

Chimpanzee Hierarchy in Caregiver Daily Shift Reports



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Introduction

Through cross-fostering experiments that began in the 1960s and 1970s, chimpanzees Washoe, Moja, Tatu, and Dar were immersed in American Sign Language and raised in conditions that resembled Western human homes. This method allowed them to acquire signs in a similar environment that human children learn their first language. Later, Washoe's adopted son Loulis acquired signs from her and other signing chimpanzees. In 1980 and 1981, the chimpanzees moved to Central Washington University (CWU) and lived at the Chimp Lab on the 3rd floor of the Psychology Building.

Chimpanzees are highly social and have a hierarchy that is established with politicking, coalitions, alliances, and friendships (Stanford, 2018). At CWU, Washoe was the most dominant individual, followed by high-ranking Loulis. Tatu and Dar were middle-ranking, and Moja was lowest ranked (Sanz et al., 1996; Hayashida et al., 2002).

This qualitative study explored the ways that hierarchy was manifested in caregivers' daily shift reports.

Methods

Table 1. Chimpanzee Participants.

	Washoe	Loulis	Tatu	Dar	Moja
Rank	High	High	Middle	Middle	Low
Sex	♀	♂	♀	♂	♀
Age	21	8	11	10	14

Caregivers documented the daily behaviors and signed conversations of the chimpanzees in shift reports. The current project looked at three months of shift reports from 1986 through the lens of the chimpanzee hierarchy. In previous work, shift reports were transcribed and coded for themes (Lopez et al., 2023). For this study, we selected excerpts from shift reports searching with codes related to hierarchy. They were Affinitive Chimp to Chimp; Agonistic; Greet; Groom; Hug; Reassure; Reconcile; Share; Response to Food; Afraid; and Sorry.

Indicators of Rank

High Rank

Washoe and Loulis were high-ranking. This was supported by excerpts describing grooming, reassurance, and dominance displays.

Grooming is the “currency of dominance” (Sanford, p. 44). It reinforces relationships and social status, and it’s also calming. In these excerpts, Washoe grooms others.

- Washoe groomed him between and after drinks.
- I was cleaning by the window and heard Washoe whimpering. I looked up, and she was trying to groom Loulis' face. Lou was squirming around; he finally got up and left. Washoe whimpered and standing up bipedal on the bench signed HUG pause HUG more whimpering HUG. She then reached out to Lou COME during all this he just clung to the ceiling avoiding her reach. She then signed PERSON then HUG finally he left.

Reassurance is when one chimpanzee calms another after a highly arousing situation. Giving or withholding reassurance both assert dominance.

- Washoe tells she's SORRY for her display and she's GOOD, she attempts to calm Louie and Dar.
- Loulis came in, bumped Washoe and she grinned at him. He signed HURRY to her for reassurance. She held his hand.

Body language and access to resources are indicators of dominance.

- Washoe came in and displayed, back hand thumping and swaggering.
- At lunch time Washoe tunnel blocked and wouldn't let anyone get past her... Washoe let Tatu get through but no one else. I filmed Moja as she tried to get Washoe to move. Finally, Washoe entered room 1 and everyone else followed.

Middle Rank

Dar and Tatu were middle-ranking. This was manifested in reports of close interactions such as kisses, chase, and cooperation.

The chimpanzees helped caregivers and each other with cleaning and chores.

- Washoe got the blankets, passed them down to Tatu and Loulis, and they gave them to me.
- Tatu lets her dish get taken by Moja. She signs MORE to me. I sign GET MOJA'S BOWL. Tatu approaches Washoe. Tries to take Washoe's. Washoe pulls hers away. Tatu begins to whimper and signs MORE to me. I sign EAT MOJA. Finally, Tatu approaches Moja and takes the almost eaten bowl. Tatu then lies on the floor and eats the leftovers.

Alliance and close relationships solidify rank and relationships.

- Louie open mouth kissed Dar's cheek, then embraced him.
- Loulis wanted to play, and she wanted to groom. Tatu won out and they groomed.
- Dar, Lou and [a caregiver] were playing chase.

Low Rank

Moja was low-ranking This was manifested in her reactions to high arousal interactions.

Seeking reassurance and receiving aggression indicate low rank.

- There was a decent sized fight this afternoon.... Moja went looking for reassurance from Washoe—Washoe hit her with a full open grin; Moja took off screaming. She came back and Washoe still didn't give her any reassurance—but she didn't hit her. After a little bit, Washoe seemed to charge Moja but went right on by and went to the other room.

- Dar kicks Moja when it's her turn to drink. She screams.

Discussion

Grooming is integral to chimpanzee relationships and social life. Dominant chimpanzees groom frequently to form and maintain alliances (Nishida & Hosaka, 1996; Goodall, 1986).

Conflicts are highly arousing events. Dominant chimpanzees often respond by offering reassurance through grooming, kissing, touching, and embracing. In contrast, dominant chimpanzees sometimes exert their dominance by displaying and blocking another chimpanzee's access to resources and space (Goodall, 1986).

Chimpanzee relationships include chimpanzees of different social ranks. Middle-ranking and high-ranking chimpanzees may form relationships to mutually benefit one another. Middle-ranking chimpanzees can rise in the social ranks through these collaborations, while high-ranking chimpanzees get support to maintain power in their group (Goodall, 1986).

This study shows that the chimpanzees at CWU used behaviors typical of wild chimpanzees, such as grooming and reassurance, in their social hierarchy. They also used signs in these interactions to manage these relationships (Leeds & Jensvold, 2013; Jensvold et al., 2014). Future research will analyze how their signed conversations were influenced by their place in the group's hierarchy.

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