

- Watson, J.B. & Watson, R.R. (1928). *The psychological care of infant and child*. New York: Norton.
- Weisman, R.G. & Litner, J.S. (1971). The role of Pavlovian events in avoidance training. In R.A. Boakes & M.S. Halliday (Eds.) *Inhibition and learning* (pp. 253-270). London: Academic Press.
- Williams, D.R. & Williams, H. (1969). Auto-maintenance in the pigeon: Sustained pecking despite contingent non-reinforcement. *Journal of the Experimental Analysis of Behavior*, 23, 506-521.

The Illusion of a Voice Inside our Head: Watson's solution

Víctor Manuel Alcaraz Romero
Universidad Nacional Autónoma de México

Abstract

Our culture supposes the existence of two worlds: One of them is the external reality, the other one is the internal world composed by perceptions, feelings and thinking. The internal world is not observable. For this reason, Western traditions consider that our internal life is non-material. Such conception appears when the society attempts to explain the behavior of human beings, characterized by several types of activities. It is possible to observe some responses, but sensorial reactions and thoughts are in a special situation. They are outside of our vision range. Activities in this last condition are represented through a metaphorical expression. For instance, imagination is an activity of our sensorial organs. If someone wants to talk about his imaginations, he describes a kind of miniature picture of his surroundings located in the center of his head. We believe that thinking is in the same place, like a little voice that talks to us about our ideas. Our culture can not conceive that imagination is behavior of seeing and thinking is composed by internal speech and covert acts. The only difference between overt and covert acts is their magnitude and the fact that covert acts appears without a stimulus visible to an external observer. In this paper we analyse the historical development of the construction of internal world. Our conclusion is that internal world is an illusion. It is the product of a society that represents in a metaphorical way the covert bodily reactions. The internal world is composed by different metaphors of our language elaborated with the existent constituents in each historical period.

Keywords: Internal world, metaphors, imagination, thinking.

Resumen

Nuestra cultura supone la existencia de dos mundos: una de ellos es la realidad externa; la otra es el mundo interno compuesto por percepciones, sentimientos y pensamiento. El mundo interno no es observable. Por esta razón, las tradiciones occidentales consideran que nuestra vida interna es no-matérica. Dicha concepción aparece cuando la sociedad intenta explicar la conducta de los seres humanos, caracterizada por varios tipos de actividades. Es posible observar algunas respuestas, pero las reacciones sensoriales y los pensamientos se encuentran en una situación especial. Están fuera del rango de nuestra visión. Las actividades en esta última condición se representan mediante una expresión metafórica. Por ejemplo, la imaginación es una actividad de nuestros órganos sensoriales. Si alguien quiere hablar acerca de sus imaginaciones, describe una clase de fotografía miniatura de su entorno localizada en el centro de su cabeza. Creemos que el pensar se encuentra en la misma posición, como una pequeña voz que nos habla acerca de nuestra ideas.

Nuestra cultura no puede concebir que la imaginación es conducta de ver y que el pensamiento esta compuesto de habla interna y actos cubiertos. La única diferencia entre los actos manifiestos y los cubiertos es su magnitud y el hecho de que los actos cubiertos aparecen sin un estímulo visible a un observador externo. En este trabajo se analiza el desarrollo histórico de la construcción del mundo interno. Nuestra conclusión es que el mundo interno es una ilusión. Es el producto de una sociedad que representa de manera metafórica las reacciones corporales cubiertas. El mundo interno esta compuesto de diferentes metáforas de nuestro lenguaje elaboradas con los constituyentes existentes en cada período histórico.

Palabras clave: mundo interno, metáforas, imaginación, pensamiento.

Perceptions, feelings and thinking have been psychology's favored topics of study. Each of these activities of the individual has been conceived as a conscious experience occurring within an internal space that can be submitted to scrutiny through the introspective method. This method is based on the belief that, just as we can look at the world around us, so too can we look within ourselves and observe the experiences that take place in our internal world (Humphrey, 1951). The internal world is described in various ways. Sensations

are referred to as if they were copies of environmental stimuli. There is the belief that a kind of miniature picture of our surroundings resides in our heads (Ryle, 1967). Thinking is located in the same place, in the form of a little voice that talks to us about our memories or strings together our thoughts. Emotions tinge or give color, so to speak, to the sensory copies or thoughts.

