

Investigations begin with observed events rather than with imposed constructs.

THE MYTH OF MIND: A Challenge to Mainstream Psychology and Its Imposed Constructs

by Noel Wilson Smith

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THE MYTH OF MIND:

A Challenge to
Mainstream Psychology
and its Imposed Constructs

DO MIND, CONSCIOUSNESS, SENSATIONS, FREE WILL
OR DETERMINISM EXIST?

NOEL WILSON SMITH

The Myth of Mind

**A Challenge to Mainstream Psychology
and Its
Imposed Constructs**

Noel Wilson Smith

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Dedicated to all interbehaviorists

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Insensibly one begins to twist facts to suit theories,
instead of theories to suit facts.

—Sherlock Holmes (A Scandal in Bohemia)

Chapter 1:

Historical Introduction & Basic Issues

The four major topics in this book, mind-brain, consciousness, sense data, and free will-determinism, require a means for appraising them. That means examining whether they comprise constructs or events and the consequences that follow from that distinction. The conclusion from the examination will be that they are constructs treated as events, a confusion that goes back to the Hellenistic period in European history and has inserted itself into mainstream psychology with modern psychology's inception in the nineteenth century. As part of this appraisal, a few glimpses at history will be illustrative. Although history cannot be used to prove any thesis, as historians adamantly insist, it can be a tool of analysis in that it provides insights about what assumptions (often obscure) are being made and gives evidence of what is behind historical assumptions. With this insight one can independently subject an assumption to scrutiny. As Aristotle put it, "He who observes the development of things from the beginning will have the most advantageous view of them" (Aristotle, *Politikon*, 1252a, 25).

Psychology has largely ignored the distinction between constructs and events and what comprises a scientific construct, yet this distinction is basic to some of the major divisions of thought within the discipline. In this chapter several kinds of constructs are identified and compared with events, and improper use of constructs is noted (See also Clayton, Hayes, & Swain, 2005; Fryhling & Hayes, 2009; Grant, 2012; Hayes, & Swain, 2005; Smith, 2007). After indicating some problems with a failure to maintain the

distinction between constructs and events and to establish constructs based on events, a list of criteria for scientific employment of constructs is proposed as a means of clarifying and advancing work in psychology. An example of a construct-based and of an event-based approach provide a contrast in scientific orientation with the implication that only by using the latter can psychology remedy its fragmentation and make advancements as a science. The nature of constructs and events will be used in subsequent chapters to examine mind-brain, consciousness, sense data, and free will.

Events and Constructs

Psychologists today are not only in disagreement about their subject matter, but their field is highly fragmented in its theoretical and methodological approaches. This is due in part to increasing specializations but also to age-old disagreements about psychology's constructs. Is psychology about consciousness, self, and information processing? Is it the study of a mind and the mind's representations of the world? Is it a study of behavior influenced by a cognitive mind? Is it just behavior? Is it the action of the brain on the organism? Is it interactions of organisms and objects in a context? Or is it action of mind and body. Much of the disagreement stems from the failure to distinguish events from constructs and to build scientific constructs on events from which the constructions are derived rather than starting with constructs and interpreting observed events in accordance with those constructs. That is, the failure is twofold: the confusion between constructs and events and the resulting failure to develop valid scientific constructs. A few scholars such as Skinner (e.g., 1953, 1990) and Kantor

(e.g., 1922, 1953, 1981), attacked the problem repeatedly over a period of many decades. Kantor (1963-1969) attributing the underlying cause for the shortcoming to our spiritistic culture: The constructs come not from observation but from our cultural beliefs. Often constructs which become discredited in science merely take on new names. For example, soul became mind which became brain powers or processing. These constructs continue in use despite their dubious scientific status.

