

## **Darwin lives: Introduction to the Serie on Animal Learning and Cognition**

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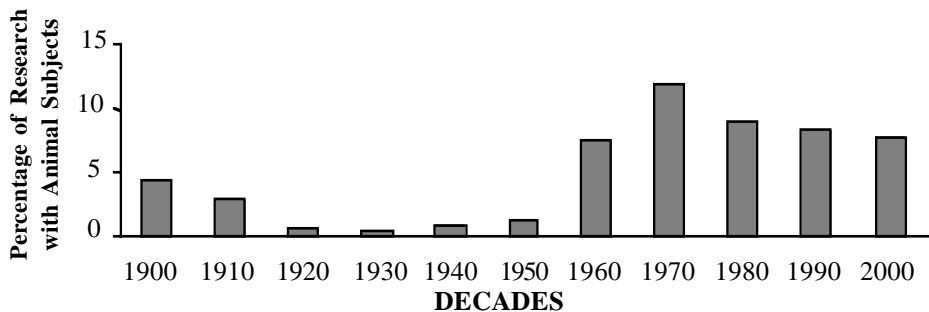
This and the next issue of the *International Journal of Psychology and Psychological Therapy* included a series of articles concerned with the empirical and theoretical analysis of the behavior of nonhuman organisms. This focus on animal research is in keeping with the objective of the Journal to publish monographs dedicated to basic and applied research in a specialized field of psychological interest. An earlier series was dedicated to the Relational Frame Theory (Barnes-Holmes, Luciano, & Barnes-Holmes, 2004). In the present and next issue we have attempted to bring together a series of papers focusing on the joint theme of animal learning and cognition.

The theoretical development of psychological science has its origins in the work of Ivan Pavlov (1927) and Edward Thorndike (1911), pioneers in the study of animal behavior and its underlying mechanisms. The justification for conducting psychological studies with animals rests on the evolutionary principle of the biological continuity of psychological processes between humans and other animals (Darwin, 1872).

If one traces the use of animals in psychological research during the past century (as it appears in PsycInfo, the database of the American Psychological Association), following the major growth in animal research that occurred in the 1960's and 1970's the contribution of the animals subjects to psychological research has stabilized at about 10% of referenced research (see Figure 1). Thus, in contrast to the commonly held belief of its decline, it appears that the behavior and cognitive capacity of animals continues to be an important focus of interest in psychology. Furthermore, as can be seen from the research presented in these special issues, there appears to be a growth in interest in animal research in Spanish psychology in the past 20 years. Based in part on the establishment of the Spanish Society of Comparative Psychology, one of the first psychological scientific societies of our country, the productivity of researchers dedicated to animal research has grown exponentially in both quality and number of contributions and in the international publication of their research. In September of this year, we will celebrate the XVIII (uninterrupted) annual meeting of that Society, a clear indication of that growth.

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*Figure 1.* Percentage of references with the word “animal” in the population field on the Psycinfo database from 1900 to 2006.

García Hoz (2006), opens the first of our special issues with a theoretical piece about the nature of what animals learn in Pavlovian conditioning. The author contrasts two approaches: a signal view and a causal view. He notes that many define Pavlovian conditioning as a mechanism that captures or detects the causal texture of the environment, that it results in an internalized causal relationship, and that it allows the animal to keep track of the causal structure of its world. These have become popular depictions of Pavlovian conditioning despite the fact that it is patently obvious that most (if not all) experimental operations do not in fact involve causal relationships between stimuli in the strict sense of the concept. This is a simple, but fundamental conceptual clarification and this paper exposes it in an insightful manner.

The article by Zentall (2006) presents a review of some methodological problems that appear when animals acquire tasks involving temporal discriminations. The author reviews certain anomalous data from the most studied experimental paradigms in the study of animal timing: the peak procedure and the conditional discrimination of stimuli of different duration. Both procedures have produced results that have been attributed to faulty memory by the animals. However, Zentall proposes that the results can be more parsimoniously explained as experimental artifacts that result in an ambiguity of instructions for the animal. When these artifacts are removed a clearer view of animal timing can be found.

Papini, Wood, Daniel and Norris (2006) present an interesting theoretical article in which they defend the existence of a narrow relationship among the psychological, physiological and neural mechanisms of physical pain and psychological fear, defined by the loss of reward or by primary frustration.

Finally, this first set of theoretical articles ends with the work of Rosas, Callejas Aguilera, Ramos Álvarez, and Abad (2006) who review the effects of a change of context on extinction. The authors explain these and other similar phenomena in terms of the attentional theory of contextual processing, originally developed by Mark Bouton.

A set of empirical papers follows this set of theoretical articles. This section begins with two interesting articles on cognitive research with primates. The first by

Byrne and Tanner (2006) involves gestural imitation in a zoo-housed, female western lowland gorilla (*Gorilla g. gorilla*). They conclude that gestural imitation in great apes is based on facilitation of rare s in their extensive and often idiosyncratic gestural repertoire (e.g. by mirror neurons), rather than on acquiring novel s by imitation. The second article by Swartz and Himmanen (2006) investigates recognition memory in orangutans. Using a technique in which ítems from different acquired lists of pictures are combined, they report that there are individual differences the use of serial order information by these animals.

The next two articles deal with the implications for learning mechanisms of various pharmacological interventions. The article by Maldonado, Cándido, Morales and Torres (2006) presents experimental results that demonstrate that positive behavioural contrast in a one-way avoidance task can be eliminated by the use of anxiolytic drugs such as diazepam. The authors discuss these results in terms of opponent process theory. In the second article, research presented by Grancha, Crespo, Amate and Flores (2006), indicates that differential effects of amphetamine on schedule induced polidipsia depend on differences in the animal's rate of liquid consumption. This result suggests the existence of differences in the dopaminergic functioning of animals that drink more or less.

The last article by Cano, Gutiérrez and Pellón (2006) presents a relatively new approach to the problem of anorexia. It attributes the problem to excessive induced activity that results in the loss of appetite.

Finally we want to thank the diligence shown by all of the authors who responded to our invitation. We hoped that their contribution will serve to increase theoretical discussion and interest in the topic of Animal Learning and Cognition.

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