All these events of the interior world are grasped through introspection; thought is gathered in the form of images or words. The criticisms of introspection which began to be formulated did not put into question the nature of the internal world or what came to be called subjective life. Instead, they stated that this method was not reliable, since the phenomena it observed were deformed, changing and losing their-spontaneity when the attempt was made to observe them (Gemeili and Zunini, 1953).

However, the question which must really be posed is whether this internal world really exists, and whether, in order to study it, psychology must seek the means to record it objectively. In order to answer this question, it may be useful to carry out a brief historical review showing the formulation —through various epochs in the development of scientific and philosophical reflection— of this notion of an interior space in which the phenomena which are supposed to interest psychological science take place. This will help us determine whether psychology's traditional object of study is something real or the product of an illusion, a false construct produced by pseudo-explanations for a phenomenon which needs to be explained in another way.

At first, the question we are asking would seem to clash with common sense, since most members of our culture live, in a continual and immediate way, through a series of experiences which make up our psychic life: That was the position taken by Wundt when he founded the first laboratory for experimental psychology. For Wundt, there were two types of experience: the "immediate" type, which make up our psychological world, and the "mediate" type, which amount to the physical world, which can only be known through subjective experience. Thus the true reality was the psychological one, since in order to know the physical one it was necessary to make an abstraction, to strip experience of its substance, leaving only that which would be its contents. Brentano therefore said that the fundamental thing about psychological phenomena was their intentional character—that is, the fact that they are directed towards something; towards an external reality which furnishes the content of our consciousness. Thus, there is a process of representing something which is laden with intentionality and thereby constitutes the psychological; on the other hand is that which is represented, which is the physical. Every psychologi-

cal act carries an intention, is directed towards something. The phenomena examined by psychology are perception, thought, emotion; and these can be conceived of only if they have an intention, which would be that which is perceived, thought, loved or hated (Brentano, ed. 1927).

But when Wundt and Brentano put these views forward, they were merely taking up the thread of a long historical tradition. They based their assertions on that progressive construction of concepts that led finally to the creation of the interior world, subjective experience and consciousness.

So let us trace the origin of these concepts:

At the root of them all is the idea of the soul, a term which psychology rejected because of its religious connotations. At the beginning, however, it was solely a descriptive word, referring to the difference between physical objects and living beings. Some things seem inert, while others move themselves. In other words, some are animate and some inanimate. To explain animation, the ancients referred only to what characterized animate beings, that is, their respiration, which the Greeks called *pneuma* (Rodhe, *op. cit.*). When respiration ceased, that which used to be a living being became an inert object. Thus the principle animating bodies was respiration, the *anima*.

According to this conception, the soul was a material thing. The Greek atomists pictured it as very light spheres which caused the body to move. They held that perception was caused by objects releasing some of their atoms, which crossed space and collided with the sense organs, modifying the latter. Thus, a simulacrum of the perceived object reached the body. The material soul was made up of atoms, which differed from the atoms of inanimate objects only because they were smaller and more mobile (Burnet, J.L. 1919; Lucretius, 98-55 b.c.). And this soul could even be observed, according to the Pythagoreans, who said that the souls of the dead, exhaled with their final breath, appeared as particles which, when illuminated by the sun, looked like brilliant points moving through space, before being inhaled by a newborn being to which they transmigrated (Aristotle Book 1, 2, 404a, 15, ed. 1982, Altieri, 1986).

Perception, then, was seen as a change occurring in the body. For Plato it was the union of similar things. For example, vision consisted of external light uniting with and modifying the eye's own light' (Plato, ed. 1982a).