In a book on psychology's theoretical issues, Bem and Looren de Jong (1997) described the volume as a "comprehensive guide" yet did not mention the critical issue of constructs. The authors are in venerable company, for the debates over many centuries about the nature of mind and body also failed to recognize the nature of constructs and their confusion with events, probably because of the influence of cultural assumptions. The confusion continues today as exemplified by Reber and Reber (2001) who stated in their psychological dictionary that "one infers a construct whenever one can establish a relationship between several objects or events" (p. 148). It is not the construct that is inferred, for the inference *is* a construct. Objective or scientific constructs as opposed to cultural constructs such as mind in a body are based on the observed interaction of objects or events. They could take the form of a correlation, diagram, description, or other means of designating an event. Of various psychology dictionaries Colman's (2006) comes close to a good understanding of a construct when he defines it as "a model based on observation guided by a theoretical framework".

This book will address the two topics: the distinction between events and constructs and of the proper use of constructs. Because science is built on observations of

events from which constructs are derived, a full understanding of the distinction between them and the proper use of the latter is of critical importance in the advancement of science. The failure to make this distinction has been a major impediment in the attempts to develop a science of psychology. In one context or another and to varying degrees this problem has been addressed by others, such as some of those cited here; but this book will concentrate primarily on this problem and attempt to identify it more distinctly. It will provide examples of uses and misuses and will suggest some criteria that might be applied to scientific investigation. Even with the strong influence of culture that supports misuses, the criteria can provide guidelines toward avoiding some of the hazards.

A construct (or construction) is, as the name indicates, something that is constructed and is not an observed event. It is an invention or contrivance. In fact anything that is not an event but represents one or purports to represent one is a construct: a theory, a hypothesis, a principle, a mathematical formula, a measurement. These are all constructed. Even a description is a construct, for it is not the thing that it describes. Scientific work is mostly a procedure of developing constructs; but, as Kantor (1957) noted, "hypothetical entities may not be arbitrarily created" (p. 59). He referred to the precautions necessary for each of three types of constructs. *Descriptive constructs*, he held, are most valid and useful when they derive from contacts with events; they are of decreasing validity and usefulness when they are (a) analogies, (b) borrowed from other fields such as biology or physics, and (c) total inventions such as brain as a psychological organ. *Explanatory constructs* (causality) may relate psychology to biology, chemistry, and social events but may not be reduced to them. They are more analytical

ways of relating things and events than is simple description (Kantor, 1983) but may still be regarded as forms of description. Explanation builds a body of knowledge when one functional—a description of relations or interactions—is integrated with another that has been functionally related to still others. *Manipulative constructs* are so called because they get restated or modified to facilitate the investigation. They involve problems, theories, and hypotheses that can be validated only if “securely connected with events” (Kantor, 1957, p. 59).

Descartes’s soul, Leibnitz’s monads, Hume’s impressions, Locke’s ideas and sensations, La Mettrie’s brain springs, Kant’s transcendental unity of apperception, Müller’s specific nerve energies, J. S. Mill’s mental chemistry, Titchener’s sensations, Woodworth’s O, Köhler’s isomorphism, and Hull’s drives, to name but a few, are all constructs out of psychology’s history. What is critical to scientific psychology, however, as a number of authors over a period of half a century have noted (e.g., Ebel, 1974; Kantor, 1947, 1953, 1957; Lichtenstein, 1984; Moore, 1998; Observer, 1983; Smith, 1993a, 2001), is whether the construct was derived from an event or was imposed on it. In all of the historical instances cited, the constructs were drawn from traditional cultural sources and imposed on the events. For example, Titchener observed his subjects’ reports on their responses to experimental tasks but assumed he was investigating mental elements and imposed this construct on the reports. These historical constructs are continuous with those of today such as mental representations, storage and retrieval, processing, consciousness, will, and self that are pervasive in mainstream psychology. The events are the seeing, believing, recollecting, thinking, imagining, and other

concrete human actions. An event is anything that happens whether we know about it or not. Events may be examined and known through (a) direct observation with or without use of instruments but with minimal manipulation of the target events, (b) transforming contacts involving manipulation, and (c) remote observations requiring indirect contact and inference (Kantor 1953, pp. 15-16). In scientific work the connection remains firm no matter how many links occur between the target events and the investigator.

