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## BEHAVIOR ANALYSIS AND PRAGMATISM

## ANÁLISE DO COMPORTAMENTO E PRAGMATISMO

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### ABSTRACT

For pragmatism, the meaning of a psychological concept or statement is found in its practical implications for human affairs. Absent is any assumption that the concept or statement represents the Truth about a metaphysical Reality that lies beyond human experience and behavior. Behavior analysts embrace pragmatism, and argue that an important consideration in psychology is the degree to which a psychological concept or statement contributes to effective action in the laboratory or in service delivery. The effective action commonly takes the form of prediction and control.

*Keywords:* pragmatism, prediction and control, mentalism, levels of analysis, neuroscience

### RESUMO

Para o pragmatismo, o significado de um conceito ou afirmação psicológica é encontrado em suas implicações práticas para os assuntos humanos. Não há qualquer suposição de que o conceito ou afirmação representa a Verdade sobre uma Realidade metafísica que está além da experiência e do comportamento humano. Os analistas do comportamento abraçam o pragmatismo e argumentam que uma consideração importante na psicologia é o grau em que um conceito ou afirmação psicológica contribui para uma ação efetiva no laboratório ou na prestação de serviços. A ação efetiva comumente assume a forma de previsão e controle.

*Palavras-chave:* pragmatismo, previsão e controle, mentalismo, níveis de análise, neurociência.

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This article is taken from material I developed over the years to help in my own teaching on the topic of pragmatism in behavior analysis. I offer it here in the hope others will find it useful. In keeping with the instructional goal of the article, references are at a minimum. In addition, both the language and the arguments are more informal than in other articles. If I have fallen short in the execution, I apologize and ask for the reader's tolerance. I can only say the contingencies haven't finished with me yet. Correspondence concerning the article should be addressed to the author at [jcm@uwm.edu](mailto:jcm@uwm.edu), or at his home address: 1861 E. Fox Lane; Fox Point, WI 53217; USA.

## BEHAVIOR ANALYSIS AND PRAGMATISM

Pragmatism is an orientation in philosophy, although its implications extend to other forms of intellectual activity. The present article is concerned with its implications for a science of behavior.

In simple terms, pragmatism holds that the meaning and value of concepts and statements are most usefully assessed in terms of their practical consequences in the world of human affairs, such as the extent to which they aid adaptation. Pragmatism is often contrasted with traditional views in which philosophers construct complex metaphysical systems in an effort to represent what they take to be the Truth about Reality. Many of the classical philosophers loom large in this regard: Plato, Descartes, Kant. Pragmatism suggests these efforts are misguided. When the concepts and statements are scientific, pragmatism argues that their meaning and value are a matter of what they imply for effective interaction with nature, commonly through prediction and control.

### A BRIEF HISTORY OF PRAGMATISM

Pragmatism has a long history. For example, the English polymath Francis Bacon (1623/1937) is sometimes credited with pragmatic thinking when he argued in favor of science as fundamentally concerned with “shaping nature as on an anvil” (p. 413) and achieving outcomes that benefit humans through direct, practical action. Similarly, the great Austrian physicist and philosopher Ernst Mach (1886/1959) once said, “The ways even of science still lead to the mouth” (p. 23). In more modern times, many important American thinkers in the late 1800s and early 1900s who were active in both psychology and philosophy are regarded as pragmatists. Two such thinkers are John Dewey (e.g., 1896) and William James (e.g., 1892). As an illustration, we note that James emphasized “All natural sciences aim at practical prediction and control and in none of them is this more the case than psychology to-day” (p. 148). James went on to argue that what “every educator, every asylum superintendent, asks of psychology is practical rules” that will help these professionals to improve the ideas, dispositions, and conduct of people in their charge (p. 148). In a similar vein, the two opening sentences of Watson’s (1913) “behaviorist manifesto” are well known: “Psychology as the behaviorist views it is a purely objective branch of natural science. Its theoretical goal is the prediction and control of behavior” (p. 158). Here we can see that very early in the analysis of scientific thinking, the value of a scientific statement was assessed in terms of its contribution to effective action, such as prediction and control.

