

Chimpanzee Caregivers' Daily Shift Reports: A Preliminary Thematic Analysis

Naylea Lopez¹, Amanda Pauli¹, Katie Seymour¹, & Mary Lee Jensvold, Ph.D.^{1,2}

¹Primate Behavior Program, Central Washington University, Ellensburg, WA ²Friends of Washoe, Ellensburg, WA



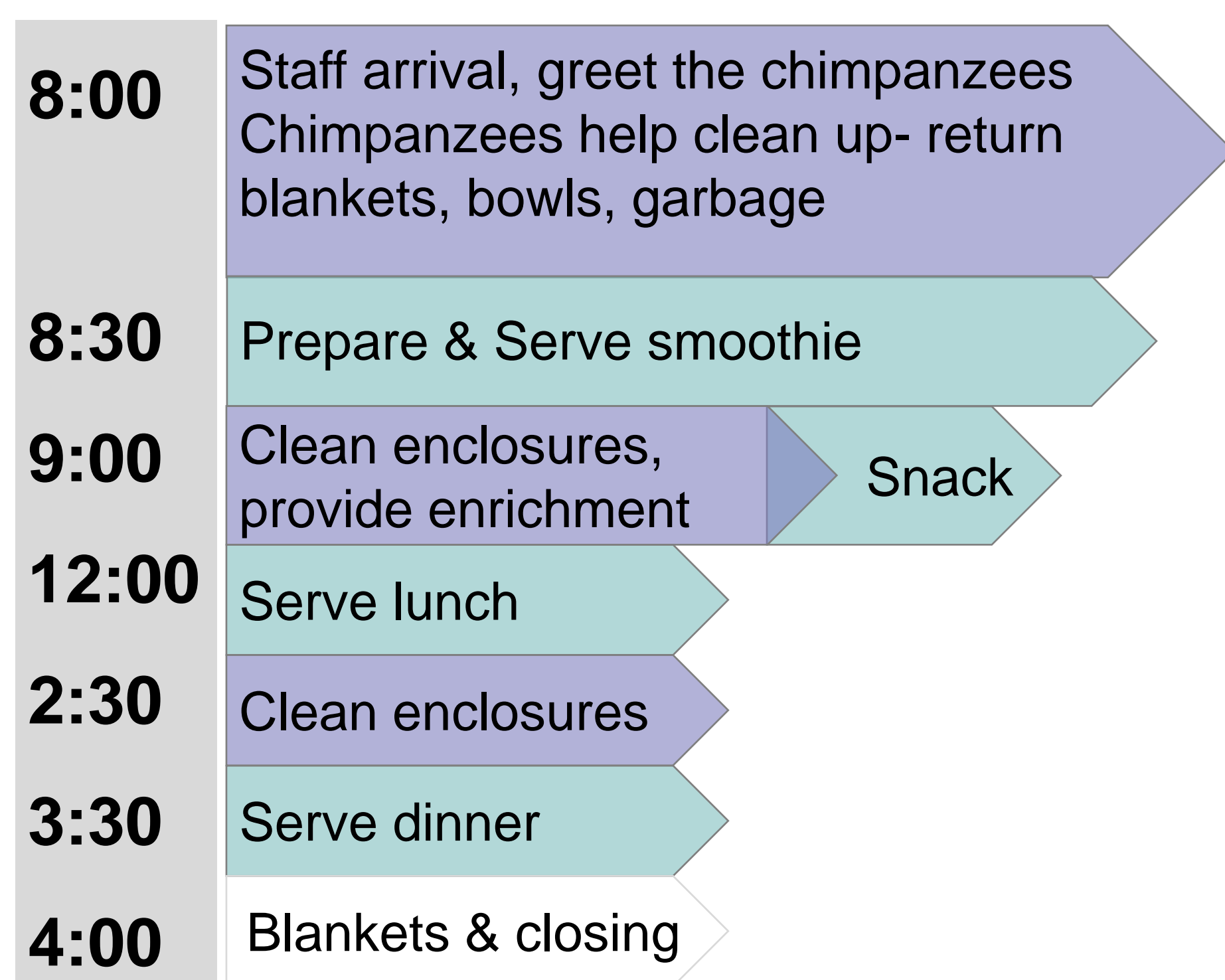
Background

This is a pilot ethnographic study exploring shift reports from The Chimpanzee and Human Communication Institute (CHCI) at Central Washington University (CWU) from 1986 and 1987 to gain insights into captive chimpanzees, their caregivers, and their interactions.

