common early in the 2nd year than late in the 2nd year. Early in the 2nd year, most infants are relatively inexperienced and unskilled helpers whose efforts may elicit frequent acts of thanking and praising. Later in the 2nd year, family members have come to expect infants to help and thus respond with less social reinforcement.

The social-interactional view also predicts a positive relation between social reinforcement and helping frequency *early in the 2nd year*. At this age, infants may not be reliably successful helpers and may thus benefit from eliciting positive reactions from others through their nascent helping efforts.

The third social-interactional prediction is that older infants who help less will receive more social reinforcement for helping. Again the idea is that low ability elicits more thanking and praise than high ability. At ages when most infants help reliably, the infants who are praised the most will expectably be the ones who help the least. The predicted result is a negative correlation between social reinforcement and helping for older infants, not because social reinforcement is detrimental at this age but because low helping tendencies elicit proportionally more social reinforcement.

The Present Research

The present studies investigated the presence, encouragement, and social reinforcement of infant helping in everyday life. The studies included families living in the San Francisco Bay Area who had infants between 11 and 25 months of age. This age range was chosen in order to capture a period of marked transition in infant helping, starting before helping has first been shown in the laboratory and ending when infants are able to help reliably in a variety of helping tasks (Rheingold, 1982; Warneken & Tomasello, 2006, 2007).

Study 1 was an exploratory interview study with mothers of infants between 11 and 24 months. The main purpose of this study was to investigate (a) whether infants help in the home starting around the first birthday, (b) whether mothers report encouragement and social reinforcement of helping, and (c) whether mothers' reported encouragement and social reinforcement changes with infant age (as predicted by the social-interactional view).

Study 2 was a naturalistic home observation study involving families with infants between 13 and 25 months. The study had both a cross-sectional and a longitudinal component, as a subset of families was visited again 5 and 10 months after the initial visit. In addition to the three questions addressed by Study 1, Study 2 also assessed associations between encouragement and social reinforcement of helping and infant helping frequency.

Study 1: Maternal Descriptions of Helping

Method

Participants

Mothers of 76 infants (36 female, M_{age} = 16.2 months, range = 10.9–24.0 months) participated in a structured phone interview. Participants returned consent forms and a demographics questionnaire by mail. Sixty-two percent of infants were non-Hispanic Caucasian, 6% were Asian American, and 32% were of another ethnicity or mixed. All families spoke at least some English at home. Most families were middle-class families living in the San Francisco Bay Area. Forty-three percent of caregivers had a graduate degree and 44% had a college degree. Families were recruited from a participant database at the Institute of Human Development, University of California, Berkeley. Data were collected between August 2009 and December 2010.

Procedures

Mothers were told that the general purpose of the interview was to investigate various aspects of early socioemotional development. Mothers were asked what kinds of behaviors they encouraged their child to engage in, whether their child had ever tried to help them, and (if applicable) whether they could describe, in as much detail as possible, a recent instance when their child tried to help them.

Coding and Data Analysis

Interviews were recorded, and the mothers' descriptions were coded for whether the mother listed a helping behavior as one of the things in which she encouraged the child to engage and whether the mother reported that her child had ever helped her. If a mother described a recent instance of helping, coders assessed whether the helping instance was described as having been explicitly requested by a family member, and whether the helping behavior had elicited social reinforcement from others (praising or thanking). Twenty percent of the interviews were double-coded to assess interrater agreement: helping as one of the behaviors mothers encouraged: κ_{Cohen} = 0.84; presence of helping: κ_{Cohen} = 1.00; requesting/encouraging: κ_{Cohen} = 0.76; social reinforcement: κ_{Cohen} = 1.00.

The reporting of helping, requesting, and social reinforcement was analyzed using logistic regression. Preliminary analyses revealed no effects of child gender, which was therefore not included as a predictor in the final models.

Results

Overall, 89.4% of mothers reported that their child had recently tried to help them at least once. The probability of reporting helping was positively
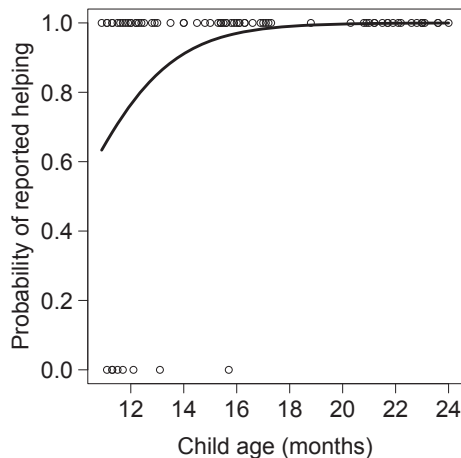
Figure 1. Probability of reported helping as a function of child age (Study 1). Circles show whether an infant was reported to have helped (1) or not helped (0) plotted against child age. The line shows fitted values for a logistic regression model predicting the probability of reported helping as a function of child age.

associated with child age, logistic regression: $b_{age} = 0.57$, $z = 2.23$, $p = .026$. Figure 1 shows reported helping plotted against age.

Thirty-five percent of helping instances were described as initially requested by a family member. The probability of requesting was not significantly associated with age, logistic regression: $b_{age} = -0.002$, $z = -0.038$, $p = .97$. However, mothers' tendency to mention helping as one of the behaviors they generally encouraged *was* positively associated with infant age, logistic regression: $b_{age} = 0.24$, $z = 3.52$, $p < .001$. Overall, 32% of mothers listed a helping behavior as something they encouraged. Other behaviors encouraged by mothers included using new words, feeding oneself, and fine-motor activities like throwing a ball.

Social reinforcement of helping was reported in 66.2% of situations. The probability of reinforcement was higher for younger than for older children, logistic regression: $b_{age} = -0.13$, $z = -2.01$, $p = .045$. Interestingly, social reinforcement was also more likely when the helping had been requested, $b_{requested} = 1.40$, $z = 2.17$, $p = .03$.

