NAKAYAMA -- “James J. Gibson--An Appreciation” & GREENO – “Gibson’s Affordances”

Central Thesis: Current research has only revealed the “nuts and bolts” of the visual system, but little about the way perception actually works. Situated studies of everyday perception may be the key to understanding perception holistically.

Environmental Physics: Gibsonian answer to an attempt to find a broad, principled framework for psychology. Environmental physics studies the manner in which participants interact with their environment, opportunistically utilizing patterns and features. In addition, it:

1) Is restricted to an animal-sized scale
2) Focuses on features of world relevant to animate life

Affordances: Features of the environment which either help or hinder the participant in his or her perception. What about the environment shapes the interaction of the participant with said environment?

Information Pickup: Participants mostly likely OBTAINT information about the world rather than create an exact internal copy of the world. Therefore, Gibson is more interested in how different features (light, texture) carry information about SURFACES in the world, especially with respect to how a participant may interact with or locomote within the world.

Interaction of Locomotion and Surfaces: Primary focus of Gibson’s research. How do the features of surfaces help or hinder a participant’s locomotion? Nakayama suggests more research in this field.

** Note: You will need to know how to COMPARE and CONTRAST mainstream cognitive science and Gibson’s ecological perspective along the focus, framework, functioning, questions examined, presumptions made, methods used, settings examined, data collected, and the view taken on learning.

ROGOFF – “Structuring Situations and Transferring Responsibility”

Central Thesis: A child’s development is an excellent example of a dialectically constituted system, in which adults and children are simultaneously responsible for structuring the child’s participation in everyday activities.

Scaffolding: Creating a supporting situation in which a novice (such as a child) can extend their current knowledge and skills to an acceptable level of competence in a novel task. Scaffolding has six functions:

1) Directing attention to whatever portion of the task the expert feels the novice can perform/is important
2) Simplifying the task or turning the task into a series of subtasks; this allows for a gap-closing problem solving solution which makes a difficult task more manageable
3) Directing the activity so the OVERALL GOAL is eventually achieved and interest is maintained
4) Marking (or highlighting!) differences between what the NOVICE PRODUCES and the IDEAL SOLUTION so the novice can compare them
5) Controlling frustration
6) Demonstrating the ideal solution for comparison

JOHNSON – “Distributed Primate Cognition: A Review”

Note: This paper is important. Read it carefully.

Central Thesis: Systems larger than an individual have cognitive properties that cannot be reduced to the cognitive properties of individual components of the system (larger than the sum of its parts). The cognitive framework is particularly easily applied to the cockpit system.

Mental Representation Model of Cognition: An approach to cognitive science which operates on the assumption that the defining feature of cognition is the existence of a mental representation. This view (called MR) is contrasted with models of DISTRIBUTED COGNITION, in which cognition is situated in a SYSTEM OF PARTICIPANTS and an ENVIRONMENT.

Co-construction of Cognitive Events: The idea that all participants in a system help each other by performing certain behaviors, and constrain each other in other ways. This has implications for the distributed cognition model, simply because if this assumption is operating it is meaningless to score behavior that is NOT situated in some way. This is because the situation provides important context for how the system operates, and any other focus would be incomplete.

Media: Any observable activities, and objects participants in a system interact with. A distributed analysis is focused on noting the changes in the media across time with respect to their interaction and shared environment. Again, this draws the focus of study to observable behavior.

Reframing MR: This paper is focused primarily on reframing the MR approach to studying Bonobo interaction. In particular she singles out four cognitive terms specific to MR analysis and reframes them to focus more on behavior:

Anticipate: Increased readiness to respond (MR) --> Decrease in onset time between participant’s interactive behaviors (DC)
Notice: Actually see and attend to (MR) --> Relative timing of signalling and attentional behavior, orienting gaze and body, vocalizations, etc (DC)
Understand + Intend --> Coordination: A particular pattern of information flow across a system, in which various elements of the system work in tandem to create an outcome.

These reframed cognitive terms demonstrate a FOCUS ON BEHAVIOR AND ENVIRONMENT unique to DC research.

** Note: pay especial attention to attentional and scaffolding behaviors in this article, how they are scored, and how Dr. Johnson reframes these behaviors under the DC model.