Although B. F. Skinner was an experimental psychologist rather than a philosopher, much of his work also embraced pragmatism. One example is when Skinner (1974) said that “Scientific knowledge is verbal behavior.... It is a corpus of rules for effective action... [A] proposition is true to the extent that with its help the listener responds effectively to the situation it describes” (pp. 241-242). This passage

indicates that Skinner subscribed to a pragmatic conception of science that emphasized how humans might interact effectively with the world, rather than to the traditional conception of Truth and Knowledge as some representation of a metaphysical reality.

### PRAGMATISM VS TRADITIONAL VIEWS: PREDICTION AND CONTROL

Many traditional views of scientific knowledge do recognize the technological importance of prediction and control, but nevertheless argue that genuine scientific knowledge consists of contemplative statements about theoretical mechanisms or structures that supposedly underlie observations (Smith, 1992). To this end, laws, equations, and models are regarded as the highest form of scientific knowledge, insofar as they are held to reflect the operating characteristics of the underlying theoretical mechanisms or structures. Control is seen as a pedestrian engineering problem that follows from how to apply the contemplative forms of genuine scientific knowledge.

To be sure, these matters are complex. For example, a traditional and a pragmatic view of science may not differ as much as a traditional view supposes. Much of the discussion turns on the role of prediction: Is it a formal property of an explanatory system, or is it important for pragmatic reasons? Although traditional views emphasize its formal properties, Skinner (1953) emphasized the pragmatic importance of prediction in the following way:

The scientific “system,” like the law, is designed to enable us to handle a subject matter more efficiently. What we call the scientific conception of a thing is not passive knowledge. Science is not concerned with contemplation. When we have discovered the laws which govern a part of the world about us, we are then ready to deal effectively with that part of the world. By predicting the occurrence of an event we are able to prepare for it. By arranging conditions in ways specified by the laws of a system, we not only predict, we control; we “cause” an event to occur or to assume certain characteristics. (pp. 13-14)

Similarly, a theoretical model may inform efforts to predict and control by identifying ranges of interventions that might be undertaken, or ranges of effects that might be expected from a given intervention. Our point here is that on a pragmatic reading, what appears as a distinct, alternative view may be seen as directly relevant to a pragmatic view of scientific knowledge.

### WHY IS PRAGMATISM NOT SIMPLY INSTRUMENTALISM?

A topic that is nominally related to pragmatism is instrumentalism. Instrumentalism is the thesis in traditional views that one of the goals of science is simply to propose concepts that will generate testable predictions. When these concepts are verified through research, they become incorporated into the theory that is the ultimate goal of science. On this view, scientists need not be concerned with

the origins of the concepts. The origins might lie in the insight of the scientist, but in any case their origins are incidental to their verification and their role in theory building.

Behavior analysts understand that pragmatism and instrumentalism overlap in some sense, but behavior analysts suggest pragmatism goes further than instrumentalism by arguing that if some concept generates testable and verifiable predictions, the important question is the basis by which it does so. The origin of the concept cannot be so easily set aside, as it is in instrumentalism. Rather, behavior analysts ask, What variables and relations does the concept take into account? How are these variables to be manipulated to produce a desired end? These questions follow directly from a behavioral account of the sources of scientific verbal behavior, rather than a traditional account in terms of reference and symbolism. Clarification and refinement of the sources of the verbal behavior will enhance their contribution. Instrumentalism stops short of asking these pragmatic questions. Thus, for behavior analysts pragmatism is not equivalent or reducible to instrumentalism.

#### **PRAGMATISM AND CLINICAL VERSUS STATISTICAL SIGNIFICANCE**

We may further note that scientists and researchers sometimes distinguish between (a) effect size and clinical significance, on the one hand; and (b) p-value and statistical significance in null-hypothesis testing, on the other. According to this distinction, some research findings might be clinically significant and inform manipulations that have the desired practical effect, and these findings may be usefully distinguished from others that might be statistically significant but fall short of yielding effects that are of sufficient magnitude to be important for practical reasons. When scientists and researchers make these distinctions, they are surely making a pragmatic distinction about how research might identify effective manipulations. Behavior analysts emphasize the importance of this distinction, and emphasize the clinical, rather than statistical significance of findings whenever possible.

