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John B. Watson's legacy: concepts, method or institutional rupture?

*El legado de John B. Watson:
¿conceptos, método o ruptura institucional?*

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Abstract

A review about Watson's concepts, method and institutional challenges shows that there is a great misunderstanding about the actual contributions by John B. Watson to modern behavior theory and psychology in general.

Key words: John B. Watson, reflex, method, language, thinking, development.

Resumen

Una revisión de los conceptos, método y desafíos institucionales de Watson muestra que hay una gran incomprensión acerca de las contribuciones de John B. Watson a la teoría moderna de la conducta y a la psicología en general.

Palabras clave: John B. Watson, reflejo, método, lenguaje, pensamiento, desarrollo.

The publication in *Psychological Review* of "Psychology as the behaviorist views it" by John B. Watson was a crucial event in the history of psychology. Although this was not the first contribution by Watson, nor the only paper in the same issue proposing some sort of behaviorist standpoint for developing an objective psychology, it is now a sociological truism to say that Watson's *Manifesto* was the beginning of a new scientific movement in regard to the subject matter and methods of psychology. This new perspective became, for some of us, what Skinner called a special philosophy of science, and its conceptual and social impact was so large that Schoenfeld (1983) thought all contemporary psychology may be considered in some way "behaviorist".

In 1969 Kantor wrote as follows:

The development of psychological Behaviorism is without any doubt one of the most significant events in the whole of modern science. Certainly no other event in psychological history since the Greeks appears so stirring and revolutionary. (p. 357)

Nevertheless in the light of the significant effect of Watson's *Manifesto* in the history of psychology, it is surprising to note the present shallow neglect with which Watson's contributions to contemporary behavioral psychology have been treated (to employ one of those strange adjectival uses to refer to our discipline). Watson's behaviorism as a general movement in psychology represented a radical change in the subject matter, methods and institutional concepts of psychology. It is my intention to examine Watson's contributions in this regard as an initial standpoint from which behaviorism developed in the last eighty years.

Watson and the subject matter of psychology as a problem of method

Psychology, before Watson's *Behaviorist Manifesto*, was dominated by structuralism and functionalism, two approaches based upon phenomenological interpretations of human consciousness. In spite of the fact that there was a growing concern and dedication for the study of animal intelligence from the perspective of evolutionary biology and Darwinist and Lamarckian formulations (Boakes, 1984), the mainstream of psychology dealt with subjective experience as consciousness. Pavlov, in the first lecture of *Conditioned Reflexes* (1927, English translation), commented that:

...I will stay to give one fact which strikes me very forcibly, viz. that even the advocates of psychology do not look upon their science as being in any sense exact. The eminent American psychologist, William James, has in recent years referred to psychology not as a science but as *hope* of science. Another striking illustration is provided by Wundt, the celebrated philosopher and psychologist, founder of the so-called experimental method in psychology and himself formerly a physiologist. Just before the war (1913), on the occasion of a discussion in Germany as to the advisability of making separate chairs of Philosophy and Psychology, Wundt opposed the separation, one of his arguments being the impossibility of fixing a common examination schedule in psychology, since every professor had his own special ideas as to what psychology really was...(p. 3)

It is not surprising that the formulation of a new subject matter for psychology would be closely tied to the discussion of the dominant method of that time: introspection. Introspection, following the myth of the "ghost in the machine" (Ryle, 1949) consisted of metaphorical looking into the mind by the subject himself. Since experience was private and unique to the subject, he/she was the only one able to observe this experience and to report it to an independent observer. The criticism regarding experience and consciousness as the subject matter of psychology had inevitably to be extended to introspection as the privileged method of empirical psychology.