Discussion

The vast majority of mothers indicated that their infant had helped them at least once. As expected, the tendency to do so was positively associated with infant age. Still, these data indicate that most infants do have experiences with helping at home from around the first birthday, consistent with social-interactional predictions and contrary to natural-tendency predictions. These experiences are potential contributors to the performance on helping tasks seen in the lab around this age (Sommerville, Schmidt, Yun, & Burns, 2013; Warneken & Tomasello, 2007).

About one third of helping instances in Study 1 were described as requested by a family member. This provides some support for the social-interactional prediction that infants are often encouraged to help. Although the tendency to describe helping as requested was not significantly associated with child age, mothers of older infants were more likely than mothers of younger infants to mention helping as a behavior they encouraged (Gralinski & Kopp, 1993).

The majority of helping situations in Study 1 were described as involving social reinforcement (thanking or praising). Consistent with predictions from the social-interactional view, social reinforcement was particularly common early in the 2nd year. This suggests that family members use more social reinforcement when infant helping capacities are low. This has implications for how to interpret negative relations between social reinforcement and prosocial behavior in older children (Eisenberg et al., 1992; Grusec, 1991). It is possible that low frequencies of child helping made caregivers in the cited studies more prone to reinforce helping (rather than the other way around), thereby explaining the negative correlations. Study 1 also found that social reinforcement was more common in response to requested behaviors. One explanation for this may be that requested helping tended be seen as actually helpful, as opposed to disruptive (Rheingold, 1982), and was therefore especially likely to elicit a positive reaction from family members.

Study 1 is limited by its reliance on maternal reports. Perhaps mothers in the present sample saw encouragement and social reinforcement of infant helping as something they wanted to do and consequently tended to over-report such behaviors. Study 2 addressed this concern through videotaping and coding of naturally occurring helping behavior in the home environment during the 2nd year. To investigate mothers' attitudes more carefully, Study 2 also included a questionnaire asking mothers to indicate how important it is for them to encourage helping. By allowing for multiple helping instances per child, Study 2 could also investigate predictors of infant helping *frequency*. Two predictors of particular interest were encouragement and social reinforcement. As stated in the Introduction, the social-interactional view predicts that encouragement and social reinforcement are

positively associated with infant helping frequency early in the 2nd year, both concurrently and longitudinally. In contrast, the natural-tendency view would not predict such an association. (Both views would predict a negative association between social reinforcement and helping frequency later in the 2nd year.) Study 2 tested these predictions.

To increase the number of recorded helping instances per observation (thereby improving statistical power), Study 2 sampled from a slightly older age group, ranging from 13 months of age (right around the age at which helping has been demonstrated in the laboratory; Warneken & Tomasello, 2007) to 25 months of age.

Study 2: Observations of Helping in the Home

Method

Participants

Fifty-one families with a child between 13 and 25 months of age (24 female, M_{age} = 17.8 months) were recruited. Four of the children were only children, one child had a younger sibling, and the remaining children had one or two older siblings aged 3–7 years. Families were recruited from the same participant database used in Study 1, and the samples therefore had similar demographic characteristics. Forty-three percent of children were non-Hispanic Caucasian, 10% were Asian, 6% were African American, and 41% were of another or mixed ethnicity. All spoke English at home at least half of the time. Most families were middle-class families living in the San Francisco Bay Area. Among caregivers, 46% had a graduate degree and 39% had a college degree. Data were collected between July 2010 and January 2013.

Materials and Procedures

All families participated in at least one home visit. In addition, 24 of the families whose child was between 13 and 15 months old at the time of the initial visit participated in a second visit of the same duration when the target child was 19 months old (9 female, M_{age} = 19.6 months). Twenty-two of these families participated in a third and final visit when the child was 24 months of old (8 female, M_{age} = 24.5 months).

The mother was required to be present for the entire visit. For children with siblings, one sibling was also present. In a few cases another adult relative living in the household (father or grandparent) was also home during the visit. All visits were scheduled so as to include one meal time (breakfast, lunch, or dinner) and to take place outside of the child's typical naptimes in order to provide some similarity in the context of the visit across families. To make participation more convenient for families, it was left to the family to decide which mealtime to include in the visit. (The most commonly included meal was lunch.)

Each visit began with an approximately 15 min warm-up in order to explain the procedures as well as to make the family members comfortable with the presence of the observer. Families were told that the study was about young children's everyday experiences and that the family members should do whatever they would have normally been doing during the time of the visit. In addition to the mealtime (which typically lasted between 15 and 45 min), families engaged in a variety of activities such as play, chores, and reading. Although the mother was always present, she was free to interact or not interact with the child at any given time.

The observer then videotaped the child for 2.5 hr and electronically logged instances of the child helping someone else using the EventLog application (TouchScience, http://touchscience.com/) on an iPod Touch (Apple Inc., Cupertino, CA). Observers were trained by having them log instances of helping from video recordings until they detected at least 90% of instances logged by the author. Helping was defined as an instance in which the child's behavior, if executed successfully, would facilitate the acquisition of another person's goal (Warneken & Tomasello, 2009a). Infants' cognitive and motoric limitations made it desirable to let the definition include instances in which infants failed to successfully execute the helpful behavior. The definition included instances like handing an object relevant to another person's activity (as opposed to sharing an object unrelated to the other person's activity), sweeping the floor (even if they did not actually succeed in sweeping any of the dust on the floor), putting clothes in the laundry machine, and putting plates on the table before a meal.

At the first visit, mothers filled out a demographics questionnaire and a questionnaire about how important it was for them to encourage certain behaviors, including three helping-related behaviors: putting toys away, helping the parent get the child dressed, and helping with chores when requested (adapted from Gralinski & Kopp, 1993). Importance was rated on a scale from 0 (*never encouraged*) to 4 (*very important*). Questionnaires were returned by mail.