It was discovered that these material modifications could occur even in the absence of a stimulus, since human beings realized they could recall previously-received-stimuli, which in a nutshell meant that the soul retained its sensations. Sensations and ideas were therefore said to make up the materials

of thinking. According to Plato, thought is an unspoken conversation which the soul has with itself (Plato, ed 1982b). When he thinks, the thinking subject denies or affirms something to himself, that is, he has an opinion. If this opinion is accompanied by sensations, then the individual has an imagination which can be similar to reality or different from it, and constitutes a kind of composition. Ideas, another of the soul's contents, represent that which is permanent, the essence of things, which cannot be grasped by sense organs, which are limited to receiving the shadows of ideas. Moreover, the Platonic school considered ideas to be eternal; in order to know them one had to engage in the activity of remembrance, bringing back to the soul that which it had forgotten at birth, when it was imprisoned in the body (Plato, ed. 1982c).

Plato converted the soul—the simple principle of material animation, a mere respiratory act which at the moment of birth breathed in mobile atoms and later kept them active as long as life continued—into a receptacle, a place where sensations and ideas are retained, from which they could be extracted in acts of imagination or judgement. This soul was no longer part of the body; instead, like ideas, it was something eternal which preceded the body. The immortal soul controlled the body through the principles of reason.

The Platonic conception attributed an immortal character to the soul, added rationality to it, and converted it into an entity dominating the body. This modified the standpoint of the atomists, who spoke of the soul as tiny atoms dispersed throughout the body which pushed the members in order to move them, and which also received other atoms from things, in the form of simulacra or semblances which collided with them and produced sensations. If, with Plato, the soul becomes an entity, it needs a lodging place. Plato found this place in the head (Plato, ed. 1982d) that place in the body with the closest resemblance to the perfect figure, that is, a circle. This place had to be the residence of the soul, since the perfect must go together with the perfect. So ideas, the contents of the soul, could be retained in the head.

According to Aristotle, three conditions exist within the human body: one in which our sense organs receive stimuli and then produce the sensation; a second, already indicated by the Platonic school, the circumstance in which an imaginative memory of those stimuli is given; and a third which occurs only when the form of an object is apprehended. This last condition makes up part of thinking, an activity belonging to the soul. This conception of the soul continued the process of its dematerialization, since it began to be considered an intellectual activity which "gives form to forms," or as a very special place, since it was the location where forms were found—but in potential, not

actively, which in the final analysis means that it is a place that cannot really be located. For Aristotle, then, the soul is what gives life to the body, the principle of all movement and the basis of intellectual acts (Aristotle, Book III, op. cit.).

If we take the Platonic and Aristotelian traditions which, after being appropriated by Christianity, subsequently gave rise to Western culture's basic set of concepts, we find that they laid the basis for differentiating the soul from the body. It matters little that Aristotle posited a sort of unity, since he says the soul is inseparable from the body to the degree that it represents its potential being, in the same way that the soul of the eye is its potential for seeing, which becomes active at the moment of seeing.

The pupil plus the potential of seeing constitute the eye, just as body plus soul make up man (Aristotle, *Ibid.*).

Platonism was more influential in historical development, so that the conception which finally held sway was that of the soul as reservoir of ideas and controller of the body, located inside our heads.

Thus, if thinking is the soul talking to itself, the sensation one has when thinking is that of an interior voice located at the center of our heads.

This little internal voice appeared when the soul came to be dematerialized, and became the instrument of intellectual acts, of the collection and comparison of ideas, of the apprehension of forms in the Aristotelian and Platonic traditions which intermingled after the Renaissance.

Christianity contributed to this process of conceptual construction of a non-material spiritual entity, when Saint Augustine stated that the divine breath which gave life to man—a breath which Judaism originally viewed as the explanation for the establishment of respiration—was not only an animating breath, but in equal measure an act of transmission of divine wisdom. In this way, the soul came to be endowed with knowledge (Augustine, ed. 1982a. See also Verbeke, 1945).

