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Adult criticism and vigilance diminish free riding by children in a social dilemma



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ABSTRACT

In cooperative situations, individual interests can be in conflict with those of the group, creating a social dilemma in which one must choose whether to cooperate or not. Sensitivity to social stimuli is an important factor influencing cooperative behavior in such dilemmas. The current study investigated the influence of verbal feedback and vigilance by adults on children's donating behavior in a public goods game. The participants were 739 public school children, between 5 and 12 years of age, who were divided into 34 groups. Each group was assigned to one of four experimental conditions: control, positive feedback (praise), negative feedback (criticism), or vigilance. Participants then played eight rounds of the game. The children's donations were greater in the feedback and vigilance conditions, but the effects were mediated by age and rounds. The results are most likely related to concerns about reputation, which tend to become stronger with age. Older children are better at self-presentation and understanding social norms. Thus, compared with younger children, they seemed more concerned with appearing to be generous, but only when they could get credit for it. Nevertheless, children's donations still decreased across the rounds. Although adult vigilance and

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feedback influence children's cooperation among peers, other mechanisms are necessary to stabilize their behavior over time.

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Introduction

Cooperation can be defined as behaviors that may impose some costs on the individual who performs them and confer benefits on others; in this sense, it is synonymous with altruism (Richerson, Boyd, & Henrich, 2003). When cooperative behavior is reciprocal, it may lead to mutual benefits between interacting individuals. However, conflicts of interest (i.e., social dilemmas) are common (Kollock, 1998), and in some cases an individual must choose between omission or cheating (obtaining short-term gains at the expense of another individual or group) and cooperation (potentially obtaining long-term gains with the risk of non-reciprocation). Understanding the conditions that favor cooperation is important because it may lead to the development of strategies to enhance cooperative behaviors. Research on human development, in this context, is important for understanding how children make decisions in social dilemmas and how these decisions differ across age groups.

From an early age, children cooperate spontaneously with adults and peers (Brownell, Ramani, & Zerwas, 2006; Warneken & Tomasello, 2007) and identify social norms as well as norm violations (Rakoczy & Schmidt, 2013). From 3 to 8 years of age, they become increasingly egalitarian, sharing approximately equal amounts of resources or rejecting unequal ones, particularly from the age of 5 (Benenson, Pascoe, & Radmore, 2007; Fehr, Bernhard, & Rockenbach, 2008; Gummerum, Hanoch, Keller, Parsons, & Hummel, 2010; Gummerum, Keller, Takezawa, & Mata, 2008; Harbaugh & Krause, 2000; Leimgruber, Shaw, Santos, & Olson, 2012). It is also around the age of 5 that children begin to show concern with their own reputation, being more generous when their decision is not anonymous, that is, when they are observed by an experimenter or an in-group member (Engelmann, Herrmann, & Tomasello, 2016; Engelmann, Over, Herrmann, & Tomasello, 2013; Fujii, Takagishi, Koizumi, & Okada, 2015) or when the recipients of their donations are fully aware of their decisions (Leimgruber et al., 2012). This concern is also observed in older children; for example, 10-year-olds are more selfish in a private situation (i.e., when they can cheat using a private sheet report) than in a public one (i.e., when they can cheat only in the view of all the other children), mainly when they are in large groups (Houser, Montinari, & Piovesan, 2012). Therefore, children's early predisposition to cooperate is influenced by the behavior of others, particularly from the age of 5 and in public situations.

Several studies point to a relevant shift in children's cooperative behavior during middle childhood (Blake & McAuliffe, 2011; Blake et al., 2015; House et al., 2013; Smith, Blake, & Harris, 2013). From an early age (around 3 years), children show comprehension of rules of equal sharing and increasingly reject unfair divisions of resources when they are at a disadvantage. However, when sharing involves a cost, children younger than 8 years fail to share equally (Smith et al., 2013). It is also around this period that children become averse to unequal sharing when they are at an advantage, that is, when they get the greater share in a division of resources (Blake & McAuliffe, 2011). This shift in costly cooperative behavior coincides with children showing a greater tendency to engage in self-presentation (Blake & McAuliffe, 2011) and conform to local social norms (House et al., 2013). Blake and colleagues (2015) suggested that culture may be particularly relevant in the shaping of this type of behavior because it goes against self-interest. Therefore, we investigated whether there would be a significant developmental shift around this age regarding children's behavior under adult influence in a collective dilemma.

School-age children are susceptible to the influence of adults through mechanisms such as socialization practices, modeling, preaching, and the use of rewards and sanctions (reviewed in Eisenberg & Fabes, 1998). More specifically, adult vigilance and moral exhortations have been shown to promote, at least in the short term, an increase in cooperation (Fan, 2000; Israel & Brown, 1979; Poulos & Liebert, 1972; Rushton & Teachman, 1978; Zarbatany, Hartmann, & Gelfand, 1985). For instance, children between 8 and 11 years of age increased their subsequent donations in an experimental task

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