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Situational changes in self-awareness influence 3- and 4-year-olds' self-regulation

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ABSTRACT

In adults, heightened self-awareness leads to adherence to socially valued norms, whereas lowered self-awareness is associated with antinormative behavior. Levels of self-awareness are influenced by environmental cues such as mirrors. Do situational changes in self-awareness also have an impact on preschoolers' self-regulation? Adherence to a socially valued standard was observed under different conditions of self-focus. In Experiment 1 the standard was prescribed ("don't look in the box"), and in Experiment 2 children had the opportunity to be altruistic. Heightened self-focus was induced using a large mirror. In a neutral condition, the nonreflective side of the mirror was shown. To lower self-focus, children wore a disguise. Preschoolers peeked less and showed more altruism when the mirror image was present. As found for adults, it appears that self-awareness leads 3- and 4-year-olds to adhere to salient social standards. These results suggest that self-focus has a socially adaptive regulatory function from an early age.

Introduction

Self-recognition is considered a key milestone of human development; typically emerging at around 2 years of age (Courage, Edison, & Howe, 2004; Lewis & Brooks-Gunn, 1979). A litmus test of this development is the mirror mark test of self-recognition (Amsterdam, 1972; Gallup, 1970). In this test, infants are surreptitiously marked (classically with rouge) in a visually inaccessible area. To pass, they must take self-directed action when a mirror is introduced, reaching for or trying to

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remove the mark. This simple behavior indicates that the infants have inferred a relationship between the mirror image and themselves. In other words, they have become conscious of the self as an object. This development might be considered as fundamental to human social cognition and interaction. Without it, there would be no concept of "me" as distinct from "you", no self-evaluative thought or emotion, no theory of mind, and no moral connection between us. Few other developmental events have such weighty consequences. Yet it is only during the past 40 years or so that measures of the onset of objective self-consciousness have been elaborated.

Moreover, the first empirical test of objective self-consciousness, the 1970s mirror mark test, is still the most commonly used. In humans, passing in the mark test has been correlated with self-reference in language (Courage et al., 2004; Lewis & Ramsay, 2004), emotion (Kochanska, Gross, Lin, & Nichols, 2002; Lewis, Sullivan, Stanger, & Weiss, 1989), problem solving (Moore, Mealiea, Garon, & Povinelli, 2007), and social interaction (Bischof-Kohler, 1991; Johnson, 1982; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). These findings confirm that the measure is indicative of a wider sense of self-awareness. However, the development of other empirical tests of objective self-consciousness has stalled. This is unfortunate because the dependent variable of the mark test (mirror-guided reaching for a mark on the face) offers only a limited expression of self-awareness. Although physical self-monitoring conceivably has some evolutionary value, the primary consequence of explicit self-awareness is not grooming. Rather, as noted, becoming conscious of the self as an object results in a profound transformation of one's cognitive and social landscape. Regrettably, the mirror mark test can be used to express such consequences only indirectly through association with other sociocognitive developments.

Duval and Wicklund's (1972) theory of objective self-awareness was one of the earliest theories to formalize the functional nature of explicit self-consciousness. According to this theory, any stimulus that reminds one of the self as an object (e.g., mirrors, audiences, cameras) will induce self-focused attention, which in turn prompts self-evaluation. Those judging themselves to fall short of ideal standards will either adjust their behavior to conform or withdraw from the evaluation-inducing situation. In this way, cognitive and affective equilibrium regarding the self is maintained. Moreover, because our ideal standards are socially learned, any resulting self-regulation is likely to be socially adaptive. This theory, offering testable predictions of the complex relationship among self-recognition, cognition, affect, and behavior, was readily supported in adults (for reviews, see Fejfar & Hoyle, 2000; Gibbons, 1990; Silvia & Duval, 2001). For example, Diener and Wallbom (1976) found that whereas 71% of undergraduates cheated on an anagram task when seated in a room without a mirror, only 7% did so when the mirror was present. Yet despite the success of objective self-awareness theory and considerable interest in the development of self-consciousness and its sociobehavioral correlates, only a handful of studies have considered the ontogeny of Duval and Wicklund's (1972) "mirror effects" (Beaman, Klentz, Diener, & Svanum, 1979; Froming, Allen, & Jensen, 1985; Froming, Nasby, & McManus, 1998).

Developmental research suggests that children have established the prerequisites for functional self-awareness as described by Duval and Wicklund's (1972) theory by 3 years of age. Children of this age can become "self-focused" as demonstrated by mirror self-recognition. Moreover, they experience positive and negative affect depending on their perceived adherence to ideal standards, suggesting that they can self-evaluate (Heckhausen, 1984; Lewis, Alessandri, & Sullivan, 1992; Stipek, Recchia, & McClintic, 1992). However, only one study has tested Duval and Wicklund's predictions on preschool children. Beaman and colleagues (1979) recruited homeowners at Halloween to secretly observe the behavior of groups of "trick-or-treaters" who were left alone with a bowl of sweets with the instruction to take only one sweet. The trick-or-treaters were between 1 and 13 years of age. Half of the children were left in a room with a large prominent mirror, and the remainder were left in a room without a mirror. Beaman and colleagues found that children in the mirror condition were significantly more likely to follow their hosts' instruction than children in the no-mirror condition (9% broke the rule in the mirror condition vs. 38% when the mirror was absent). As for adults, then, the mirror seemed to encourage children to adhere to ideal standards of behavior.

The magnitude of Beaman and colleagues' (1979) mirror effect increased with age, remaining significant for all but the youngest age group, 1- to 4-year-olds. However, this null result for preschoolers is difficult to interpret for a number of reasons. First, Beaman and colleagues' ecologically