In the Jewish religion the divine breath was intended to explain not only how animation was given to man, but also how this breath subsequently moved the beings it had created. Thus, the Bible says that Saul received a breath of evil, which in modern translations is rendered as a spirit of evil, which made him go mad. Those same breaths or spirits set themselves up inside kings, leading them to carry out heroic acts; or in prophets, giving them the inspiration they need in order to prophesy (The Bible, 1958. Note that the term *inspiration*, with refers to breathing, is still part of our modern vocabulary.)

Saint Augustine says the external world is received by our sense organs. Memory is where the sensory impressions are kept. Remembering consists of

collecting those elements which are to be brought to consciousness from this vast reservoir, by means of a cogitative act (from the Latin *cogitare*, to collect, Augustine, 1982b). It is the soul which does the collecting. The very terms which are used lead to the reification of the soul, which is increasingly converted into an entity.

The memory of sensations was similarly reified during the Renaissance. For the Stoics, imagining meant having once again the appearance of something which one had previously felt. When one imagined, "phantasms" appeared, which in Greek means apparitions, illuminations (Pucnte Ojea, 1974). In Renaissance vocabulary these "phantasms" were called *imagos*—reproductions of reality which presented themselves in the same form as the objects in question. "Imagos" could be seen in the central part of our eyes, and so these were called pupils, from the Latin term for children. They were given this metaphorical name because the eye reflected a tiny human being, like a child. The pupil, child of the eyes, is the point where these images appear. So imagining came to mean making a kind of reflection of reality. The location of that reflection also remained inside our heads.

There, inside our heads, the soul imagined and talked to itself, mentioning images. Speaking later came to be a process of all mentioning images and the term "soul" was replaced by "mind"—that interior entity which mentions, imagines and therefore also lies, since Aristotle had already noted that while sensations are true, the memory of them is false. One difference between God and man is that while the divine mind is able to create reality the human mind only makes halfway creations; creates only images; lies (Chomsky, 1981).

In the 18th century, the British empiricists carried forward the viewpoint that on the one side are the impressions which stimuli make on our senses, while on the other side are ideas—which, as simple memories or anticipations of reality, turn out to be the pallid images of sensory activity. Thought consisted of the mind's contemplation of its own actions (Locke, ed. 1982).

The interior world was already constituted, made up of images, thoughts. These images put together a picture of reality; Ryle says they set a stage (Ryle, op. cit.). Thoughts appear as that little voice inside our heads.

As we can see, images and thought, understood as an internal voice, are conceptual constructs. The description of the way man relates to reality; how his body is affected by the stimuli acting on his sense organs; the activity of these organs during the act of remembering, when no stimulus is present—all this is viewed not as a property of the body but of an entity in which "wisdom" is stored, images are examined, judgements and reasoning are carried out,

forms are abstracted and a dialogue is established in which, to quote the Renaissance Spanish wise man Juan Luis Vives, everything is classified according to its "ascent and descent" (Vives, ed. 1957).

Description gave way to fiction, when words ceased to refer to activities and when entities were built on the basis of these words.

Psychology, as the science of the mind, took shape and led the study of mechanisms astray. Psychological science became speculative. It was then that Watson, in his behaviorist manifesto, put forward a solution. That which may be observed is the object of research for psychology, which should be no different from other sciences. The interior world is the product of speculation, and what must be done is to make bodily acts out of what had been viewed as activities of the mind (Watson, 1966).

The voice inside our heads is sub-vocal speech; thought is the product of a reduction of spoken language, converted first to whisperings and then taking on a completely sub-vocal form. This provides a means for observing the unobservable, as Jakobson was able to show when he recorded the electrical activity of the muscles involved in speech, in the course of thought, and even that of the muscles which participate in carrying out an action when that action is only imagined (Jacobson, 1973). Watson's rectification, that we think not only with the muscles of the vocal articulation apparatus but with our entire body, was thereby objectively verified (Watson, 1920).

However, Watson did not work this out completely. We will try to do so, briefly, basing ourselves on our own theoretical considerations and the views of Mikhail Bakhtin, a linguist from the former Soviet Union.