Coding and Data Analysis

Coders blind to the study hypotheses watched all logged instances of helping and coded presence of child helping as well as encouragement or social reinforcement from other family members. The coders assessed whether family members *encouraged* the target child to help. Encouragement included explicit requests (as in Study 1), but also instances of extending the infant's helping efforts ("Can you go get the other shoe too?") and correcting the infant's helping ("No, the Legos go in the *red* box") occurring at any point during the helping interaction. The coders also noted whether family members used social reinforcement (praising or thanking). Interrater agreement was calculated for 18% of the visits: encouragement: κ_{Cohen} = 0.88; social reinforcement: κ_{Cohen} = 0.88.

Data from the cross-sectional component (N = 51) and the longitudinal component (N = 24) of the study were analyzed separately. Data on the presence of each involvement type were analyzed using generalized linear mixed models (GLMMs) with binomial error distribution and random intercept for subjects (Hox, 2010). For descriptive purposes, measures of central tendency and variability (median and interquartile range [IQR]) on a visit-by-visit level are also reported. Helping frequencies for individual visits were analyzed using Poisson regression (no random effects). As in Study 1, preliminary analyses revealed no effect of child gender so this variable was not included in the models summarized below.

Results

Cross-Sectional Data

Frequency. A total of 243 helping situations were coded in the 51 visits ($M_{frequency}$ = 4.77). In 88.2% of visits, the target child helped at least once. The median helping frequency was 3 (IQR = 2–6). There was a significant effect of child age on helping frequency, Poisson regression: b_{age} = 0.11, z = 7.04, $p < .001$ (see Figure 2).

Descriptive statistics for encouragement and social reinforcement are presented in the left part of Table 1.

Encouragement. Sixty-eight percent of all helping situations included encouragement from family members at some point during the interaction (Table 1). On the level of individuals, the median proportion of situations involving encouragement was 77% (IQR = 43%–100%). The probability that a
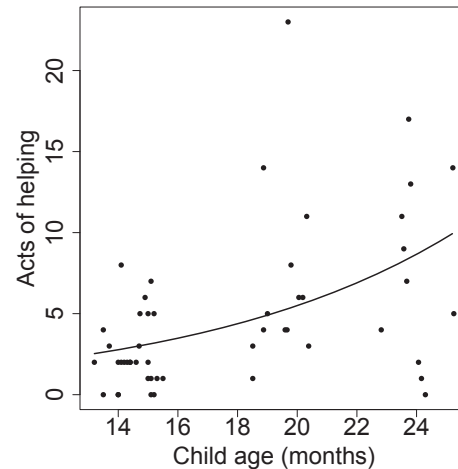

Figure 2. Helping frequency as a function of child age (Study 2, cross-sectional data). Circles show observed frequencies of helping plotted against child age. The solid line shows fitted values for a Poisson regression model predicting helping frequency from child age.

situation involved encouragement was positively associated with child age, binomial GLMM: b = 0.12, z = 2.14, p = .032.

The next question was how encouragement related to infant helping across the 2nd year of life. To investigate this, the proportion of situations involving encouragement was calculated separately for each child. These proportions were in turn used as a predictor variable in a Poisson regression predicting helping frequency.

There was a significant interaction between age and encouragement in predicting helping frequency, Poisson regression: $b_{encouragement \times age}$ = −0.18, z = −2.82, p = .005. As shown in Figure 3, the model predicted that encouragement would be *positively* associated with helping frequency prior to 15.5 months and *negatively* associated with helping frequency later in the 2nd year. In other words, early in the 2nd year infants who helped more than their peers were predicted to be more likely to receive encouragement, whereas the opposite was true later in the 2nd year.

Social reinforcement. In 57% of situations, infants received social reinforcement for helping (thanking or praising; Table 1). At the level of individuals, the median proportion of situations involving reinforcement was 60% (IQR = 43%–100%). Consistent with findings from Study 1, the probability of receiving social reinforcement was higher for younger than for older children, binomial GLMM: b_{age} = −0.14, z = −3.60, $p < .001$, and higher for encouraged than nonencouraged helping, $b_{encouragement}$ = 0.98, z = 3.27, p = 001.

Table 1
Descriptive Statistics: Involvement of Family Members in Children's Helping (Study 2)

| Coded aspect | Cross-sectional | | | | Longitudinal prop. of situations |
| | Prop. of situations | Percentiles (by visit) | | | |
		25th	50th	75th	
Encouragement	.68	.43	.77	1.00	.71
Social reinforcement	.57	.43	.60	1.00	.64

Note. Cross-sectional component: The second column from the left indicates the proportion of situations (pooling across participants) in which the particular aspect was coded. The three columns under "percentiles" show descriptive statistics (median and interquartile range) for proportions calculated at the visit-by-visit level. *Longitudinal component:* The rightmost column shows the percentage of situations (pooling across families) in which the particular aspect was coded.
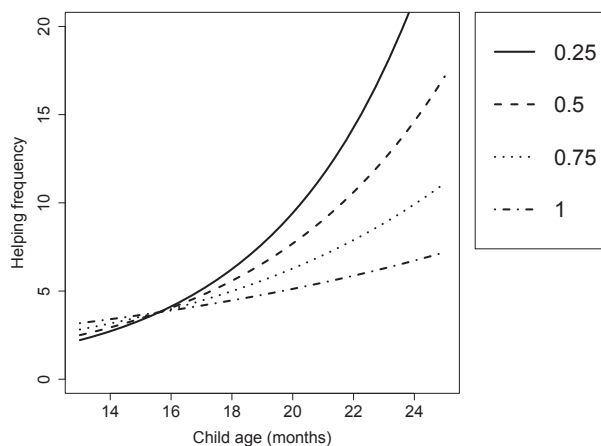

Figure 3. Helping frequency as a function of child age and encouragement (Study 2, cross-sectional data). Predicted helping frequency from a Poisson regression model is plotted as a function of age separately for four different levels of encouragement. The four levels represent the proportion of situations in which a child received encouragement.
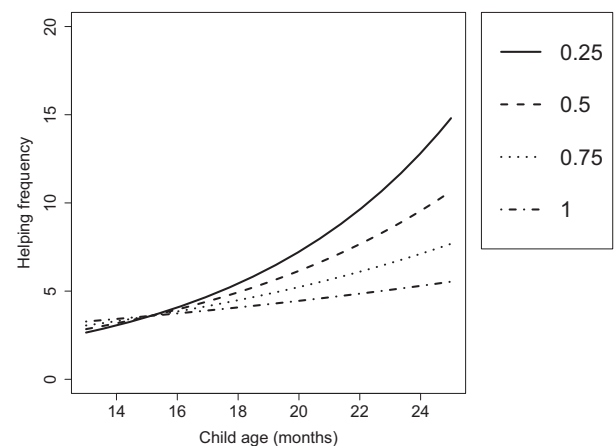

Figure 4. Helping frequency as a function of child age and social reinforcement (Study 2, cross-sectional data). Predicted helping frequency from a Poisson regression model is plotted as a function of age separately for four different levels of social reinforcement. The four levels represent different proportions of situations in which a child received social reinforcement.