Science can not deal with private and unique events. One or more additional observers are always required for the development of a data language based upon the interpretation of events as facts. Observation should not be confounded with sensing or perceiving. Although observing involves some kind of sensing and perceiving, observing does not correspond to the sensing or perceiving of the special physical or chemical properties of objects and events. I may observe that somebody is stealing something from a purse, but when observing, in addition to sensing and perceiving, I *interpret* the events as stealing. It does not make sense to say that I am sensing that somebody is stealing. If I say that I saw somebody stealing I use "seeing" as observing and not as sensing. Observing is always interpreted perception, and to that extent, observing does not refer necessarily to direct sensible properties, but to sensible properties that can be interpreted in the same way by two different observers *given the presence of those properties and a practical convention regarding how they may or should be perceived*.

Watson's emphasis in a new subject matter *and* method for psychology was also directed against the influence of psychoanalysis in what I might call "applied psychology". Both consciousness and unconsciousness seemed to be

improper subject matters for a "purely objective experimental branch of natural science" (1913, p. 158). The difficulties in reproducing the results of introspective experiments, according to Watson (1913), were attributed "to the fact that our introspection is untrained. The attack is made upon the observer and not upon the experimental setting. In physics and in chemistry the attack is made upon the experimental conditions" (p. 163). The need for a new subject matter for psychology grew from the lack of shared criteria regarding psychological data. Watson did not argue about the existence or non-existence of "mental states" and similar "stuff". He argued against the possibility of developing an *objective* data language from such terms.

As the alternative to the then dominant psychology, Watson (1913) stated that:

...I feel that *behaviorism* is the only consistent and logical functionalism. In it one avoids both the Scylla of parallelism and the Charybdis of interaction. Those time honored relics of philosophical speculation need trouble the student of behavior as little as they trouble the student of physics. The consideration of the mind-body problem affects neither the type of problem selected nor the formulation of the solution of that problem. I can state my position here no better than by saying that I should like to bring my students up in the same ignorance of such hypotheses as one one finds among the students of other branches of science. (p. 166).

Watson wished to avoid conceptual and empirical confusion, and to do so he considered that the only safe way was to resort to behavior as the subject matter of psychology. This was to be done because behavior is observable in the sense that it is always linked to *consensable* properties, and because the study of animal behavior had shown to be amenable to objective experimental analyses as contrasted to those related to human beings. Watson (1913) said:

The psychology which I should attempt to build up would take as a starting point, first, the observable fact that organisms, man and animal alike, do adjust themselves to their environment by means of hereditary and habit equipments. (p. 167)

It is important to stress that Watson did not reject complex psychological processes as legitimate problems of psychology. He rejected the conceptual confusion involved in using common-sense words as technical words identifying fictional entities such as imagery, consciousness, and so on. Watson thought

that behaviorism, as an objective psychology, would eventually deal with complex problems in terms of observable descriptions and explanations, and that many of the problems raised by introspective psychology were, in fact, pseudo-problems.

When discussing consciousness, Watson (1913) said that:

(Psychology) can dispense with consciousness in a psychological sense. The separate observation of 'states of consciousness' is, on this assumption, no more a part of the task of the psychologist than that of the physicist. We might call this the return to a non-reflective and naive use of consciousness. In this sense consciousness may be said to be the instrument or tool with which all scientists work.

Whether or not the tool is properly used at present by scientists is a problem for philosophy and not for psychology. (p. 176) ...Psychology as behavior will, after all have to neglect but few of the really essential problems with which psychology as an introspective science now concerns itself. In all probability even this residue of problems may be phrased in such a way that refined methods in behavior (which certainly must come) will lead to their solution (p. 177).

In 1924 Watson no longer assumed a continuity between animal and human behavior, although he still believed that animal studies could provide information relevant to the explanation of human behavior. His definition of psychology still stressed the obviousness of behavior to be its subject matter, and he still insisted upon the need for relying in an objective method in order to directly grasp behavior, previously embedded in the inconsistent procedures involving introspection and verbal reports. Watson (1924) stated:

...Why don't we make what we can observe the real field of psychology? Let us limit ourselves to things that can be observed, and formulate laws concerning only those things. Now what can we observe? We can observe behavior-what the *organism does or says*. And let us point out at once: that saying is doing-that is behaving... (p. 6).