As we have stated already, the illusion of a voice inside our head is the product of a conceptual construct.

According to Bakhtin (1977) we can refer to two types of phenomena within a human being. One is part of biology, what he calls that which is lived. These are simply the reactions occurring in the body which are caused by sensory stimuli. That which is lived is inside the organism. The other type of phenomena are those of a psychological nature, which according to Bakhtin are external to the organism. The psychological is the result of a social construct. In order to refer to human action, societies coin words which begin to carry complementary references or connotations, produced by the interrelations among individuals within the social organization, or resulting from other references which were originally separated from them. As an example, let us use a term cited in this article. We said the Greeks used the word *Phantasm* to refer to an apparition, the sudden sensory activation which occurs with a

memory. For us, *phantasm* (or *Phantom*) also refers to an apparition, but this is a special apparition: the soul of a dead person. This added connotation became associated with the original term *Phantasm* when people began to believe in a netherworld. Likewise, the soul as respiration, as breath, *Pneuma*, became the reservoir soul, the soul which possesses wisdom, the rational soul, the soul which guides bodily activities, when society observed that men remembered, or their sense organs became active, in the absence of stimuli, or when they acquired knowledge or became capable of limiting their own actions. Instead of employing several terms, all the terms were hypostatized into a single term; they were unified and their connotations also took on a life of their own, thereby giving birth to a non-existent entity. As we can see, this new entity, the mind, is not found inside our bodies, but is instead external to our corporeal selves, since it is a social construct. However, since society situates the mind within our bodies, it gives us the illusion that that is where the activities occur which are attributed to the mind. We still say "I listened to my heart." That voice, which we situate not in our head but in our heart, remained there because, for the Greeks, in addition to the intellectual soul, located in the head, there was also the *timos*, the emotional soul, located in the heart (Rhode, l.c., op. cit.).

If we now take leave of Bakhtin in order to move to the terrain of conditioning and of our own theoretical reflections, we can say that there are corporeal conditions allowing the voice to arise in the course of thinking. These conditions are constituted by the conditioned interrelation of responses within the organism.

Language has various sensory components. Among them are hearing and the self-perception that accompanies speech. There are also the associations which a word establishes with the sensory activities to which it refers. Thus, for example, the word *hummingbird* has an auditory and self-perceptive component linked to its vocal production and auditory reception, as well as various components linked to the references it establishes: visual —the shape and color of the hummingbird; tactile —the texture of its feathers; auditory —the sound of its chirping; emotive —the reactions of surprise, pleasure or displeasure which it awakens, which are conceived of as visceral reactions; those relating to the self-perception of one's members —the manipulatory activities which could be carried out with this animal; those relating to self-perception in the apparatus of speech, the series of sub-vocal pronunciations or out-loud speech which allow for a verbal definition of the word *hummingbird*, which could be

expressed (to use a dictionary-type definition) as: "a tiny bird which feeds on the nectar of flowers and is able to hover in a given place."

Each of these sensory activations leads, through conditioning, to the next. Thus, the sub-vocal pronunciation of the words leads to its conditioned audition, evoking, in a conditioned manner, its image and producing a set of emotional reactions, as well as verbal associations which define the word in question. Thus, sensory activations arise in sequence, what Pavlov considered the series of signals activated by the verbal signal (Pavlov, 1971). The voice inside our head, then, is not found in that place, but rather in our apparatus of vocal articulation; it is society, with its conceptual construct, which leads us to place it, in illusory fashion, in another place, in the middle of our head. Moreover, all the sensory activities evoked by the word make up thinking, which, as Watson stated, occurs within our body. It is obvious that this thinking does not acquire the complete and sequential form which we present for expository purposes, but rather, as Vygotsky (1964) would say, occurs in a condensed form; or, within the behaviorist tradition, as Guthrie (1952) would put it, as sketches of actions. We would call them suboperant responses which are in the process of ascension and are interrupted when they do not receive the reinforcing stimulus which would assure their open and complete expression (Alcaraz, V.M., 1980).

