Early Childhood Research Quarterly 41 (2017) 126–135

Contents lists available at ScienceDirect

Early Childhood Research Quarterly

journal homepage: www.elsevier.com/locate/ecresq

The role of executive functioning and theory of mind in children's lies for another and for themselves

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ARTICLE INFO

Keywords:
Children lie-telling
Deception
Executive functioning
Theory of mind

ABSTRACT

In the current study, children's abilities to lie both for themselves and for another were examined in relation to executive functioning skills and theory of mind understanding. A total of 160 preschoolers (ages 4–5 years) participated. Their willingness to tell self-motivated lies and other-motivated lies were measured using two different experimental paradigms. Children's lie-telling was compared to their performance on measures of executive functioning and theory of mind. Results revealed that the majority of children (69%) told lies for themselves, while less than half of children (45%) told lies for others. Although there was a modest degree of consistency in children's lie-telling behavior for the two lies, different executive functioning measures and theory of mind abilities were found to support self and other related lie-telling. Specifically, higher performance on tasks of inhibitory control (Whispers task) and first-order ToM were associated with self-oriented lies. Yet, other motivated lies were related to performance on tasks of inhibitory control (Stroop task) and cognitive flexibility. Further, higher cognitive flexibility and ToM scores were associated with an overall greater willingness to lie in both contexts. Taken together, the findings suggest that children's lie-telling abilities are multi-faceted in nature and vary as a function of motivational context and cognitive skill development.

1. Introduction

Lying is an interesting phenomenon because despite our universal moral proscriptions against lying, which is seen as a reprehensible and inappropriate behavior (Bok, 1978; Talwar & Crossman, 2011), adults tell lies on a daily basis and use it as a social strategy to manage interpersonal relationships (DePaulo & Kashy, 1998; DePaulo, Kashy, Kirkendol, Wye, & Epstein, 1996). Thus, there is a duality and a paradox inherent in the expression of lie-telling behavior. It is a behavior condemned, yet frequently used. This reflects a more general phenomenon that our moral thinking is not always reflected in our moral behavior (Ariely, 2013; Batson & Thompson, 2001; Talwar et al., 2002). Implications of this duality for children's moral development – that is their lie-telling – are explored in the current study.

1.1. Developmental significance of deception duality

One consequence of the duality of deception is that telling lies can be either constructive or destructive to our social relations (Backbier, Hoogstraten, & Terwogt-Kouwenhoven, 1997; DePaulo & Kashy, 1998). Some types of lies, told ostensibly and primarily for other-oriented motivations (e.g., to be polite, spare another's feelings, or foster positive social relationships; DePaulo & Kashy, 1998; Sweetser, 1987), can be effective in achieving interpersonal goals through prosocial means (i.e., prosocial lies). In contrast, more self-serving lies, told primarily for self-oriented motivations (e.g., lying to get out of trouble, for personal gain), are perceived to be antisocial in nature and can be destructive to relationships and society at large (Bok, 1978). Indeed, frequent self-serving lying is related to aggression, delinquency and conduct problems (Gervais, Tremblay, Desmarais-Gervais, & Vitaro, 2000; Stouthamer-Loeber, 1986). We evaluate such lies based on the social motivation they serve (Lindskold & Han, 1986). Self-serving lies are perceived by adults and children as generally being negative and unacceptable (Bussey, 1999; Keltikangas-Jaervinen & Lindeman, 1997), while other-oriented lies are interpreted as more socially acceptable because they often serve prosocial interpersonal functions and are well-intentioned (Backbier, Hoogstraten, & Terwogt-Kouwenhoven, 1997; Bussey, 1999; DePaulo et al., 1996; Walper & Valtin, 1992).

The emergence and development of children's lie-telling ability appears to be related to their cognitive skills, particularly executive functioning and theory of mind understanding, which have both been linked to the emergence and complexity of children's lies (Evans & Lee,

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http://dx.doi.org/10.1016/j.ecresq.2017.07.003
Received 12 June 2016; Received in revised form 29 May 2017; Accepted 10 July 2017

2013; Talwar, Gordon et al., 2007; Talwar & Lee, 2002a). Thus, there is also duality to the development of lying. On one hand, it is related to the normal development of emerging cognitive abilities and, in some cases, may serve positive social interpersonal functions. On the other hand, it is an undesirable behavior that, if employed too often, can lead to negative developmental or social outcomes. Yet, little is known about how lie-telling for self-oriented versus other-oriented motivations develops concurrently in children.

Furthermore, while there is considerable evidence that children's lie-telling is closely related to their developing cognitive abilities, this research is largely based upon examination of children's self-oriented lies to conceal transgressions. Less is known about the mechanisms that might underlie lies told with varying motivations, and it is not known if similar or different patterns of cognitive abilities predict lies that ostensibly serve different goals. Yet, children's truth- and lie-telling behaviors across motivational contexts can shed light on how children reconcile conflicting self-serving motivations, moral imperatives and social conventions (Lee, 2013; Talwar & Crossman, 2011). Lies that are self-oriented require the child to choose between their desires to protect or enhance their own interests and the moral principle of honesty. Lies that are other-oriented require the child choose between their desire (and the social convention) to help another and the moral principle of honesty. They may also weigh the personal costs if caught lying when deciding to lie or tell the truth (Popliger, Talwar, & Crossman, 2011). Thus, children's lie-telling for different motivations provides a window into their social and moral development, helping to clarify how they learn the social skills necessary to communicate with others and manage interpersonal relationships. To do so, the current study examines concurrently how lies for self and others develop and their relation to children's evolving cognitive abilities.