Next, it was assessed whether the relation between social reinforcement and helping frequency depended on child age. As hypothesized by the social-interactional view, there was a significant interaction between age and social reinforcement, Poisson regression: $b_{age \times reinforcement} = -0.13$, $z = -2.36$, $p = .018$. As shown in Figure 4, the model predicted that social reinforcement would be positively associated with helping frequency prior to 15 months and negatively associated with helping frequency later in the 2nd year of life. (The age by reinforcement and age by encouragement interactions remained significant when entered into the same regression model.)

Questionnaire data. In the behavior rating questionnaire, 92.6% of mothers reported that they had encouraged their child to engage in at least one of the helping-related behaviors. The average importance rating was 1.51 (range of scale: 0 = *never requested/ encouraged*, – 4 = *very important*), $SD = 0.94$. There was a positive association between the child age and mean importance rating, $r_{spearman} = .52$, $p = .005$.

Longitudinal Data

A total of 267 helping instances were recorded in the 70 visits. The median helping frequency was 3 (IQR = 1–6) per visit, which is highly similar to the corresponding descriptives for helping frequency for the cross-sectional component. Table 1 (rightmost column) shows the presence of the two coded aspects of each helping situation, which again closely track the corresponding values for the cross-sectional data.

Two types of longitudinal relations were investigated. First, relations between encouragement/rein-
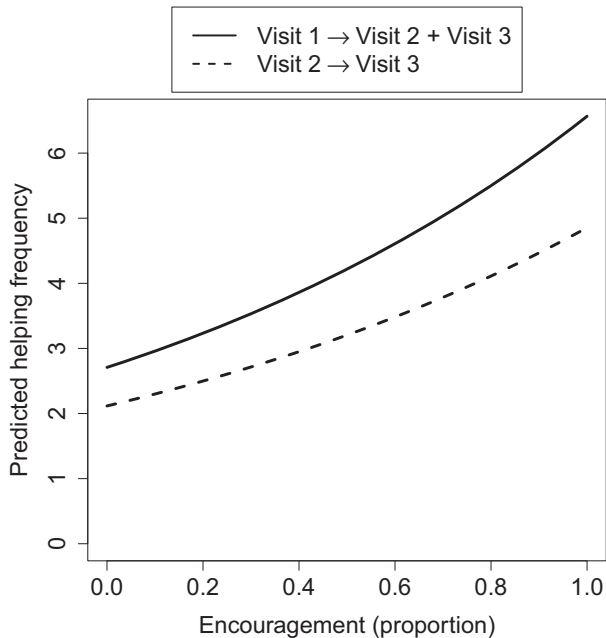
Figure 5. Longitudinal relations between encouragement and helping (Study 2). The solid line shows the relation between the proportion of situations in which infants received encouragement at Visit 1 and pooled helping frequency at Visits 2 and 3 (the predicted values were divided by 2 to provide an approximate correction for the fact that frequencies from two visits were pooled). The broken line shows the relation between encouragement at Visit 2 and helping at Visit 3. Predictions were obtained from Poisson regression models. For the purposes of prediction, concurrent helping frequency was held constant at the mean value for the given visit.
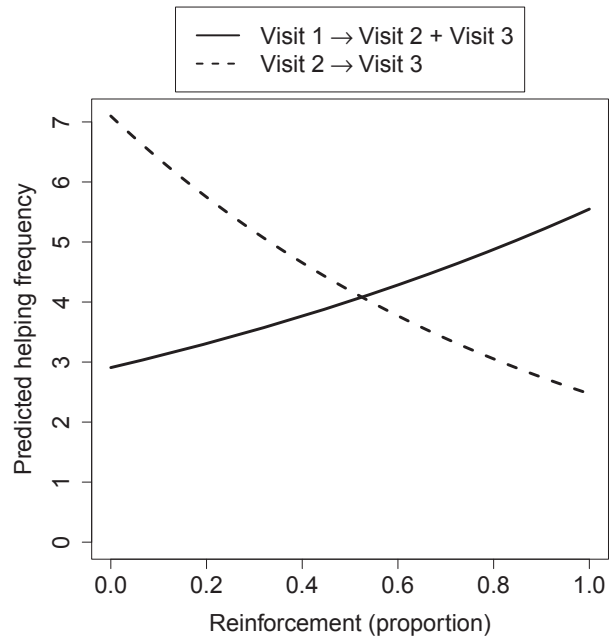
Figure 6. Longitudinal relations between social reinforcement and helping (Study 2). The solid line shows the relation between the proportion of situations in which infants received social reinforcement at Visit 1 and pooled helping frequency at Visits 2 and 3 (the predicted values were divided by 2 to provide an approximate correction for the fact that frequencies from two visits were pooled). The broken line shows the relation between social reinforcement at Visit 2 and helping at Visit 3. Predictions were obtained from Poisson regression models. For the purposes of prediction, concurrent helping frequency was held constant at the mean value for the given visit.

forcement at the first visit (13–15 months) and helping frequency at the second (19 months) and third (24 months) visits were investigated, controlling for helping frequency at the first visit. Helping frequencies at the second and third visits were highly correlated ($r_{pearson} = .63$). They were therefore pooled in this first set of analyses in order to get more reliable estimates of individual helping tendencies and to decrease the number of analyses conducted. In a second set of analyses, relations between encouragement/reinforcement at the second visit and helping frequency at the third visit were investigated, controlling for helping frequency at the second visit.

