

ORCINUS ORCA: NO PARALLEL OUTSIDE HUMANS

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Short version at:
www.orcaneetwork.org/nathist/symbolsshort.html

Full paper at:
www.orcaneetwork.org/nathist/symbols.html

Abstract: Recent theoretical studies of culture in whales and dolphins have reviewed experimental research on captive animals and patterns of behavioral variation found in wild populations. Captive studies of cognitive processes in dolphins indicate the capacity for symbolic communication in dolphins. The ethnographic approach, based on evolutionary ecology, has found evidence that the vocal and behavioral cultures of killer whales (*Orcinus orca*) appear to have no parallel outside humans. To date, however, no published theory has provided a synthesis that accommodates both the experimental findings and the ethnographic evidence and clarifies the form of social learning that underlies both.

The theory of symbolic interactionism, borrowed and adapted from sociology, provides a conceptual framework for integrating the experimental “process-oriented” and the ethnographic “product-oriented” perspectives. Symbolic interactionism may help account for the divergent and complex cultural traditions found in sympatric orca populations. Prevailing theoretical paradigms (behaviorism, evolutionary ecology, cognitive ethology) do not address whether any non-human animal uses symbols extensively in normal communication, or if use of symbols substantially affects behavior. The theory of symbolic interactionism synthesises experimental and ethnographic observations that suggest cultural transmission and may clarify the learning mechanisms used by cetacean species.



Current animal behavior paradigms:

Behaviorism/ethology:
Stimulus > Response (hard-wired instinct)

Cognitive ethology:
Stimulus/knowledge/memories > Behavior

Evolutionary ecology + culture
(e.g., whales/apes/elephants):
Stimulus/cognition/culture >
Behavior/speciation/ecological community

Suggested new paradigm

Symbolic Interaction model
(combining cetology and sociology):

Symbolic Interactionism:
Stimulus/cognition/environment/culture >
Meaning/interpretation >
Behavior/speciation/ecological community

SYMBOLIC INTERACTIONISM PERSPECTIVE AND METHOD
Herbert Blumer

We act toward things on the basis of the meanings the things have for us;

These meanings become modified through an interpretive process;

Individuals must take into account, or empathize, with other individuals; and,

The meanings of such things derive from the social interactions one has with others;

Society is constructed by a process of interpretation and symbolic interaction.

“...understanding process (cultural transmission) is crucial to our understanding of the product (culture).”

“...no attempt is made to deduce what particular form of social learning underlies the observed patterns.”

“...we know virtually nothing about the actual learning mechanisms cetaceans employ.”

“Cetacean cultures appear to possess other attributes that have otherwise been restricted to humans.”

“Human culture is intimately linked to both language and symbolism, but there is currently no empirical basis for discussing the role or non-role of language and symbolism in cetacean culture.”

Symbolic interaction is possible because:

- we have highly developed brains
- we rely heavily on society
- we are able to make many subtle and sophisticated sounds

Photo: Jeff Hogan, Killer Whale Tales

Symbolic interaction is essential for building and maintaining culture.

The question is always: “What does it mean?”

Photo: Joseph Alicea

Some implications of cultural identity:

June, 2002 – NMFS declares Southern Resident orcas “depleted” under the Marine Mammal Protection Act (not the ESA), because orcas worldwide are doing fine.

December, 2003 – Upon reviewing the evidence, Judge rejects NMFS’ refusal to list Southern Residents under the ESA, because they are distinct.

November, 2005 – NMFS announces “endangered” status under the ESA for Southern resident pods, as a Distinct Population Segment.

Fish quotas? Legal standing?

“...there is a clear case for studying the cultural transmission of information directly as parts of the research agendas of the long-term field studies of whales and dolphins.”

—Rendell and Whitehead, *Culture in Whales and Dolphins*

How, and what, do they communicate?

Photo: Joseph Alicea

Greater awareness of such highly evolved adaptations in orcas, without parallel except in humans according to published research, could enhance public appreciation for orcas and help motivate efforts to restore their population and protect their habitat.