The shift reports detail the care and daily lives of five chimpanzees from 1980-2013. As infants (1966-1980) Washoe, Moja, Tatu and Dar were raised in a cross fostering laboratory under conditions of human children and immersed in American Sign Language (ASL)⁵. They acquired signs in a conversational context and continued to use them conversationally with each other and caregivers throughout their lives^{7,2,3,6,8}. Loulis acquired his signs from the other signing chimpanzees⁴. They lived at CHCI during late childhood into adulthood from 1980-2013.

These reports are a rich resource recording years of detailed accounts of these chimpanzees' and their caregivers' experiences. This is a first study to explore this data set.

CHCI Daily Schedule



Methods

- Report authors were primarily CWU students who volunteered 6+ hours/week, completed 1+ ASL class, demonstrated proficiency interpreting the chimpanzees' signs and mastery of a chimpanzee behavioral ethogram. Experience ranged from 1 day-20 years.

- We transcribed handwritten shift reports into digital text (all humans coded for anonymity) and uploaded into thematic analysis software¹⁰.

- We used inductive coding to create codes. Each code was accompanied by an operational definition.

Results

- Four of the 5 most frequent codes are caregiver jobs/husbandry tasks (Clean, Serve, Meal, Office)
- The non-husbandry code Signch (Chimpanzee signing to Human) is the 3rd most frequent.
 - Chimpanzee conversations occurred throughout daily caregiving routines.

Context: Caregivers served to the chimpanzees a blended bean soup in a bowl with spoons at lunch.

Code: Serve, Interpret Behavior

"Fed. Washoe didn't eat, but I hand fed her a few. Moja came over and I also offered her some. Washoe sort of blew bubbles in hers, but when I offered it to Moja, She ate Moja's spoonful quickly. After a little bit, Moja offered me a bit, sticking a spoonful out of the cage. Washoe got interested in it and "inhaling" it. Moja had a funny look on her face, but tilted the spoon toward Washoe. Washoe kept trying to get it, so Moja brought the spoon inside the cage and fed Washoe with the spoon. Moja had the strangest look on her face!! It was like – "Why am I feeding YOU!?" (10.9.86)



Context: Caregiver arrived at the site, greeted chimpanzees, and prepared breakfast smoothies.

Code: Serve, Signch, Bargain,

"W was slow to drink smoothies after everyone had their fill and W had only had a few small sips. I told her she needed 3 more drinks before fruit could be served. She took 1 sip right away, but then dawdled a while. Dar signed SWALLOW/ to me. I said yes. Washoe needs to swallow. He turned to Washoe and signed SWALLOW/ (4 times) very slowly. He turned back to me then and signed SWALLOW GOOD/." (9.1.86)

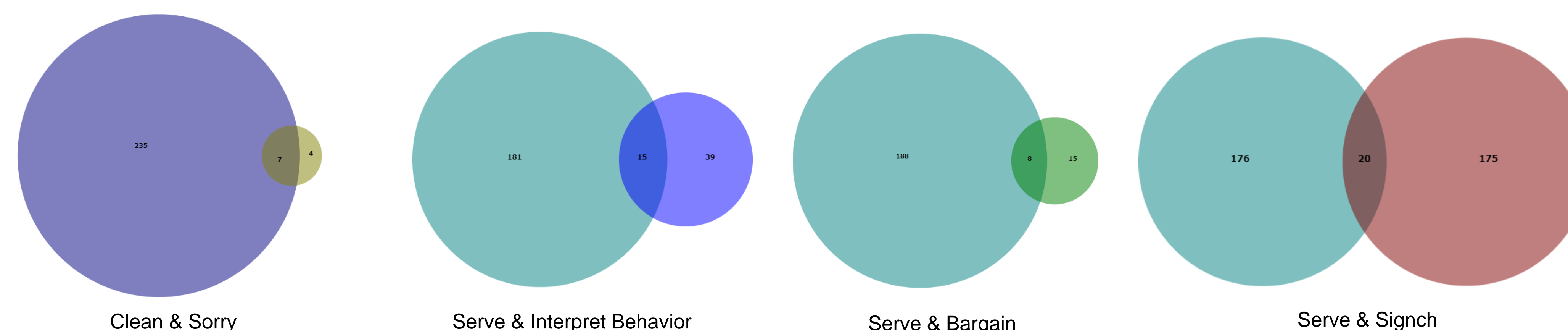
Context: Caregiver was performing daily routine cleaning of the enclosures. The chimpanzee was inside while the caregiver was outside.