1.2. Self-motivated lies

The majority of research to date has focused on self-serving lie-telling because it is often the first observed and reported by parents (Newton, Reddy, & Bull, 2000; Wilson, Smith, & Ross, 2003). In addition, self-motivated lie-telling tends to be perceived as a problematic behavior in children, particularly when such lies are told at high rates (Stouthamer-Loeber, 1986).

Experimental studies of self-serving lies have typically examined children's lie-telling to conceal a transgression using a temptation resistance paradigm (TRP; e.g., Lewis et al., 1989; Talwar & Lee, 2002b). During the TRP, children are given the opportunity to commit a transgression, such as peeking at a toy when a research assistant leaves the testing room. Prior to leaving, the RA instructs children not to peek at the toy. When the RA returns and asks if they peeked, children can choose to tell a self-serving lie (i.e., deny peeking) or tell the truth (i.e., say they didn't peek, or confess to peeking). Because approximately 80–90% of children peek at the toy when left alone (Polak & Harris, 1999; Talwar & Lee, 2002b), the paradigm provides most children with a naturalistic opportunity for spontaneous lie-telling. In some instances, children are asked to identify the surprise object, probing their ability to maintain their initial denial with a more elaborate lie. This ability to maintain an initial lie during follow-up questioning has been termed semantic leakage control (Talwar & Lee, 2002b). If a child falsely denies peeking at a toy, to skillfully avoid detection they must give plausible answers to follow-up questions in a way that does not violate the false belief they have created in the listener (Talwar, Gordon et al., 2007).

Studies using the TRP have found that the majority of children 4 years of age and older will lie to conceal their transgressions but are poor at semantic leakage control (Evans, Xu, & Lee, 2011; Talwar & Lee, 2002b, 2008). Yet, at around 6–8 years of age, children become better at maintaining their lies, and their semantic leakage control ability increases with age (Evans & Lee, 2013; Talwar, Gordon et al., 2007).

1.3. Other-motivated lies

Children can also tell lies for others to keep another's secret, to be polite, to help, or to prevent harm to another (Talwar, Lee, Bala, & Lindsay, 2004; Wilson & Pipe, 1989). For instance, in one study (Pipe & Wilson, 1994), six- and 10-year-old participants saw a magician spill ink on a pair of gloves and were asked to keep it a secret because the magician could get in trouble. When later asked about the event, many children denied knowing about the accident, although six-year-olds (40%) were more likely than 10-year-olds (16%) to do so. Lies can also be told to maintain positive social relations with others and prevent harm to another's feelings. For instance, Talwar, Murphy, and Lee (2007) examined whether 3–11-year-olds would tell lies to be polite about liking a disappointing gift (i.e., a bar of soap) to the gift-giver or tell the blunt truth and confess their disappointment. Overall, the majority of children told the gift-giver that they liked the gift, but confessed to their parents that they did not like it. Older children (9–11 years) were more likely (84%) to tell the polite lie than the preschoolers (3–5 years, 72%).

Although the lie examples above are thought to be motivated *primarily* for the benefit of another, such lies can be told for a mixture of other-oriented (e.g., politeness, protecting the other's interests) and self-oriented motives (e.g., avoid negative consequences of honesty, pleasing the other). The relative salience of these motives seems to develop with age. For instance, Pipe and Wilson (1994) found that when children were directly implicated in the magician's accident, children were more likely to spontaneously report the accident than children who were only observers. Similarly, Talwar et al. (2004) reported that children were more likely to conceal their parent's transgression when their self-interests were protected and they could not be implicated in the transgression. In contrast, Popliger et al. (2011) examined children's lie-telling upon receipt of an undesirable gift, when there either was or was not a personal cost associated with the lie. They found that while only 20% of preschool children told the polite lie when there was a personal cost (i.e., loss of a desirable gift), 40% of early elementary school children and 65% of older elementary school children told the lie to spare the gift-giver's feelings, despite the personal cost. Thus, younger children are willing to lie for others, but only when the lies do not conflict with their self-interests.

Telling prosocial lies reflects the tension between the satisfaction of fundamental conventions of communication (e.g., to be truthful) and considerations of protecting another (Brown & Levinson, 1987; Lee, 2013). Research on young children's willingness to tell lies for others provides a unique opportunity for understanding how children navigate the complexities of social interactions and understanding of reciprocity within interpersonal communications, enhancing our understanding of children's early cognitive and social development, as well as the development of children's lie-telling behavior. Yet, little research has been conducted on the underlying abilities that support children's lie-telling for another (Gordon, Lyon, & Lee, 2014), in comparison to self-serving lie-telling.

1.4. Lie-telling across motivational contexts

While children's lie-telling appears early in development, it is not clear whether all lies follow the same developmental trajectory. According to the Doctrine of Specificity, children's deceptive behavior may change according to the context (Hartshorne & May, 1928); that is, they may tell a lie in one situation, but then tell the truth in another situation. Thus, their decisions to lie or tell the truth may not always be consistent. This implies that children's lie-telling tendencies should be compared across more than one experimental paradigm. Talwar and Crossman (2011) hypothesized that self-serving lies (i.e., antisocial lies) would appear earlier than other-serving lies (i.e., prosocial lies). This prediction was based on their review of prior research on the development of lie-telling behavior, on the development of seemingly