

unn, 1979), by chimpanzees at 2½ (Custance & Bard, *SAAH12*; *AAH3*), and by an orangutan at 3½ years (Miles, *SAAH16*). Koko while studying her reflection. She would also comb her hair, make adorn herself with hats, wigs, and makeup in front of the mirror. In contrast to Koko, the gorilla Michael has had only limited and exposure to mirrors, we have also documented him exhibiting such on videotape.

Koko was 19 years old, a variant of the mirror mark test used by is administered to her to provide data strictly comparable to self-studies done with other great apes. For Koko, this experiment was according to a procedure devised by Anderson (1983) so that not have to be anesthetized.

or (0.6 m × 0.76 m) mounted on a plywood panel of the same size Koko had direct access to this mobile mirror. As a control, to the actual marking procedure would be unobtrusive, Koko's brow with a damp washcloth at the beginning of each of three preliminary sessions. For the marking session, her face was marked with a mixture white clown paint that approximated the color of the washcloth. clown paint (containing stearic acid, P.P.G. 76, water, triethanol-d color) was chosen because it is nontoxic, unscented, and water

exposure to the test mirror was restricted to six 10-min videotaped recorded during 4 days (July 1-3 and 6, 1990). The mirror was placed on and propped in a upright position on the floor, providing a full- of her body when she was sitting on the floor. Koko was able to move the mirror during all sessions. She became adapted to the during the first session. At the beginning of the second, third, and ions, Koko's brow, the target area, was wiped with a clean, damp hat was approximately body temperature. At the beginning of the t, her brow was wiped with an identical damp washcloth that had d in the clown paint. Three days later (July 6, 1990), Koko was h, control session in which her brow was wiped with a clean, damp Two experimenters, one who wiped Koko's forehead and one aped the sessions, were present in the room with Koko during all of the test. Both experimenters had worked with Koko since she old, and had similar direct contact sessions with her every day. ns were frequently videotaped, and Koko was quite familiar with

otape of the mirror sessions was analyzed by two independent They scored the number of times during each session that Koko : target area (and had 97.9% agreement). During the marking Koko turned her head quickly, with the result that the actual a included not only the brow, but also a spot over the right ear of the head. For scoring purposes, this complete area that was

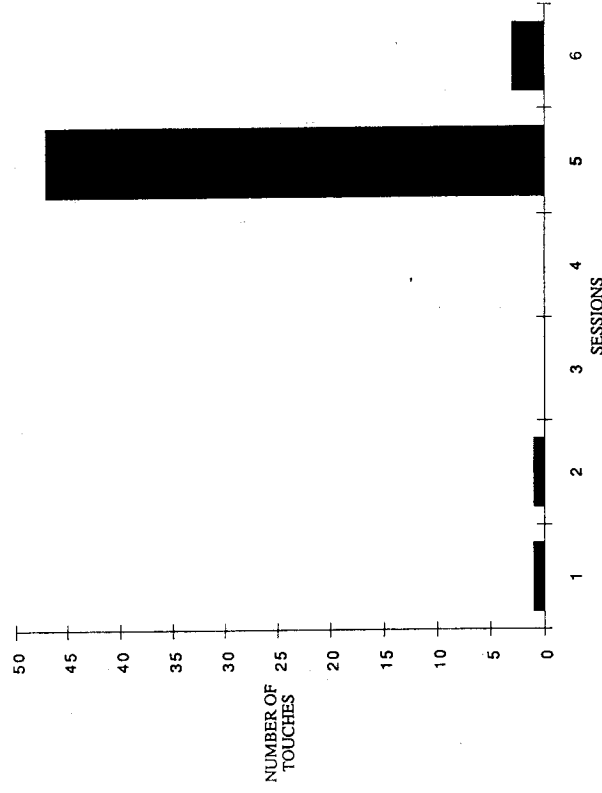


Figure 17.1. Mirror test target touches.

marked in the fifth session was considered the target area for all unmarked sessions as well. For each session the observers also scored the number of seconds Koko spent viewing her reflection (98.4% agreement) and the number of her self-directed mirror behaviors (95.0% agreement). Self-directed mirror behaviors are defined as "actions directed toward one's own body" (Brooks-Gunn & Lewis, 1982, pp. 353-354).

In the four sessions in which she was unmarked, Koko touched the target area an average of once per session, but in the fifth session, in which she was marked, she touched it 47 times (Figure 17.1). The time Koko spent viewing her reflection in each session adds support to the interpretation that she recognized that the paint spot she saw in the mirror was actually on her own body. She spent an average of 48% of the time viewing her reflection in the sessions in which she was unmarked. During the fifth (marking) session Koko's mirror viewing time increased to 88% of the session (Figure 17.2). Although this increase in viewing time during the marking session is characteristic of chimpanzees tested for self-recognition, previously no gorillas had shown an increase in attention to the mirror when marked (Gallup, 1987).

Her self-directed behavior in front of the mirror provides further support for self-recognition by Koko. Gallup (1987, p. 8) has argued that "the mark test serves merely as a means of validating impressions that arise out of seeing animals use mirrors spontaneously for purposes of self-inspection." That Koko exhibited any self-directed behavior at all is in itself significant,