The distinction between constructs and events is critical. It determines, for example, whether we treat the brain as a determiner of behavior or a participant, perception as a representation or an organism-object interaction, remembering as storage or as reenactment, intelligence as a power or a description, human activity as mind-body connections or interactions in a context. Wundt held that we cannot know consciousness, only its effects. And he was right to acknowledge that we cannot know an ethereal construct. But did he need to invoke a construct or could he have simply referred to the responses that he was actually measuring as comprising consciousness? Were Titchener's subjects introspecting their elementary sensations, mental atoms, or making sensory discriminations of objects and events? Posner and Raichel (1994, p. 24) well illustrate the confusion between constructs and events. They provided a graph in which they claimed to have plotted the brain on the horizontal axis and mind on the vertical. They did plot at varying levels of detail the imaging techniques applied to the brain, but the "mind" turned out to be time and was graphed as such. Skinner (1963) pointed out that mind is often used as a "mental way station" to fill in gaps between independent and dependent variables.

As another example of confusing constructs and events, in an effort to justify unobservables in psychology, Bornstein (1988) claimed that “psychologists investigate internal processes such as feelings and motivations” (p. 820). Here he lumped together an event, feelings, and a construct, motivation, under another construct, internal processes. Let’s examine each of these. (a) *Feelings*: If one wins a lottery, one’s joyous behavior is a real event. A feeling, then, is an event consisting of a person in interaction with the thing felt about, such as joy upon seeing one’s winning number. (b) *Motivation*: Why did one buy the lottery ticket? One must have been motivated. But what is a motive? It isn’t anything in itself, but it should have a specific referent in identifiable events. Perhaps the purchaser decided that the ticket proceeds go to a worthy cause. A motive is a construct of causality, not an event, but can be a useful summarizing term if it has identifiable referents in which case the construct is a convenient shorthand for the events. However, contrary to Bornstein, we don’t investigate the motive as such; for it is only an abstraction, a construct. What we investigate are the specific conditions that lead to a particular behavior, such as the behavior preferred by a teacher or an employer that we refer to as motivated. (c) *Internal processes*: Bornstein’s final example and his intended all-embracing one is also a construct rather than an event. It assumes that nature has divided us into two parts, internal and external. If referents for “inner processes” can be specified, then the inner-outer distinction no longer holds; for identifiable events of nature—the joyous behavior of a winning ticket, the desire to support a worthy cause—become the focus rather than a constructed duality of inner and outer. But this construct of internal processes is usually one of mind-body dualism, and dualism has no such

referents. It is a category error in Freeman's (2001) terms (after Ryle, 1949)—an error which he attributes to a history of three centuries, actually about twenty-two centuries in the Western World and perhaps 3000 years in India: see Kantor (1963-1969); Smith (2001). One world is inside and one outside. Skinner (1990) called this the “copy theory”—the real world copied into the mind or brain—which requires something to see the copy. It also requires the central nervous system to be a cause of itself.

Bornstein went on to justify unobservables in psychology by way of claiming that gravity is an unobservable that physicists study indirectly. Yet according to theory in physics, gravity is not an unobservable but is an event involving the interaction of bodies in space; and this interaction may be observed, measured, and described mathematically, the measurement and mathematical description being useful constructs derived from the events. It is defined by and consists of these properties and perhaps others that remain to be observed (and which would be constructs if postulated). We may similarly observe events of humans in interaction with their surroundings and describe these interactions rather than starting with cultural constructs and imposing them on the investigations. Schlinger (2003) has described the problem this way: “Rather than constructing formal definitions a priori and then looking for instances of them, scientists must *discover* the definition. . . . This is done by experimentally analyzing behavior and then looking for order therein” (p. 23).

