

HOPE-GM Report

Primate Origins of Human Evolution: From Genes to Mind

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1. Introduction

The origins of primatology are undeniably rooted in Japan. Every young, aspiring primatologist learns of the sweet-potato washing culture at Koshima Island and the cognitive feats of Ai and Ayumu. In the spring of 2010, eight young foreign scholars, including myself, were invited to learn about Japanese primatology first-hand as part of the JSPS funded project entitled HOPE-GM (Primate Origins of Human Evolution: From Genes to Mind). We were generously hosted by the Primate Research Institute (PRI) of Kyoto University and specifically by the director, Professor Matsuzawa, to stay in Japan for three months.

HOPE-GM sought to encourage international, multi-disciplinary research in primate origins of human evolution from genomics, to cognition and behavior, to culture. This program included young foreign scholars from a variety of academic backgrounds including biology, anthropology, psychology, and archaeology who were given the opportunity to interact with Japanese researchers from equally diverse backgrounds. We worked in close contact with our Japanese colleagues at PRI exchanging knowledge, ideas, and methods. Some of us, including myself, also had the opportunity to develop and carry out small projects in collaboration with researchers at PRI.

In addition to cultivating international collaborations, the HOPE-GM program also provided the junior researchers the opportunity to travel around Japan, experience Japanese culture, and visit other primatological research sites (both field and captive settings) throughout the country. Additionally, we met three distinguished foreign senior scholars, Svante Paabo, Frans de Waal and William McGrew who all stayed in Japan for a period of three weeks. This initiative was part of the new CICASP (Centre for International Collaboration of Studies in Primatology).

2. Research Activities

a. At PRI

With the help of Dr. Yuko Hattori, I was able to design and collect data regarding inequity responses in chimpanzees. An abstract of the work conducted at PRI can be found below.

Abstract: Recent studies of prosocial behavior in chimpanzees have yielded mixed results; chimpanzees readily demonstrated targeted helping in two different tasks, and yet failed to provision their partner with rewards in several others. Some researchers have proposed that in these tasks chimpanzees only pay attention to their own reward, not their partner's. In contrast, capuchin monkeys readily provide their partner's with rewards in a variety of tasks, and many follow-up tests have determined that capuchins actively monitor their partner's rewards. This experiment sought to directly compare chimpanzees and capuchins on a food-provisioning task. One way to examine whether or not individuals are monitoring their partner's reward is to introduce a disadvantageous inequity (where the subject gets a lower reward than their partner). We used a token exchange paradigm in which one individual was given a token that, upon return, conferred a low-value reward on themselves, and a high-value reward for their partner. We compared this partner present condition to a partner absent condition in which the reward distribution was the same, but high value reward was delivered to an empty testing booth (instead of to a partner). Chimpanzees were significantly more likely to return the token when the partner was absent thus demonstrating sensitivity to their partner's reward. Future work will examine the effect of social behavior (solicitations, requests, threats) on token return, and apply the same paradigm to capuchins for comparison.



The Primate Research
Institute



The experimental setup

b. Talks and seminars

I attended the HOPE-GM Lectures on Primate Mind and Society symposium in Kyoto on March 22-23, 2010. There, in addition to hearing many fascinating talks by Japanese and the other foreign HOPE-GM scholars, I presented a talk describing part of the research I conducted for my Master's thesis entitled: "Capuchin monkeys cooperate with strangers: learning the benefits of reciprocity with in-group and out-group members. "

I also presented a talk at the Psychology Seminar at PRI on May 18, 2010 detailing the work I had done regarding killer whale communication as an undergraduate entitled: "Killer whale vocalizations: signature whistles or signature information?"

3. Travels around Japan

Under the auspices of the HOPE-GM program, the foreign scholars were able to travel around Japan. Our first trip was to Koshima and Yakushima to see wild Japanese monkeys from March 29-April 2, 2010. All of the HOPE-GM junior scholars along with Bill and Linda McGrew were accompanied by Yoshiaki Sato and Fumihiro Kano, our hosts and guides who kindly coordinated our travel. After flying into

Miyazaki Airport and taking a bus down the coast, we arrived at the Koshima field station (our accommodations, which were located directly across from the island) on the afternoon of March 29th, 2010. On the second day of our stay there, we traveled by boat to the island and gave the monkeys sweet potatoes. It was my first experience seeing wild primates, and I was so surprised when we pulled up to the beach and 70 macaques came running up to the boat. Although the weather was not really conducive to potato washing (quite windy and cold), the presence of the potatoes allowed the monkeys to closely approach us—it will probably be the closest I will ever get to a wild primate.