In his 1916 paper on *The Place of the Conditioned Reflex in Psychology*, Watson had proposed an alternative to introspection as a *general experimental method*: the conditioned reflex method, specially that related to motor conditioning as developed by Bechterew. The conditioned reflex method was shown to be adequate for the study of both animal and human behavior, and was advanced in various works by Watson as the framework for analyses and *interpretation* of

emotions, habits, thinking and personality (1924-1926). It is specially noteworthy that in later discussions Watson moved his main focus from animal to human behavior, and although he did recognize the applicability of the conditioned reflex method to both kinds of subjects, he accepted that biological environment and culture as the specific environment of mankind did make a difference (Logue, 1978). Nevertheless, in spite of the obvious differences among species, the conditioned reflex method seemed to be the most powerful tool at hand for the experimental study of psychological phenomena as behavior. So-called mental tests were also recognized by Watson (1924) but just as objective but not entirely satisfactory devices for grading and sampling human performance.

Behavior as reflex

Although Watson continued using the term habit for the analysis of behavior, he equated habits and reflexes. For instance in 1926 Watson, in an address to neurologists said:

The behaviorist's psychology is based on reflexes —your reflexes (p. 185).

The incorporation by Watson of the conditioned reflex as the paradigmatic method for experimental psychology had a double effect:

- a) Behaviorism as a general movement in psychology, adopted not only the method, but also the concepts and logic of conditioning theory, in such a way that behavior theory came to be seen as conditioning theory; and
- b) The concept of habit —as opposed to instinct—, central to the analysis developed by functionalism, became equated with the concept of reflex, Watson being the initial interpreter of habits as reflexes (1924).

Frequency, recency, and change of stimulus conditions (something similar to what we presently call positive and negative reinforcement) were proposed by Watson to explain the formation and growth of habits. Habits grew out from unlearned behavior functionally dependent of biological equipment through response and stimulus substitution. From these initial responses (in certain way similar to what Kantor, 1924-1926, called "reactional systems"), their repetition and effectiveness in special situations, their integration with varied stimulus modalities, and their association to particular stimuli, individuals build up, in a continuous adjustment process, habits and emotions. But habits

and emotions, as learned behavior, could be thought of in terms of conditioned reflexes. Watson (1924) stated that:

The relationship, theoretically, between the simplest cases of the conditioned responses we have studied and the more complicated, integrated, spaced and timed habit responses we are considering, seems to be quite simple. It is the relationship apparently of part to whole—that is, the conditioned reflex is the unit out of which the whole habit is formed. In other words, when a complicated habit is completely analyzed, each unit of the habit is a conditioned reflex. (p. 207)

The variation and demands of the environmental stimuli determined the complexity and extension of habits. Habits tended to consist of responses conditioned to visual, auditory and other kind of stimuli. Their repetition (effective repetition one should note) displaced the relation of movements towards kinaesthetic stimuli, transferring sequence control to the subject's own behavior. This allowed Watson to account for automation of behavior, as well as language habits becoming thinking. Internal control was conceived as a second, final stage in the development of habits.

Memory was analyzed by Watson from a twofold perspective. In the first place, memory could be conceived in terms of habit mastery. In the second place, memory dealt with the formation of verbal habits. As with many other traditional issues in psychology, Watson questioned the relevance of the ordinary term for the analysis of actual behavior. Contrary to what is commonly assumed about his position, Watson did not enter into ontological discussions about the existence or not of mental entities. He stressed the instrumental character of language in the knowing process of science, and consequently, he argued about the misleading role that words as such may play when they are taken as equivalent of entities, instead of looking at individuals behaving in actual situations. In the case of manual habits, Watson thought that "memory" was speculation supplanting the mastery and retention of a series of learned responses to stimuli in the environment. For him, memory in this context could be examined as follows:

