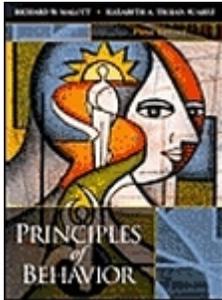


## Hull's *Principles of Behavior* and Psychology's Unity

A review of



### **Principles of Behavior: An Introduction to Behavior Theory**

by Clark Leonard Hull

Oxford, England: Appleton-Century-Crofts, 1943. 422 pp.

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Reviewed by

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From the 1940s to the mid 1960s, Hull's *Principles of Behavior: An Introduction to Behavior Theory (PB)*, with its hypothetico-deductive approach and its extensive conceptual formulas, was a dominant force in psychology.<sup>1</sup> By the 1970s, with the realization that Hull's theorizing was conceptually and empirically flawed and with a shift in theoretical commitment, *PB* became another historic relic. However, it is important to reconsider Hull's contribution, beyond its historical interest, because *PB* raises important systematic issues that currently are being debated, including whether psychology can be a unified science.

## Historical Context

Hull's approach arises out of his dissatisfaction with psychology's theorizing in the post-World War I period. Responding to numerous divergent perspectives presented in Murchison's (1927, 1930) *Psychologies of 1925* and *Psychologies of 1930*, he notes,

If all of these 12 psychologies should be in specific disagreement on a given point, then at least 11 of them must be wrong, and in such a welter of error the twelfth may very well be wrong also; it is difficult under such circumstances to see how all can be right about everything. (Hull, 1935, p. 492).

Beyond the problem of truth, Hull expresses concern about the larger implications of such disagreements. “This ... inability to progress materially toward agreement [does] not square with the ideals of objectivity and certainty which we associate with scientific investigations” (Hull, 1935, p. 492).

For Hull, this theoretical discordance arises from positions based in irresolvable, nonempirical foundational issues. He seeks to replace these theories with empirically testable claims derived from a hypothetico-deductive theory, as best illustrated in *PB*. He chooses Newton's (1687) *Principia Mathematica* as his model, a work he is passionate about. His approach is also informed and shaped by the developing philosophical discussions (e.g., operationalism and science of science) that attempted to conceptualize science in the most objective, linguistically precise form. Thus, Hull, in his choice of model and philosophical perspective, clearly allies himself with psychology's late-19th-century commitment to becoming a physics-like natural science.

Because Hull extends earlier radical behaviorism's focus on learning via conditioning as the central unit of analysis, he maintains that his approach would have broad generality to diverse areas of psychology and beyond.

We should be able not only to predict what rats will do in a maze under as yet untried circumstances, but what a man will do under the complex conditions of everyday life.... The attainment of a genuinely scientific theory of mammalian behavior offers the promise of development in the understanding and control of human conduct ... comparable to the control already achieved over inanimate nature, and of which the modern world is in such dire need. (Hull, 1935, p. 515).

In the 1930s (and until his death in 1952), Hull was a member of the emerging Yale Institute of Human Relations, a setting that provided fertile support for his broad, generalizing ideas. The institute's clearly stated purpose was to reduce the Babel of languages among the social sciences through the collaboration of eminent scholars, in a broad range of social science

disciplines: Unification could thus be achieved via a single language that would represent the study of humankind. This hoped-for cross-fertilization among social science disciplines has not occurred. However, Hull willingly provides a behavioral language, as embodied in *PB*, that claims to have that elusive unifying perspective.

What emerged from Hull's dominating theoretical position at the institute was a series of seminal collaborative studies among psychologists, anthropologists, psychiatrists, and political scientists, in varying combinations. Hull's concepts, if not his formulas, allow for the translation of one language (largely psychoanalytic, a perspective that Hull considers so imprecise as to border on the metaphysical) into behavioral terms. This approach is not integrative in granting legitimacy to both theoretical positions. Rather, it absorbs psychoanalysis's "subject matter, concepts, and principles ... but ignore[s] the analytic method and theoretical structure ... that serve[s] to define [its] concepts" (Sears, 1985, p. 215).

For all of the impressive outcomes of Hull-inspired Yale Institute research, such as Dollard and Miller's (1950) *Personality and Psychotherapy: An Analysis in Terms of Learning, Thinking, and Culture* or Whiting and Child's (1953) *Child Training and Personality: A Cross-Cultural Study*, this attempt to provide a unifying, single, behavioral-based language has not been effective in reducing the multiplicity of existing languages and perspectives, both within psychology and across the social sciences. However, the use of such a language as the basis of unification continues to be a major contender in the contemporary, highly disunified discussions regarding unification.<sup>2</sup>

## Natural Science Unification Strategies

The concept of unifying via a behavioral, learning-oriented perspective found its current expression in the writings of Kimble (1994; Hull-oriented learning approach) and Staats (1994; operant conditioning perspective). Both maintained that the disparate aspects of psychology could be unified through a natural science approach where conceptual and methodological considerations were rooted in observable, measurable aspects of behavior, especially learned behavior. Although both authors recognized that there were other aspects of psychology that did not fit their view, particularly some of the arenas considered by the social or human sciences, such as social constructivism, neither Kimble nor Staats was clear as to what extent these other domains could be incorporated within the natural science approach.

Implicit in the behavioral–natural science approach was the need to partition, to redefine psychology's borders, by specifying the criteria for what could be legitimately called "psychology." Such demarcations, with a likely separation of scientific psychology from human science, enhanced psychology's strong commitment to a physics-like approach

by purging those views that undermined its possibility and achievement. Unification via such an exclusionary strategy also provided the valued possibility of a more direct, expeditious route to paradigmhood, that valued state of shared conceptual and practice commitments and language that characterizes mature sciences (Kuhn, 1970). Thus, psychology's current state of disunity could be regarded as a passing phase on a predictable journey along the road that characterizes the evolution of the natural sciences (Staats, 2004).

Hull is concerned not only with creating a physics-like, natural science form of psychology but also with the value of the obtained knowledge. One cost of unification via excluding, diminishing, and/or reconceptualizing problematic and sometimes incommensurate aspects of behavior is the possibility of limiting the range and significance of what is known. However, this constraint would likely be finessed by a redefinition, within the approach's framework, of what constitutes significant knowledge. Such a reconceptualization could alter our often unstated yet highly influential assumptions about the nature of humans and human relations.

Although Hull's hypotheticodeductive strategy and formulas now appear anachronistic, his strategy for unification, as embodied in recent natural science approaches, is still contemporary. From this perspective, Hull's *PB* provides an important, although faulty, step on this route to unifying psychology. Although 60 years have passed since the publication of *PB*, with its approach to unification, it is still unclear how productive this strategy will be in reducing psychology's disunity.

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1 Within 10 years of the appearance of Hull's *PB*, 40% of all experimental studies in the two major learning journals cited his theory, with that percentage increasing to 70% when the fields of learning and motivation specifically were assessed. His influence extended beyond these fields, with *PB* being cited four times as often as the next commonly associated work in the *Journal of Abnormal and Social Psychology*. Spence's (1961) research was also highly visible: He was the most cited psychologist in experimental psychology journals into the 1960s (Hergenhahn, 2005, p. 400).

2 The current extensive discussions diverge on such issues as whether psychology can or should be unified, what aspects of psychology should be unified, by what means psychology should be unified, and what the implications of disunity are for psychology and society. The alternatives offered include the perpetuation of disunity, mutual toleration of different perspectives, eclecticism, a search for common themes, and separatism.

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