

From cell-surface receptors to higher learning: a whole world of experience

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Abstract

In the last decade it has become en vogue for cognitive comparative psychologists to study animal behavior in an 'integrated' fashion to account for both the 'innate' and the 'acquired'. We will argue that these studies, instead of really integrating the concepts of 'nature' and 'nurture', rather cement this old dichotomy. They combine empty nativist interpretation of behavior systems with blatantly environmentalist explanations of learning. We identify the main culprit as the failure to take development seriously. While in some areas of biology interest in the relationship between behavior and development has surged through topics such as extragenetic inheritance, niche construction, and phenotypic plasticity, this has gone almost completely unnoticed in the study of animal behavior in comparative psychology, and is frequently ignored in ethology too. The main aims of this paper are to clarify the relationship between the concepts of learning, experience, and development, and to investigate whether and how all three concepts can be usefully deployed in the study of animal behavior. This will require the full integration of the psychological study of behavior into biology, and of the idea of learning into a wider concept of experience. We lay out how, in a systems view of development, learning may just appear as one among many processes in which experience influences behavior. This new synthesis should help to overcome the age-old dualism between innate and acquired. It thereby opens up the possibility of developing scientifically more fruitful distinctions.

Keywords: Development, learning, behavior, experience, psychology, developmental systems theory, cognition, simple system

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