Mirrors As Enrichment for the Captive Chimpanzee (Pan troglodytes)

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Mirrors have been studied extensively for mirror image stimulation (MIS) studies addressing the question of self-recognition for primates. Some MIS studies report no evidence of self recognition according to the Gallup marking paradigm (Gallup, 1970), but most do report that the chimpanzees were highly responsive to the mirrors. No quantitative studies have focused on the properties of a mirror and its use as a social enrichment tool. We did an observation study, which included 239 12-minute sessions over a four month period to test the enrichment properties of a mirror. The chimpanzee subjects were housed in conventional indoor/outdoor runs that were separated by a solid wall on one side, not allowing visual access to or physical contact with neighboring conspecifics on that side.

We collected data in three conditions. The first condition had no mirror present. In the second condition, we placed a large 24-inch convex mirror in between the subject's enclosure and the usually unseen neighbor's enclosure. Placing the mirror in this position allowed the subjects to see themselves and their neighbors. In the third condition, the subjects could only see themselves and an empty neighboring enclosure. This last condition was to serve as a control condition to be able to measure social behavior changes when the mirror gave visual access to neighbors.

The behavioral categories analyzed were: Sexual, Agonism, Self-directed, Play, Facial expression, Abnormal, Social groom, Stare, and Other. When the mirror gave subjects visual. access to neighboring animals, a MANOVA revealed that sexual and agonistic behaviors increased, whereas play behavior decreased compared with when no mirror was present. When the mirror gave subjects visual access to a neighbor's empty run, a MANOVA revealed that facial expressions and sexual behavior increased compared with when no mirror was present. When the mirror gave subjects visual access to a neighbor's empty run, a MANOVA revealed that agonism decreased compared with when a mirror gave subjects visual access to neighboring animals. When subjects had visual access to neighbors, they used the mirror 30% of the total data points; while they had visual access to the neighbor's empty run, they used the mirror 24% of the total data points. Dependent t-tests on mirror use over repeated exposures revealed that juveniles' use of the mirror increased over time while adults' use remained stable. An ANOVA conducted on the variable representing subjects' mirror use to measure the effects of gender and age revealed that adult males used the mirror less than did the other subjects.

Our results indicate that a mirror has potential as an enrichment device to increase social behavior for chimpanzees living in a limited social environment. All subjects used the mirror at some point during the study. When they were able to view themselves and otherwise unseen conspecifics, they used the mirror during more of the time than when the mirror gave them visual access to an empty cage. This indicates that a mirror may be a more effective enrichment device when it expands the sometimes restrictive visual space of captive chimpanzees and enables animals to view neighboring conspecifics, thus providing opportunities for social interactions.

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LITERATURE CITED

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