

## PROJECT NIM - THE UNTOLD STORY

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During the mid-70's, I directed a project at Columbia University that tried to teach Nim, an infant chimpanzee, to use American Sign Language (ASL). *Project Nim*, a documentary currently running nationally, loosely describes the project.

It shows scenes of Nim interacting with his teachers after he was flown to New York from his birthplace at the Primate Institute in Norman, Oklahoma, when he was two weeks old. Viewers would have to close their eyes not to appreciate Nim's loveable personality and endearing antics, but they would be hard pressed to see the science on which the project was based.

That's because the documentary pointedly avoids that topic, which is a shame because the research provided groundbreaking scientific insights into what chimpanzees can tell us about the evolution of language.

The project's goal was to determine whether a non-human primate could learn the essence of human language: the use of grammatical rules to create particular meanings. Positive evidence would undermine the then popular claim of continuum between chimp communication and human language. Negative evidence would undermine this claim and require us to ask why chimpanzees are unable to learn a grammatical language.

By the time Nim was almost five, I had collected enough data on his multi-sign combinations to determine the extent of his

grammatical knowledge. In September 1977, I ended the project's research and chartered a plane to return Nim to his birthplace. At five, he would also benefit from being with other chimpanzees because of his size. If he had continued to live with his teachers, it was likely that one of them would be seriously injured because of his innate aggressiveness, which could manifest itself at the slightest provocation despite his generally benign disposition.

When I returned to New York, I began to analyze the signs that Nim had ostensibly learned during a period of 27 months in which his teachers recorded more than 20,000 multi-sign sequences. While analyzing those sequences I obtained quantitative evidence that Nim could indeed create grammatical sentences and that I had the most powerful evidence to date that a chimpanzee could construct particular meanings by using a grammatical rule. This would have been exciting news by any standard.

But while preparing my findings for publication, the research took a decidedly different turn. After reviewing a video I'd seen at least a dozen times previously, I noticed that Nim's positive results were caused by a simple artifact. Nim's teachers signed what he signed but a quarter of a second *earlier*. This meant that Nim's signs were mainly imitative and not spontaneous. How had other scientists and I missed these prompts while watching the video previously? I realized that when I observed Nim sign producing signs, either in person or on videotape, my attention was always riveted on his hands because I thought they were making history and I didn't want to miss a second of it. I saw the same symbiotic relationship while viewing other tapes of Nim and movies of other apes (e.g., Washoe and Koko) that had purportedly learned ASL.

This analysis made me wonder why Nim signed at all. The answer was immediately obvious -- to obtain rewards that he couldn't obtain otherwise. Equally important, I noticed that Nim never signed to start a conversation. He only signed with the expectation of obtaining a reward -- e.g., food, candy, drinks and

nothing more. Like a child, Nim learned, what I refer to as Language 1. What Nim never learned was Language 2, the ability to converse with someone to convey information that was not about her basic needs, e.g., *I just saw Mary* or *I'm going to the library tomorrow*. Language 1 consists of uni-directional imperative statements; Language 2, of bi-directional declarative statements between a speaker and listener. By revealing the true nature of Nim's signing, the research confirmed the efficacy of unbiased scientific inquiry.

I published my "negative" results, at that time contrarian, in the journal *Science* and in a book entitled *Nim*. My conclusions about Nim's signing have withstood the test of time. But in the film *Project Nim*, my findings are very briefly described as a failure without explaining why and what failure meant. Apparently the director didn't understand the difference between negative results and a failure. More important, my results were disparagingly cited as the reason I had returned Nim to Oklahoma, even though I hadn't discovered the true nature of Nim's signing until a year after he had been returned to his birthplace.

For me, the omission of the scientific validity of the actual project diminishes the film's credibility. Also, the director clearly missed an opportunity to educate the public about the science involved in the actual research with Nim. The project proved once again the importance of negative results that they can inspire questions that lead to significant positive results, as was the case with the discovery that space wasn't filled with ether and that inanimate matter did not give rise to animate matter.

A few years after I had returned Nim to the Primate Institute, it went bankrupt and he was sold for medical research. But thanks to Nim's signing ability, I was able, with the pro bono assistance of a lawyer, Henry Herrmann, and Bob Ingersoll, a graduate student, to rescue him and place him in an animal sanctuary run by philanthropist Cleveland Amory. Nim lived there with a mate named Sally and three playmates, Midge, Kitty and LuLu, until he

died from a heart attack at age 27.

In the end, Nim's inability to learn a language deepened our understanding of the basic difference between the minds of humans and apes. Most important, apes lack a "theory of mind", the ability to perceive what another ape is thinking. Without that ability, it is impossible for their signing to rise above the level of begging to conversation, the essence of human language.

As charming as Nim was, he was not human and to anthropomorphize him as such is not only bad science but also dangerous sociology, e.g., chimpanzees are fully capable of maiming and killing humans. Nim himself hurt several people as he matured. Nonetheless, he was clearly special. He was a remarkable creature from the living tree of evolution, as are his threatened relatives, and he should be greatly respected for sharing himself and his abilities in the pursuit of what it means to be human.

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