Encouragement. There was a significant positive relation between encouragement at Visit 1 and helping at Visits 2 and 3 (pooled), Poisson regression: $b_{encouragement} = 0.89$, $z = 4.10$, $p < .001$. In contrast, the relation between encouragement at Visit 2 and helping frequency at Visit 3, while positive, was not significant, $b_{encouragement} = 0.83$, $z = 1.29$, $p = .20$ (Figure 5).

Social reinforcement. Social reinforcement of helping at the first visit was positively related to helping frequency at the second and third visits, Poisson regression: $b_{reinforcement} = 0.65$, $z = 2.71$, $p = .007$, when controlling for helping frequency at the first visit. In contrast, there was a significant negative relation between reinforcement at the second visit and helping frequency at the third visit, Poisson regression: $b_{reinforcement} = -1.05$, $z = -2.95$, $p = .003$, when controlling for helping frequency at the second visit (Figure 6).

Discussion

Findings from Study 2 were overall consistent with findings from Study 1. Study 2 confirmed that it is common for infants to help at home from early in the 2nd year of life and also found that helping frequency was positively associated with child age. The majority of helping situations in Study 2 involved some form of encouragement, which included both explicit requests and attempts to

make the child help in a different way. The proportion of helping behaviors described as requested in Study 2 was somewhat higher than the comparable proportions in Study 1. This could be because Study 2 coded encouragement at any point during the interaction, not just at the beginning. It is also possible that mothers better remember unencouraged helping acts (e.g., because they are more surprising). The questionnaire data showed that nearly all mothers saw themselves as encouraging at least some forms of helping behavior. This provides further support for the hypothesis that encouragement of helping is an integral part of the relationship between infants and their parents (Gralinski & Kopp, 1993).

The proportion of helping behaviors that were encouraged was positively associated with child age. As children become more proficient helpers, family members may see more opportunities for encouraging them to help. Such encouragement may guide and consolidate infants' helping tendencies, especially early in the 2nd year of life. The Poisson regression model fitted to the data predicted that infants who helped more early in the 2nd year would receive proportionally more encouragement than their less helpful peers. In contrast, later in the 2nd year, infants who helped more were predicted to receive proportionally *less* encouragement compared to same-age less frequent helpers. This suggests that by the 2nd year of life, many infants have already established a tendency to help at home even in the absence of encouragement.

The longitudinal data were consistent with the notion that encouragement facilitates infant helping early in the 2nd year. Infants who received proportionally more encouragement to help early in the 2nd year helped more later in the 2nd year, even when controlling for initial helping frequency. Still, the correlational nature of the data does not warrant causal inferences in the absence of experimental corroborations. In addition, while it is methodologically challenging to reliably code all situations in which family members encourage infant helping (even when infants do not help; Eisenberg et al., 1992), doing so would allow future studies to get a more complete picture of encouragement of infant helping.

As in Study 1, Study 2 also showed that social reinforcement was more common for younger than older infants and for requested than nonrequested behavior. Interestingly, the Poisson regression models fitted to the Study 2 data also suggested that social reinforcement is positively associated with infant helping frequency early in the 2nd year and negatively related with infant helping frequency later in the 2nd year, both cross-sectionally and longitudinally. The relation between reinforcement and children's prosocial behavior is therefore more complex than often thought (Eisenberg et al., 1992; Warneken & Tomasello, 2009a). In particular, frequent praising and thanking may be a natural and adaptive way of responding to infant helping when infants are relatively unskilled helpers. In contrast, family members may be less inclined to respond positively when helping is an established part of infants' repertoire.

General Discussion

The Introduction described two theories about infant helping. The natural-tendency view proposes that infants display altruistic tendencies that emerge independently of caregiver facilitation of helping. In contrast, the social-interactional view proposes that infant helping develops through social interactions in which family members guide infants' involvement in family activities (Rogoff, 2003). The contrast between these two views motivated the reported investigations of the presence, encouragement, and social reinforcement of infant helping in everyday life. The findings in turn have implications for the respective theoretical views.

Do Infants Help at Home?

Both of the present studies showed that infants help at home already around the first birthday, consistent with the social-interactional view. An extrapolation from frequencies seen in Study 2 suggests that infants may help around 70 times per week at around 14 months of age. This finding conflicts with the hypothesis put forth within the natural-tendency view that infants lack direct experiences with helping prior to the age at which helping is shown in the laboratory (Warneken & Tomasello, 2006).

Showing that infants help at home does not by itself demonstrate that infant helping depends on active facilitation by caregivers. However, the presence of everyday helping raises the possibility that social experiences are critical to the emergence and development of infant helping, as suggested by the social-interactional view.

Encouragement of Infant Helping

The social-interactional view hypothesized that encouragement of helping would be common,

that it would increase as infants became older, and that it would be positively associated with infant helping early in the 2nd year of life, when infant helping skills are particularly limited. All three predictions were supported by the present studies. Given that infants often show a great deal of joy carrying out caregiver commands (Rheingold, Cook, & Kolowitz, 1987), the high prevalence of encouragement is likely to play a major role in the development of infant helping. However, the relation between encouragement and infant helping is likely bidirectional. Late in the 2nd year, there was a negative relation between encouragement in helping situations and helping frequency, likely because the most frequent helpers had come to help more spontaneously (hence decreasing the *proportion* of helping situations involving encouragement). Ultimately, encouragement may not be needed or used at all for certain helping behaviors that children engage in spontaneously. Further work, both experimental and naturalistic, is needed to understand how infant helping and encouragement of such helping influence each other across early development.

Family members' encouragement of infant helping early in the 2nd year of life runs counter to predictions made by the natural-tendency view (Warneken & Tomasello, 2006, 2009a). While it remains possible that such encouragement does not affect infant helping, the positive associations between encouragement and infant helping early in the 2nd year suggests otherwise. Experimental research is required to settle this matter, but in the absence of such evidence it cannot be assumed that helping behavior early in the 2nd year develops independently of encouragement.