#### **PRAGMATISM AND THE RELATION BETWEEN NEUROSCIENCE AND BEHAVIOR ANALYSIS**

To see further implications of pragmatic considerations in psychology, we may examine three controversial matters: (a) the relation between neuroscience and the study of behavior-environment relations, (b) levels of analysis—the molar versus molecular question, and (c) the relation between mentalism and behavior analysis (e.g., Moore, 2016). With regard to the first matter, many traditional researchers and theorists argue that some form of behavior hasn't been truly explained until some physiological mechanism that underlies the behavior has been identified. On a pragmatic view, we note that this argument is a metaphysical claim about what True Knowledge and True Explanation consist of. So conceived, the argument is inconsistent with a

pragmatic orientation. To say we know something is to say that we can behave effectively in one circumstance or another. To say we have explained some form of behavior is to say we have identified the variables and relations of which it is a function and by which we might control it. For example, we can make the behavior appear or disappear on command, with the properties and rate or probability we wish. In principle, we might be able to predict and control behavior through either (a) a physiological intervention, such as by administering a pill or an injection; or (b) an environmental intervention, such as by manipulating a contingency of reinforcement. The specific intervention we employ might depend on the resources available to us at the time and in the setting we want to predict and control. Obviously, our choice of an intervention also depends on our level of knowledge about the behavior in question. At present we are a long way from having a level of knowledge that facilitates this sort of effective physiological intervention. Our point here is perhaps abstract: either form of intervention—physiological or environmental—may achieve the desired end, and no one form is privileged by being the foundational basis for the other. Rather, our choice is a matter of practical considerations (e.g., Skinner, 1974, p. 221).

#### **PRAGMATISM AND LEVELS OF ANALYSIS**

The second matter—the appropriate level of analysis for our knowledge claims in psychology—also entails practical considerations. It is an empirical matter whether a given class of behavior that we wish to influence, say by making the behavior more probable if it is currently deficient or less probable if it is excessive, is a function of events, variables, and relations at the large scale, molar level, or at the reduced scale, molecular level. Behavior analysts emphasize it is useful for scientists to remain sensitive to this question. Our methods will reveal the answer, such as through controlled research in the laboratory or functional analyses in applied settings. A priori claims that we should work only at one or the other level because that level reflects the metaphysically True or Real level will not provide the answer.

#### **PRAGMATISM AND THE RELATION BETWEEN MENTALISM AND BEHAVIOR ANALYSIS**

The third matter concerns the relation between mentalism and behavior analysis. We note that behavior analysts are opposed to mentalism. On a pragmatic interpretation, the opposition to mentalism is based on the view that mental theories and explanations do not promote effective prediction and control. Why? For behavior analysts, mental theories and explanations are largely ineffective at prediction and control because they generally regard the origin of mental variables as autonomous and not a function of behavioral contingencies and selection at the levels of phylogeny, ontogeny, and the culture. The

source of control over mentalistic verbal behavior lies in social-cultural tradition, reification, and mischievous metaphors, rather than observations of ongoing processes and generic extensions of our descriptions. Predictions derived from mental theories and explanations may sometimes appear to be accurate, and therefore to be useful, but for behavior analysts, their utility follows from the way they incorporate behavioral contingencies and selection—albeit implicitly—at the levels of phylogeny, ontogeny, and the culture, rather than the way they incorporate mental variables that are argued to be epistemologically superior to behavioral variables.

In a similar vein, we may examine behavior analytic objections to mentalism that say mental structures and mechanisms don't actually exist and therefore shouldn't be included in psychological theories and explanations. If we as behavior analysts argue in this way, we risk being unpragmatic and violating one of our guiding principles. When we make such claims, we are talking metaphysically, not different in principle from a mentalist who argues that mental structures and mechanisms obviously do exist and therefore must be included in psychological theories and explanations. Again, at issue is the extent to which a scientific statement contributes to prediction and control. Yes, mental statements don't contribute very much to prediction and control. Chomsky's theory of language doesn't do much to help speech pathologists teach children with impoverished verbal repertoires to strengthen their verbal repertoires. Rather, we may understandably want to employ the most effective theories and explanations. These are behavioral theories and explanations. It is sufficient to say they are to be preferred because they promote better prediction and control and to avoid debates about ontology about which there is likely to be no resolution.

## CONCLUSION

In sum, by adopting a pragmatic orientation, behavior analysts may become better scientists, practitioners, and indeed citizens, all of which enable behavior analysts to better contribute to the important world of human affairs and human welfare.

**Important words and phrases:** Instrumentalism, mentalism, metaphysics, molar vs molecular levels of analysis, neuroscience, pragmatism, prediction and control, Truth, Reality.

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