Putting all of our various factors together, we find that after a manual act has been learned and then put aside for a definite period of disuse or no practice —some loss in the efficiency of the habit occurs, but usually ...the loss is not total. If the period of disuse is long enough, a total loss can occur in any habit. The amount of loss in a given habit varies in different individuals. Again, the same

individual will show a different rate of loss for different types of habit. (1924, p. 222)

There is a surprising similarity between this analysis by Watson and that offered by Ryle (1949) regarding the functional use of the term "memory" in ordinary language. As I have pointed out in a previous paper (Ribes, 1991) to say that someone has *learned* something means that he has done something in order not to forget it.

A second meaning of memory for Watson had to do with verbal habits. Verbal habits are the necessary condition for the analysis of remembering. When a person does not remember it means that he is not able to talk about what he did or said. Watson assumed that the whole series of behaviors involved in the actions not remembered were not organized in terms of vocal and subvocal responses. Because of this, the person that was not able to remember something was not lacking some memory function. The event to be remembered was not organized in terms of a verbal habit. As Watson (1924) comments:

That aspect of 'memory', which is supposed by the introspectionist to be difficult for the behaviorist to cope with, is merely the calling out of the verbal parallels of habits earlier put on. Memory in the behaviorist's sense is any exhibition of manual, verbal or visceral organization put on prior to the time of the test. (p. 265)

When verbal habits have not been the dominant organizers of behavior, events or actions can not be remembered as "recall" because there was no correlated verbal action. They can be remembered as doing or reacting but not as talking about them. Once they have been exercised again, verbal correlates may be added. For Watson this explained, to a great extent, the "uncovering of repressed memories" by psychoanalysis.

Thinking is another important issue in the analysis of behavior provided by Watson, and it is also the interpretation around which there has been the greatest misunderstanding. For Watson, language and thinking were the psychological processes which distinguished man from other animals:

...we take up a great field of learned activities which the brute cannot even enter, much less compete in. This is the field of language habits-habits which when exercised

implicitly behind the closed doors of lips we call *thinking* (1924, p. 225)

Watson stated that language depends upon the biological equipment of human body that allows for the production of articulated sounds, and in its beginnings language develops as what he called a manipulative habit. Afterwards these unlearned vocal sounds, through both incidental and formal training, become verbal habits in relation to words and objects presented by adults. The development of verbal habits follow a complex simultaneous process in which conditioning of simple words is correlated with the establishment of two- and three-word phrases and sentences.

Watson conceived language as an activity closely tied to bodily economy. Words, through conditioning, become substitutes for objects. He discussed this function of language (1924):

The fact that every object and situation in the external environment is named is of vast importance. Words not only can and do call out other words, phrases and sentences, but when the human being is properly organized they can call out all of his manual activity. The words function in the matter of calling out responses exactly as did the objects for which words serves as substitutes. (p. 233)

This *equivalence for reaction*, attributed by Watson to language, allowed him to conceive meaning as *actual behavior* and to advance the whole concept of self-control or self-regulation of behavior as language. Watson (1924) develops this idea when he says that:

Soon the human has a verbal substitute within himself theoretically for every object in the world. *Thereafter he carries the world around him by means of this organization.* (p. 234, his emphasis)

Since language was conceived as verbal habits, its organization followed the same course that visceral and manual habits. After series of responses are organized around series of objects, the responses may occur without the objects being present through the kinaesthetic organization of the habit. In the case of verbal habits, kinaesthetic substitution of external stimuli allow for retention of responses (memory) and the development of thinking.