Code: Clean, Sorryc, Signch

"Later in room 4 while I was cleaning Dar came in and slapped kicked around the cage in the beginning of a display. I sign SIGN!-SIGN!-SIGN! He sits down and seems to calm himself down and finally signs SORRY very softly in his chest with his head down. Then he looks up at my hose and signs very soft and slowly THAT DRINK?/" (9.9.86)

Co-occurrence

- Constant participation in the chimpanzee's daily routines allowed caregivers to observe other interesting behaviors.
 - Less frequent yet fascinating codes (e.g. sorry, bargain, sign) co-occurred with top husbandry codes.



Discussion

- Caregivers were involved in the sign language project as researchers which provided the foundation of an enriching environment and an ethological approach to study the roots of human language and chimpanzee behavior.
 - Maintaining good relationships encouraged the chimpanzees to spontaneously sign and converse with the human caregivers/researchers and other chimpanzees.

- Preliminary inter-observer reliability check discussions occurred through the initial code development. Further coding and analysis should establish more precise reliability checks.

- Future research could use the coded shift report transcriptions to study specific code use, further analyze code co-occurrences, additional thematic analysis, or as background understanding of the daily lives of the signing chimpanzees.

Code	Definition	Frequency	Relative Frequency
Clean	Caregiver cleans chimpanzee enclosure(s)	242	7.76%
Serve	Human serve/feed meal, food, drink, snack/treat, browse	196	6.29%
Signch	Chimpanzee directs 1+ ASL signs toward a Human	195	6.25%
Meal	The word breakfast, lunch, or dinner	146	4.68%
Office	Human works on data, taxonomy, editing, other clerical tasks	142	4.55%
Interpret Behavior*	Caregiver evaluation of chimpanzee's behavior/ meaning of behavior	54	1.73%
Bargain*	Human negotiates with chimpanzee(s)	23	0.74%
Sorryc*	Chimpanzee apologizes	11	0.35%

Most frequently occurring codes from the analyzed transcriptions.

*Co-occurrence codes, excluded from the most frequent occurring codes

References
 1 Bernard, H.R. (2013). *Social research methods*. Sage: Thousand Oaks, CA.
 2 Bodamer, M.D., & Gardner, R.A. (2002). How cross-fostered chimpanzees (*Pan troglodytes*) initiate and maintain conversations. *Journal of Comparative Psychology*, 116(1), 12.
 3 Chalcraft, V. J., & Gardner, R.A. (2005). Cross-fostered chimpanzees modulate signs of American sign language. *Gesunde*, 5, 107-132.
 4 Fouts, R. S., Hirsch, A., & Fouts, D. H. (1982). Cultural transmission of a human language in a chimpanzee mother/infant relationship. In H. E. Fitzgerald, J. A. Mullins, & P. Gage

(Eds.), *Psychobiological perspectives: Child nurturance series Vol. III* (pp. 159-193). New York: Plenum.
 5 Gardner, R. A., Gardner, B. T., & Van Cantfort, T. E. (1989). *Teaching sign language to chimpanzees*. New York: SUNY.
 6 Jensvold, M.L., & Dombrasky, K. (2019). Sign Language in Chimpanzees Across Environments. In M.L. Jensvold (Ed.) *Chimpanzee behavior: Recent understandings from captivity and the forest* (p. 141-174). New York: Nova Science.
 7 Jensvold, M.L.A., & Gardner, R.A. (2000). Interactive use of sign language by cross-fostered chimpanzees. *Journal of Comparative Psychology*, 114, 335-346.

8 Leitten, L., Jensvold, M.L., Fouts, R., & Wallin, J. (2012). Contingency in requests of signing chimpanzees (*Pan troglodytes*). *Interaction Studies*, 13, 147-164.
 9 Spradley, J.P. (1979). *The ethnographic interview*. Harcourt: Ft. Worth, TX.
 10 Dedoose Version 9.0.17, cloud application for managing, analyzing, and presenting qualitative and mixed method research data (2021). Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.