Social Reinforcement of Infant Helping

The social-interactional view proposed that social reinforcement would be more common early than late in the 2nd year, as family members come to expect that infants help. Data from Study 1 and Study 2 supported this prediction, and give one indication that the role of social reinforcement cannot be considered in isolation from the child's age. The presence of social reinforcement of infant helping from early in the 2nd year of life is also inconsistent with predictions from the natural-tendency view (Warneken & Tomasello, 2006).

As predicted by the social-interactional view, the use of social reinforcement was positively associated with infant helping early in the 2nd year of life and negatively associated with infant helping

late in the 2nd year of life. The finding with the older infants are consistent with past findings on the relation between social reinforcement and prosocial behavior in older children (Eisenberg et al., 1992; Fabes, Fultz, Eisenberg, May-Plumlee, & Christopher, 1989; Grusec, 1991). A social-interactionist explanation of this pattern is that thanking and praising are important ways of keeping infants engaged in helping at the earlier ages. When infant helping skills are low, infants may experience limited success with their efforts but still find these interactions enjoyable because of the positive attention received from others. In contrast, as infants become more reliable helpers, family members may come to expect helping on more occasions and be overall less inclined to respond positively (by thanking and praising). In this bidirectional model, social reinforcement may first contribute to an increase in infant helping, which in turn contributes to a decrease in social reinforcement. Further experimental and naturalistic evidence is needed to test this model.

The positive association between social reinforcement and infant helping frequency early in the 2nd year is contrary to natural-tendency predictions. It will be recalled that the natural-tendency theory has proposed either no relation or a negative relation between social reinforcement and infant helping tendencies (Warneken & Tomasello, 2008, 2009a).

While social reinforcement may well have limited or undermining effects on helping when motivation and ability are relatively high (Henderlong & Lepper, 2002; Warneken & Tomasello, 2008), one can also imagine scenarios in which social reinforcement would increase helping. For instance, social reinforcement and even material rewards may increase helping if a child's motivation to help is low, as seen when parents give their children a weekly allowance as long as they help clean the house. (I thank an anonymous reviewer for this suggestion.) In future research, social reinforcement should be considered a possible *independent* variable affecting infant helping tendencies as well as *dependent* variable being affected by infant helping.

Conclusion: Why Do Infants Help?

The present findings are generally consistent with propositions by the social-interactional view, suggesting that helping emerges and develops through supportive interactions with other family members. Yet, the naturalistic data cannot fully explain *why* infants come to help others. The findings are

compatible with several explanations for why infants begin to help, and these explanations are not mutually exclusive (see also Paulus, 2014, for a recent review of theories about early prosocial motivation).

One of the very simplest forms of helping consists of handing someone an object they need. While conceptually distinct from sharing (which involves handing an unrelated object), infants may not always consider sharing and helping by handing as distinct behaviors. Thus, it is possible that helping at first emerges as a form of sharing that tends to elicit particularly positive responses from others (because it happens to be helpful). In support of the idea that helping and sharing may be related, Sommerville et al. (2013) found a positive association between helping and sharing in laboratory assessments early in the 2nd year.

In her seminal paper, Rheingold (1982) suggested that the distinction between true helping and helpful participation may not exist for young children. From the point of view of a young child, helpful activities may be as much about being involved alongside adults as about being altruistic. Indeed, there is evidence that young children do derive enjoyment from doing what is expected or asked of them (Rheingold et al., 1987). Relatedly, infants also enjoy mastering new motoric skills (Mayes & Zigler, 1992; Sroufe, 1995). Insofar as infants derive pleasure from engaging in activities with others, the findings imply that helping situations should be attractive for young infants. The majority of helping situations in Study 2 included the active involvement of another person. According to Rheingold, the joys of participation are important because they lay the foundation for children's subsequent acquisition of "veridical" prosocial behavior.

A related reason for helping in the home could be imitation of others. In the 2nd year of life, infants will often imitate the actions of others and their imitative act is informed by their understanding of the other person's intention (Hay, Murray, Cecire, & Nash, 1985; Meltzoff, 1995). In the present studies, a number of helping situations started when another person started cleaning up and the infant subsequently joined in on the task (see the anecdote described by Dahl et al., 2011, p. 151; Rheingold, 1982). Although imitation is one possible way in which infants could *begin* to participate and help, participation and helping ultimately involve more than mere imitation (Rogoff, Paradise, Arauz, Correa-Chávez, & Angelillo, 2003).

At some point, late in the 2nd year and into the 3rd, young children begin to show more mature motives for helping. One relatively advanced, potential motive for helping is the desire to correct wrong states of affairs (as when objects are damaged, missing, or in the wrong location; Hammond, 2011; Kagan, 1981). Some have also argued, and provided evidence, that children around their second birthday have acquired an intrinsic desire to see others being helped (Hepach, Vaish, & Tomasello, 2012). As infants move into toddlerhood they also have an increasing ability and willingness to follow parental directions (Kochanska, 2002; Kopp, 1982). Older children may also come to see helping as a moral obligation (Kahn, 1992; Nucci & Turiel, 2009). However, there is little evidence that these types of motives exist around the age when helping first develops.

The above motives for helping may well constitute a developmental sequence, from sharing, to participation and imitation, to concerns with correctness, others' welfare, and socio-moral obligations. Still, the joy of participation is likely to persist past infancy and older children may of course help because they seek social or material rewards rather than the satisfaction of a moral obligation (e.g., helping with chores to get a weekly monetary allowance).

To investigate the motivational, motoric, and cognitive components of infant helping, future investigations will benefit from using both naturalistic methods with more and longer observations and experimental methods manipulating key variables that vary in the infants' everyday environment. Given the prevalence of helping even among the youngest infants in the present studies, it will also be valuable to study the emergence of helping in even younger infants. At the other end of the age spectrum, other questions pertain to continuities and discontinuities in the development of helping behavior beyond infancy and into childhood (Eisenberg et al., 2006).