For Watson, thinking is talking to ourselves. This talking appears when kinaesthetic stimuli substitute for visual auditory and their varieties of external stimuli. But thinking is *not* the mere subvocal movements of the larynx. It is the

habit of substituting for any object or action through subvocal talking when the subject is talking to himself. Watson (1924) settles the issue as follows:

I wish here expressly to affirm that in developing this view I have never believed that the *laryngeal movement* ... as such played the predominating role in thought. My theory does hold that the muscular habits learned in overt speech are responsible for implicit or internal speech (thought) (pp. 238-239)

Watson's (1924) conception of thinking as "all word behavior of whatever kind that goes on subvocally" (p. 243) allowed him to examine varied forms of thinking as analogues to manual habits. The main difference between them had to do with the substitution of words for objects. Although Watson considered thinking as a subvocal verbal habit, he insisted that, when thinking, as in any other kind of behavior, was involved the functioning of the whole organism was involved. This occurred not only for already learned behavior, but also during the learning process itself. Watson (1924) pointed out that:

We thus think and plan with the whole body. But since, as I have already pointed out, word organization is, when present, probably usually dominant over visceral and manual organization, we can say that thinking is largely subvocal talking —provided we hasten to explain that it can occur without words. (p. 200)

Watson (1926) provided a detailed account of thinking as a complete bodily organization:

I take the position today that whenever the individual is thinking, the whole of his bodily organization is at work (implicitly) —even though the final solution shall be a spoken, written or subvocally expressed verbal formulation. In other words, from the moment the thinking problem is set for the individual (by the situation he is in) activity is aroused that may lead finally to adjustment. Sometimes the activity goes on: (1) in terms of implicit manual organization; (2) more frequently in terms of implicit verbal organization; (3) sometimes in terms of implicit (or even overt) visceral organization. If (1) or (3) dominates, thinking takes place without words (p. 199)

Summarizing, I may say that Watson not only provided a new subject matter for psychology in accord with the characteristics of natural sciences, but also incorporated a *method* for investigating and interpreting those *traditional* psychological concepts borrowed from philosophical discourse and common-sense

language. Emotions, skills, memory, language, imagining and thinking were framed in a new perspective in which behavior and its development, through conditioning of what Watson called "embryological" responses, became the focus of observational and experimental methods. Quite contrary to what has been asserted, Watson's analyses were far from simple. Many of his insights seem to bear upon contemporary discussion in behavior theory, and even some of the problems he discussed fill the conceptual gaps in modern research and theoretical work. Development and personality are two outstanding examples of this.

Watson as an institutional challenger

Watson and the whole behaviorist movement, entered into direct contradiction with the dominant traditions in psychological and social thinking. Traditions in psychology, as Kantor has convincingly demonstrated, are closely tied to religious and cultural institutions (1969). It is not surprising to find out that in proposing a new subject matter and method for psychology, Watson was at the same time challenging powerful social institutions which were supporting and depending upon traditional psychological interpretations of man's doings.

Watson continually criticized the profound influence of religious traditions and social conservatism in many of the then prevalent conceptions of psychology, with reference to the issues of human instincts, intelligence, education, cultural patterns, social planning and the like. Watson himself was, in part, victim of such social prejudices. He was aware of this when saying (1924):

...We have been accused of being propagandists, of heralding our conclusions in the public press rather than in the more dignified scientific journals, of writing as though no one else had ever contributed to the field of psychology, of being bolshevists. All of these are emotional criticisms indicative of the fact that behaviorism is treading on the hoof of somebody's sacred cow—it is threatening the established order of things... (p. x)

I shall examine three issues regarding Watson's defiance of traditional institutions: a) the problem of inheritance; b) intelligence and education; and c) the role of the environment in determining behavior. Many misunderstandings have been built around Watson's position on these issues, and it becomes a rewarding enterprise to learn about the fresh insights he had to offer.

The discussion about inheritance of behavior dealt with the existence of human instincts, such as those discussed by William James and W. McDougall. The belief in the existence of instincts as driving forces of human behavior have always served a double function. On one hand, they have been served as explanations of stereotyped patterns of behavior that are assumed to be shared by all individuals of the same species; on the other hand, they have been appealed to, to socially justify that certain human actions are inevitable as part of the biological endowment of the species. Watson's arguments regarding inheritance of behavior covered three aspects:

- a) The distinction between learned and unlearned behaviors;
- b) The comparative and developmental studies of young infants (including twins); and
- c) The effects of cultural differences on behavior.