References

- Alcaraz, V.M., (1980), *La función de síntesis del lenguaje*. Mexico, Trillas.
- Allieri, A., (1986), *Los Presocráticos*, Puebla, Mexico: Universidad Autónoma de Puebla.
- Aristotle, (384-322 b.c.) (ed. 1982), *On the soul*. Chicago: Great Books, Encyclopaedia Britannica Inc., Vol.8, pp. 629-668
- Augustine (354-430) (ed. 1982a). *The City of God*. Chicago: Great Books, Encyclopaedia Britannica Inc., Vol. 18, pp. 127-618.
- Augustine, (1982b.), *Confessions*. Chicago: Great Books, Encyclopaedia Britannica Inc., Vol. Vol. 18, pp. 1-125
- Bakhtine, M., (1977), *Le marxisme et la philosophie du langage*. Paris: Les éditions de minuit.
- Brentano, F., (1837-1917) (ed. 1927), *La Psicología desde el punto de vista empírico*. Madrid: Revista de Occidente.
- Burnet, J.L., (1919), *L'Aurore de la Philosophie Grecque*. Paris: Payot.
- Combsky, N., (1981), *La linguistique cartésienne*. Paris: Seuil.
- Ciampi A. and Zunini, G., (1953), *Introduzione alla Psicologia*. Milan: Vita e Pensiero. Guthrie, E.R., (1952), *The Psychology of Learning*. New York: Harper.
- Humphrey, G., (1951), *Thinking*. London: Methuen & Co.
- Jacobson, E., (1973), Electrophysiology of mental activities an introduction to the psychological processes of thinking, In McGuigan, F.J. and Schoonover, R.A., (eds.), *The Psychophysiology of Thinking*. New York: Academic Press, pp. 3-31
- Locke, J., (1632-1704) (ed. 1982), *An essay concerning human understanding*. Chicago: Great Books, Encyclopaedia Britannica Inc., pp. 83-395.
- Marcus Aurelius (98-SSb.c.), (ed. 1982), *On the nature of things*. Chicago: Great Books, Encyclopaedia Britannica Inc., Vol 18, pp. 1-97.
- Pavlov, J.P. (1971), *Oeuvres choisies*. Moscow: Editions en langues étrangères.
- Plato, (428-348 b.c.), (1982a), *Timaeus*. Chicago: Great Books, Encyclopaedia Britannica, Inc., Vol. 7, pp. 442-477
- Plato, (1982b), *Thaetetus*. Chicago: Great Books, Encyclopaedia Britannica, Inc., Vol. 7, pp. 512-550
- Plato, (1982c) *Meno*. Chicago: Great Books, Encyclopaedia Britannica, Inc., Vol. 7, pp. 171-190
- Puente Ojea, G., (1974), *El fenómeno estoico en la sociedad antigua*. Madrid: Siglo XXI.
- Rhodes, E., (1983), *Psique la idea del alma y la inmortalidad entre los griegos*. Mexico: Fondo de Cultura Económica.
- Ryle, G., (1967), *El concepto de lo mental*. Buenos Aires: Paidós.
- Sagrada Biblia. (1958). Madrid: Apostolado de la Buena Prensa.
- Verbeke, G., (1945), *L' Evolution de la doctrine de Pneuma du estoicisme a Saint Augustin*. Paris: Lovaine, Bibliothèque du l'Institut de Philosophie.
- Vigotski, L.S., (1964), *Pensamiento y lenguaje*. Buenos Aires: Lautaro.
- Vives, J. L., (1492-1540), (ed., 1957), *Tratado del alma*. Madrid: Espasa Calpe.
- Watson, J.B., (1966), What is thinking. In McGuigan, F.J. (ed.), *Thinking: Studies of Language Processes*. New York: Appleton Century Crofts, pp. 9-16.
- Watson, J.B., (1920), Is thinking merely the action of language mechanisms, *British Journal of Psychology*, II, pp. 87-104.
- Wundt, W., (1832-1920) (without date), *Compendio de Psicología*. Madrid: La España Moderna.