Attention to cultural variability will also be important in future work on the development of helping (Callaghan et al., 2011; Rogoff, 2003). A social-interactional view maintains that encouragement, praise, and participation will have a major impact on the development of infant helping in all communities. Still, variations in parental goals, the children's role in the larger society, and beliefs about childrearing practices will likely have consequences for the infants' everyday experiences with helping. The present studies were sampled from a highly educated population living in the Western United States. Documenting and explaining both variability and similarity in the context and nature of infant helping constitute key tasks for future research.

The present studies showed that in two U.S. samples, infants helped in the home from around the first birthday and their efforts to help were accompanied by encouragement, praise, and other forms of involvement from family members. The findings suggest that helping develops through reciprocal interactions in which children are invited to partake by performing helpful acts. While important questions about developmental processes and cultural variability remain, there are strong reasons for maintaining that the ontogeny of helping cannot be explained without considering the specific everyday social interactions in which it takes place.

References

Aristotle. (2011). *The Nicomachean Ethics* (R. C. Bartlett & S. D. Collings, Trans.). Chicago, IL: University of Chicago Press. (Original work published 350 B.C.)

Bloom, P. (2010, May 3). The moral life of babies. *New York Times Magazine*.

Brooks, R., & Meltzoff, A. N. (2005). The development of gaze following and its relation to language. *Developmental Science*, 8, 535–543. doi:10.1111/j.1467-7687.2005.00445.x

Brownell, C. A. (2013). Early development of prosocial behavior: Current perspectives. *Infancy*, 18, 1–9. doi:10.1111/infa.12004

Brownell, C. A., Svetlova, M., Anderson, R., Nichols, S. R., & Drummond, J. (2013). Socialization of early prosocial behavior: Parents' talk about emotions is associated with sharing and helping in toddlers. *Infancy*, 18, 91–119. doi:10.1111/j.1532-7078.2012.00125.x

Callaghan, T., Moll, H., Rakoczy, H., Warneken, F., Liszkowski, U., Behne, T., & Tomasello, M. (2011). Early social cognition in three cultural contexts. *Monographs of the Society for Research in Child Development*, 76 (2, Serial No. 299). doi:10.1111/j.1540-5834.2011.00603.x

Campos, J. J., Anderson, D. I., Barbu-Roth, M. A., Hubbard, E. M., Hertenstein, M. J., & Witherington, D. (2000). Travel broadens the mind. *Infancy*, 1, 149–219. doi:10.1207/S15327078IN0102_1

Carpendale, J. I. M., Hammond, S. I., & Atwood, S. (2013). A relational developmental systems approach to moral development. *Advances in Child Development and Behavior*, 45, 125–153. doi:10.1016/B978-0-12-397946-9.00006-3

Carpenter, M., Nagell, K., & Tomasello, M. (1998). Social cognition, joint attention, and communicative competence from 9 to 15 months of age. *Monographs of the Society for Research in Child Development*, 63(Serial No. 255). doi:10.2307/1166214

Dahl, A., Campos, J. J., & Witherington, D. C. (2011). Emotional action and communication in early moral development. *Emotion Review*, 3, 147–157. doi:10.1177/1754073910387948

Dunfield, K., Kuhlmeier, V. A., O'Connell, L., & Kelley, E. (2011). Examining the diversity of prosocial behavior: Helping, sharing, and comforting in infancy. *Infancy*, 16, 227–247. doi:10.1111/j.1532-7078.2010.00041.x

Dunn, J., & Munn, P. (1986). Siblings and the development of prosocial behaviour. *International Journal of Behavioral Development*, 9, 265–284.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology* (pp. 646–718). Hoboken, NJ: Wiley.

Eisenberg, N., Wolchik, S. A., Goldberg, L., & Engel, I. (1992). Parental values, reinforcement, and young children's prosocial behavior: A longitudinal study. *Journal of Genetic Psychology*, 153, 19–36.

Fabes, R. A., Fultz, J., Eisenberg, N., May-Plumlee, T., & Christopher, F. S. (1989). Effects of rewards on children's prosocial motivation: A socialization study. *Developmental Psychology*, 25, 509–515. doi:10.1037/0012-1649.25.4.509

Gottlieb, G. (1991). Experiential canalization of behavioral development: Theory. *Developmental Psychology*, 27, 4–13.

Gralinski, J. H., & Kopp, C. B. (1993). Everyday rules for behavior: Mothers' requests to young children. *Developmental Psychology*, 29, 573–584. doi:10.1037/0012-1649.29.3.573

Grusec, J. E. (1991). Socializing concern for others in the home. *Developmental Psychology*, 27, 338–342.

Hammond, S. I. (2011, June). *Parental scaffolding and children's everyday helping*. Unpublished doctoral dissertation, Simon Fraser University, Burnaby, Canada.

Hay, D. F., Murray, P., Cecire, S., & Nash, A. (1985). Social learning of social behavior in early life. *Child Development*, 56, 43–57. doi:10.2307/1130172

Henderlong, J., & Lepper, M. R. (2002). The effects of praise on children's intrinsic motivation: A review and synthesis. *Psychological Bulletin*, 128, 774–795. doi:10.1037//0033-2909.128.5.774

Hepach, R., Vaish, A., & Tomasello, M. (2012). Young children are intrinsically motivated to see others helped. *Psychological Science*, 23, 967–972. doi:10.1177/0956797612440571

Hox, J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). New York, NY: Routledge.

Johnston, T. D. (2010). Developmental systems theory. In M. S. Blumberg, J. H. Freeman, & S. R. Robinson (Eds.), *Oxford handbook of developmental behavioral neuroscience* (pp. 12–29). New York, NY: Oxford University Press.

Kagan, J. (1981). *The second year: The emergence of self-awareness*. Cambridge, MA: Harvard University Press.