Watson argued that there are unlearned responses in man that consist of embryological reactions to stimuli and environmental conditions from birth, and that they constitute the biological repertoire that defines a man as a species. These unlearned responses do not occur separately since man as "a whole animal... when he reacts he reacts with each and every part of his body" (1924, p. 94). According to the availability of these characteristic unlearned actions and reactions, man "must act (until learning has reshaped him) as he does act..." (1924, p. 113). Nevertheless, Watson pointed out that none of the behaviors that may be observed as part of the biological repertoire of man at birth coincided with those described as human instincts. The studies on twins and young infants did not seem to support the inheritance of behavior that always developed in interaction with the environment. In contrast, the differential effects of separate environments on identical twins seemed to be more striking, compared with any assumed "inherited" similarity, if found.

The argument against instincts as inherited forms of behavior, was extended by Watson to the analysis of emotions. Emotions were considered as complex visceral habits which were built up through experience on the basis of three general types of unlearned responses to stimuli. Their qualification as emotions depended upon the dominance of visceral reactions over motor reactions. However, it is inaccurate to say that Watson identified three basic unlearned emotions, since emotions, as such, are habits. Watson (1924) referring to these basic sets of visceral reactions said that "...They form the nucleus out of which all future emotional responses arise" (p. 156)

An example of how he analyzed this process is his experimental analysis of the conditioning of emotional reactions in infants and children, and his

theoretical analysis of jealousy. Emotions were conceived as complex habit patterns that, beginning from rather simple unconditioned responses, developed, increasing the number of stimuli "calling out" the responses and adding the number of involved responses. The substitutional role of stimuli in emotional behavior allowed for a same stimulus having varied "emotional" properties in different situations. Watson's treatment of emotions was farther more sophisticated than the subsequent formulations in psychology, of equating emotions with unconditioned visceral responses.

Closely tied to the discussion of human instincts is the problem of whether intelligence consists of inherited capacities and talents, as opposed to the powerful influence of culture as *the* human environment. If culture as an environment is able to shape up the most varied kinds of emotional behavior -which are based on glandular reactions and smooth muscle functioning-, why is it not plausible to make the similar assumption for behaviors which depend on striped muscles undergoing explicit training by society, as it is the case for manual and verbal habits?

When discussing emotional behavior, Watson proposed a tentative classification of substitute responses that make-up the cultural expressions of emotions even in antagonism to the unconditioned visceral reactions called-out by physical stimuli in a situation. The proposal of accessory, slowed, negative, socially non-sanctioned, and belonging-to-other-stimuli reactions, was to point to the behavioral *divergences* of emotional behavior as they are built up and regulated by different cultural environments:

...if we were to take all of life's objects and situations into the laboratory and were to work out a physiologically sound and scientific way of reacting to them (experimental ethics may approach this some day) and call these forms the norms or standards, and were then to examine man's everyday behavior in the light of such norms, we would find divergence from them the rule. (1924, p. 145)

...The behaviorist main contention is that man's emotional life is built up bit by bit by the wear and tear of environment upon him; that hitherto the building-in process has been hit or miss. The various forms of behavior have grown up unscrutinized by society. Some proof at least, has been offered to show that emotional reactions can be built-in an orderly way-in any way society may specify... (1924, p. 194)

But, if it is possible to examine the development of emotional behavior as shaped by society, despite the fact we "have no names, no words with which to

describe these [visceral] reactions" (1924, p. 166), why is it not possible to do a similar examination of behaviors that are not concealed from society's observation?