Koshima Island



A Japanese macaque with sweet potatoes on Koshima

On March 31, we traveled to Yakushima Island, south of Kyushu. While there we saw many habituated groups of monkeys along with the deer that closely follow them. It was particularly exciting for me to see wild monkeys behaving naturally: foraging, grooming and traveling. Another highlight of the trip to Yakushima was staying in a traditional ryokan, complete with futons, onsens, and traditional meals. In our brief stay on Yakushima, I was truly awed by the beauty and nature present there.



Japanese macaques grooming on Yakushima Island



Deer on Yakushima Island

Our second trip was to the Great Ape Research Institute (GARI) and Uto chimpanzee sanctuary from April 5-11, 2010. This trip we traveled with a smaller group, six HOPE-GM students, plus our guides Yumi Yamanashi and Tadatoshi Ogura. We arrived in Uno on the evening of April 5th after spending some time in Okayama en route. The next day at GARI we got to explore the amazing chimpanzee enclosure, built right into the side of a hill where chimpanzees can climb, patrol, build nests, and generally spend time in the bushes doing all kinds of natural behaviors. We also saw some chimpanzee experiments, the most impressive of which were those that involved experimenters sitting in the same booth as the chimpanzees and directly interacting with them.



The Great Ape Research
Institute
(photo courtesy of T. Ogura)



Researchers conducting a nut-
cracking experiment at GARI
(photo courtesy of K. Koops)

We then traveled to Uto, a sanctuary for chimpanzees formerly used in biomedical research. I really admire the effort the staff and researchers at Uto are putting into improving the welfare of these chimpanzees. While there we saw one chimpanzee's birthday celebration which included an artistically arranged pile of fruit.



Uto Sanctuary



A chimpanzee birthday
celebration
(photo courtesy of T. Ogura)

I also traveled independently during the Golden Week Holiday to Tokyo and Kyoto to go sight-seeing. Tokyo was unbelievably large, with so many people everywhere. What surprised me most about Tokyo was its diversity—every time you exited the metro, it felt like you were in a different city. In Kyoto I embarked upon a tour of temples, each of which was beautiful and distinct from the rest.



The view of Tokyo from above



The Golden Temple of Kyoto

4. Acknowledgements:

First and foremost, my profound thanks to Professor Matsuzawa for inviting me to join this group of young scholars and for his generous hospitality during my stay. I learned so much during my time at PRI and my travels around Japan and which will certainly inspire my future research. I would also like to sincerely thank Professor Ikuma Adachi, who is largely responsible for the ease with which I was able to adapt to life at PRI. From picking me up at the train station when I arrived, to translating my licensing exam and introducing me to the chimpanzees, without him, I'm sure I would not have enjoyed my stay nearly as much. Many thanks to Dr. Yuko Hattori, who was my primary research collaborator and who spent countless hours helping me develop my project, learn about how to work with chimpanzees, and helping me run the experiment. I would like to further thank Yuko for introducing me around and facilitating my observation of many different

researchers experiments. Thanks to Professor Tomonaga for general help during my stay and also valuable feedback on my project. I would also like to thank Chris Martin for allowing me to observe his experiments on many occasions and his help in designing my experiment.

Many thanks to Dr. Tomoko Imura, Fumihiko Kano, Mari Hirosawa, Akiho Muramatsu and the staff of SPR for allowing me to observe their experiments and answering my many questions. I would also like to thank our Japanese colleagues who were kind enough to travel with us—Yoshiaki Sato, Fumihiko Kano, Yumi Yamanashi and Tadatoshi Ogura—and our hosts at the research sites: Mr. Suzumura, Professors Hirata and Yamamoto, Sana Inoue and Dr. Morimura. These trips were wonderful and I enjoyed very much getting to know all of you! Also thanks to various researchers at PRI for help, interesting discussions, and just generally making my stay more enjoyable: Professor Misato Hiyashi, Professor Mike Huffman, Andrew McIntosh, Takaaki Kaneko, Makiko Uchikoshi, Reiko Sawada, and Hirotoishi Hiraishi. I would also like to extend my sincere thanks to Mami Shikuwa for all of her administrative help.

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A group of HOPE-GM scholars and some PRI colleagues at a local restaurant (Photo courtesy of R. Sawada).