Kahn, P. H. (1992). Children's obligatory and discretionary moral judgments. *Child Development*, 63, 416–430. doi:10.2307/1131487

Karasik, L. B., Tamis-LeMonda, C. S., & Adolph, K. E. (2011). Transition from crawling to walking and infants' actions with objects and people: Crawling, walking, and objects. *Child Development*, 82, 1199–1209. doi:10.1111/j.1467-8624.2011.01595.x

Kochanska, G. (2002). Committed compliance, moral self, and internalization: A mediational model. *Developmental Psychology*, *38*, 339–351. doi:10.1037/0012-1649.38.3.339

Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective. *Developmental Psychology*, *18*, 199–214. doi:10.1037/0012-1649.18.2.199

Mayes, L. C., & Zigler, E. (1992). An observational study of the affective concomitants of mastery in infants. *Journal of Child Psychology and Psychiatry*, *33*, 659–667. doi:10.1111/j.1469-7610.1992.tb00903.x

Meltzoff, A. N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology*, *31*, 838–850. doi:10.1037/0012-1649.31.5.838

Meyer, W.-U., Bachmann, M., Biermann, U., Hempelmann, M., Ploger, F.-O., & Spiller, H. (1979). The informational value of evaluative behavior: Influences of praise and blame on perceptions of ability. *Journal of Educational Psychology*, *71*, 259–268. doi:10.1037/0022-0663.71.2.259

Nowak, M. A., & Sigmund, K. (2005). Evolution of indirect reciprocity. *Nature*, *437*, 1291–1298. doi:10.1038/nature04131

Nucci, L. P., & Turiel, E. (2009). Capturing the complexity of moral development and education. *Mind, Brain, and Education*, *3*, 151–159. doi:10.1111/j.1751-228X.2009.01065.x

Oliner, S. P., & Oliner, P. M. (1988). *The altruistic personality: Rescuers of Jews in Nazi Europe*. New York, NY: Free Press.

Oyama, S., Griffiths, P. E., & Gray, R. D. (Eds.). (2003). *Cycles of contingency: Developmental systems and evolution*. Cambridge, MA: MIT Press.

Paulus, M. (2014). The emergence of prosocial behavior: Why do infants and toddlers help, comfort, and share? *Child Development Perspectives*, *8*(2), 77–81. doi:10.1111/cdep.12066

Power, T. G., & Parke, R. D. (1986). Patterns of early socialization: Mother-and father-infant interaction in the home. *International Journal of Behavioral Development*, *9*, 331–341. doi:10.1177/016502548600900305

Rheingold, H. L. (1982). Little children's participation in the work of adults, a nascent prosocial behavior. *Child Development*, *53*, 114–125. doi:10.2307/1129643

Rheingold, H. L., Cook, K. V., & Kolowitz, V. (1987). Commands activate the behavior and pleasure of 2-year-old children. *Developmental Psychology*, *23*, 146–151. doi:10.1037/0012-1649.23.1.146

Rogoff, B. (2003). *The cultural nature of human development*. Oxford, UK: Oxford University Press.

Rogoff, B., Paradise, R., Arauz, R. M., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology*, *54*, 175–203. doi:10.1146/annurev.psych.54.101601.145118

Skinner, B. F. (1953). *Science and human behavior*. Oxford, UK: Macmillan.

Sommerville, J. A., Schmidt, M. F. H., Yun, J., & Burns, M. (2013). The development of fairness expectations and prosocial behavior in the second year of life: Fairness expectations and prosocial behavior. *Infancy*, *18*, 40–66. doi:10.1111/j.1532-7078.2012.00129.x

Spencer, J. P., Blumberg, M. S., McMurray, B., Robinson, S. R., Samuelson, L. K., & Tomblin, J. B. (2009). Short arms and talking eggs: Why we should no longer abide the nativist–empiricist debate. *Child Development Perspectives*, *3*, 79–87. doi:10.1111/j.1750-8606.2009.00081.x

Sroufe, L. A. (1995). *Emotional development: The organization of emotional life in the early years*. Cambridge, UK: Cambridge University Press.

Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development*, *81*, 1814–1827. doi:10.1111/j.1467-8624.2010.01512.x

Thompson, R. A., & Newton, E. K. (2013). Baby altruists? Examining the complexity of prosocial motivation in young children. *Infancy*, *18*, 120–133. doi:10.1111/j.1532-7078.2012.00139.x

Tomasello, M., & Vaish, A. (2013). Origins of human cooperation and morality. *Annual Review of Psychology*, *64*, 231–255. doi:10.1146/annurev-psych-113011-143812

Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, *46*, 35–57.

Tzetzis, G., Votsis, E., & Kourtessis, T. (2008). The effect of different corrective feedback methods on the outcome and self confidence of young athletes. *Journal of Sports Science and Medicine*, *7*, 371–378.

Valentine, C. W. (1942). *The psychology of early childhood: A study of mental development in the first years of life*. London, UK: Methuen.

Warneken, F. (2013). Young children proactively remedy unnoticed accidents. *Cognition*, *126*, 101–108. doi:10.1016/j.cognition.2012.09.011

Warneken, F., & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science*, *311*, 1301–1303. doi:10.1126/science.1121448

Warneken, F., & Tomasello, M. (2007). Helping and cooperation at 14 months of age. *Infancy*, *11*, 271–294. doi:10.1111/j.1532-7078.2007.tb00227.x

Warneken, F., & Tomasello, M. (2008). Extrinsic rewards undermine altruistic tendencies in 20-month-olds. *Developmental Psychology*, *44*, 1785–1788. doi:10.1037/a0013860

Warneken, F., & Tomasello, M. (2009a). Varieties of altruism in children and chimpanzees. *Trends in Cognitive Sciences*, *13*, 397–402. doi:10.1016/j.tics.2009.06.008

Warneken, F., & Tomasello, M. (2009b). The roots of human altruism. *British Journal of Psychology*, *100*, 455–471. doi:10.1348/000712608X379061

Warneken, F., & Tomasello, M. (2013). Parental presence and encouragement do not influence helping in young children: Parental influence on helping in young children. *Infancy*, *18*, 345–368. doi:10.1111/j.1532-7078.2012.00120.x