Formal and informal education are mainly devoted to the explicit training of manual and verbal habits. The influence of *social* environment on human behavior is well documented. No one would argue today against the enormous body of evidence regarding how social conditions and practices directly affect human development and standards of action. Watson was confident that since there was no evidence about traits being inherited, individual differences in *behavior* might be accounted for by the differential action of *social* environment. Watson (1924) noted that:

I would feel perfectly confident in the ultimately favorable outcome of careful upbringing of a *healthy, well-formed baby*, born of a long line of crooks, murderers and thieves, and prostitutes. Who has any evidence to the contrary? Many thousands of children yearly, born from moral households and steadfast parents become wayward, steal, become prostitutes, through one mishap or another of nurture... But let one adopted child who has a bad ancestry go wrong and it is used as incontestable evidence for the inheritance of moral turpitude and criminal tendencies... (p. 104)

The issue is not formulated in this way only to overcome the incorrectly formulated antagonism between nature and nurture. Nature always develops as nurture. The effects of cultural environment emerge in regard to the developmental time in which specific conditions influence the young human. The effects of environment are decisive during early training and childhood. It is more difficult to show the straight effects of the cultural environment in adulthood in the learning of *new* behaviors. Because of this, Watson (1924) in a frequently, but incompletely quoted passage, asserted that:

I should like to go one step further now and say, 'Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select- doctor, lawyer, artist, merchant-chief and yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations and race of his ancestors.' I am going beyond my facts and I admit it, but so have the advocates of the contrary and they have been doing it for many thousands of years. Please note that when this experiment is made I am to be

allowed to specify the way the children are to be brought up and the type of world they have to live in. (p. 104)

Although Watson's statement still sounds too strong for many who believe in the internal and biological determination of behavior, it is very difficult, in the light of the foregoing, to argue that Watson's position represented a radical, extreme environmentalism. Culture and biology keep a delicate balance in Watson's analysis about the development of behavior. Because of this, the differential contributions of both sets of influences are clearly noted. Biology provides the response systems which define an individual as member of a species, but the properties of these responses are modified by the interactions provided by the environment. Both Watson and J.R. Kantor (1924-1926) distinguished biological behavior as the initial set of reactional characteristics of an individual from psychological behavior as the patterning and functions which developed through the continuous interaction with environmental factors, throughout life-span.

Final remarks

Watson's formulations have been unjustly simplified and distorted. Revisiting him eighty years after the publication of his *Behaviorist Manifesto*, we may find a wide variety of insights and arguments that should be fruitfully taken up by modern behaviorists. Naville, the distinguished French philosopher and sociologist, recently acknowledged (1989) by second time the revolutionary contribution of Watson to social sciences in spite of the time elapsed since his first apologia in 1947, when he stated that behaviorism was the first and only attempt to bring down man's behavior under the analysis of natural science criteria.

In the same spirit, I would like to conclude paraphrasing Watson's dictum, and say:

Give psychology a dozen of John B. Watsons and I guarantee that any of them at random will change, for better, our science.

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Cognitive Processes: A Critique

Procesos cognoscitivos: una crítica

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Resumen

Este trabajo sostiene que no existen entidades tales como los "procesos cognoscitivos". En particular, es erróneo implicar que dichos conceptos fueron propuestos por los conductistas y luego reinstaurados debido a la mayor ilustración de los psicólogos cognoscitivos. Es aun más erróneo si se piensa que dichos procesos ocurren "dentro del organismo", son "psicológicos" o son "privados". No se critica a los hallazgos experimentales por si mismos sino a la superestructura teórica innecesaria que se les ha impuesto.

Palabras clave: procesos cognoscitivos, conductismo, psicología cognoscitiva

Abstract

This paper argues that there are no such entities as "cognitive processes". In particular it is misleading to imply that such processes were banished by the behaviourists and then later re-instated because of the greater enlightenment of cognitive psychologists. It is even more misleading if such processes are thought of as "inside the organism", as "psychological", or as "private". What is being criticized is not the research findings themselves but the unnecessary theoretical superstructure which has been imposed upon them.