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This Week's Citation Classic

Rozin P & Kalat J W. Specific hungers and poison avoidance as adaptive specializations of learning. *Psychol. Rev.* **78**:459-86, 1971. [Univ. Pennsylvania, Philadelphia, PA]

It is argued that learning mechanisms differ in different situations, and are adapted, through evolution, to deal with particular problems faced by the organism. This point of view is illustrated by an analysis of the type of learning in specific hungers and poison avoidance. [The *Social Sciences Citation Index*® (*SSCI*™) indicates that this paper has been cited over 230 times since 1971.]

Paul Rozin
Department of Psychology
University of Pennsylvania
Philadelphia, PA 19104
and
James W. Kalat
Department of Psychology
North Carolina State University
Raleigh, NC 27650

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"In the 1930s and 1940s, Curt Richter and others demonstrated that rats deficient in particular nutrients would select foods that were rich in these nutrients. Rozin was attracted to this problem in the early 1960s because the phenomenon was simple, easy to obtain, and biologically significant. Furthermore, it seemed unlikely that all specific hungers could be explained either as innate mechanisms or as trial-and-error learning; some unknown principle had to be involved.

"Work done by Rozin at the University of Pennsylvania, largely in collaboration with Willard Rodgers and later with Kalat, led to explanations involving the rat's natural suspicion of new foods, its pattern of sampling dietary choices, and two new principles of learning, which were most clearly demonstrated by John Garcia. The 1971 paper offered an explanation of specific hungers, linked them to poison-avoidance, and reviewed the literature on taste-aversion learning.

"We proposed a modification in the prevalent view that all learning could be accounted for by a few general processes, and argued for the position stated in the abstract. This represented an extension of the ethological tradition into the domain of American learning theory, and was reinforced by papers with a similar message, at about the same time, by Bolles, Garcia, Seligman, and Shettleworth. There was, however, resistance to these ideas. One of the editorial reviews of our 1971 paper began: '...I am unable to find a single new idea of any power in this ridiculously overblown hodge-podge of a manuscript.' (We are grateful that the *Psychological Review* editor felt otherwise.) It has been our general experience that the more novel a paper, the easier it is to criticize and the harder to publish. Some of our favorite pages from the manuscript for this paper, speculating on the evolution of intelligence, were severely cut in the editorial process. Rozin eventually published these ideas in an expanded form in an invited chapter, because he doubted that they would survive the editorial process of any standard journal.[1]

"Starting from nothing, taste-aversion learning has, in the last decade, become an overcrowded area. This accounts for many of the citations of our paper and our shift of interests to other, less studied problems. The relation between specialized and general mechanisms of learning remains controversial,[3] but we believe that, partly as a result of this paper, there is now a greater sensitivity to biological context in the study of learning."

1. **Rorin P.** The evolution of intelligence and access to the cognitive unconscious. (Sprague J A & Epstein A N. eds.) *Progress in psychobiotogy and physiological psychology, 6.* New York: Academic Press, 1976. p. 245-80.
2. ..... . The significance of learning mechanisms in food selection: some biology, psychology and sociology.(Barker R, Best M & Domjan M, eds.) *Learning mechanisms in food selection.* Waco, TX: Baylor University Press, 1977. p. 557-83.
3. **Kalat J W.** Biological significance of food-aversion learning. (Milgram N W, Krames L & Alloway T M, eds.) *Food aversion learning.* New York: Plenum, 1977. p. 73-103.