Despite some claims that “theoretical terms” (constructs) and observational terms are equally inferential and unreliable, Clark and Paivio (1989) cited several empirical studies of these terms that support the greater reliability and validity of the latter and the clear

distinguishability of the two. The investigators found that “observational terms refer more directly to observable phenomena than do theoretical terms and are relatively more stable and definite in their meanings” (p. 510). Further,

...the data suggest that scientists do and ought to maintain distinct attitudes toward observational and theoretical terms when thinking about or communicating scientific ideas. Observational terms have more stable and universal meanings, and participate in statements that can be empirically validated by virtue of their concrete referents (p. 510).

Kantor (1959) laid out an entire postulate system that can be used as a guide for scientific investigations (see Clayton, Hayes, & Swain, 2005), but even the postulate system starts with observable events on which the constructs are built.

A major choice for investigation is whether a system should be construct-based or event-based. That is, do the investigators begin with constructs with which they interpret events or do they begin with events and develop their constructs from those events? Kantor (1981) argued that “In general a valid logic of science must be founded on a full appreciation of the relations between events and constructs” (p. 6) including the clear distinction between them. Lichtenstein (1984) advanced a similar point:

When one follows carefully what is entailed in scientific work we have a basis for distinguishing among data, investigative operations, and constructions. The construction phase becomes particularly important when it is realized that it is here that most disagreement in science arises. Constructs are more likely to be sound when they are derived from direct contact with events whether involving manipulations and measurement or not. Unfortunately scientists when they are in the grip of tradition are usually unaware of

the fact. Thus astronomers found circular orbits [rather than elliptical] for the planets reasonable and biologists described in detail the homunculi in sperm cells. (p. 471)

Valid scientific constructs require grounding in events at all stages in the scientific enterprise and such grounding requires recognizing what are constructs and what are events.

Constructs with Time-Space Coordinates

Constructs are necessary in science and, when properly used, always have a concrete referent: They refer to a thing or event. Inferences, which are common in science, are constructs and these play an important role in scientific advancement. Some of these constructs are *hypothetical constructs* and can be either scientific or unscientific. In the fifth to fourth century BCE Democritus observed the behavior of matter and inferred that it was composed of some tiny particles that he called “atoms.” Although he could not verify their existence, they had space-time coordinates that gave them the potential to be observed if they existed. They were scientific constructs. In the twentieth century the development of adequate instrumentation finally permitted the verification of these inferred particles. In contrast, the historical constructs imposed on human actions had no time-space coordinates but transcended space and time. For that reason analogies were invented—constructs about constructs—and the brain as a concrete organ became the substitute for these immaterial agents. These are not scientific hypothetical constructs.

As a psychological organ, the brain too is a construct. It clearly performs biological coordinating functions and plays a necessary role in all human behavior; but, as pointed out

by Bennett and Hacker (2001), Delprato (1979), Kantor (1947), and Uttal (2001), no one has observed it also performing psychological behaviors such as thinking, learning, perceiving, desiring, or feeling. With appropriate instrumentation such as positron emission tomography (PET), CT scans, and functional magnetic resonance imaging (fMRI) scans one can infer its participation in some of these activities but not as a director, producer, or container of them. By other means we can also observe other participating conditions, such as stimulus characteristics, stimulus and response history, and setting conditions. Yet when psychologists begin with the construct of the brain as the producer of psychological activity they often ignore the equal necessity of these other participants and interpret the event as caused by the brain alone (Bennett & Hacker, 2001; Kantor, 1959, p. 227).

Valenstein (1998) showed that in psychiatry its practitioners frequently assume that behavioral disorders are solely of biological origin and therefore need only a pill for remediation; even pleasure they regard as a product of brain dopamine activity and sometimes ignore all else. Thus, brain becomes an imposed construct of director or producer, having no referent in space-time coordinates. Because a construct is not a thing but an abstraction—only its referent is concrete—it can never be observed and lies forever outside verification. What happens in practice, however, is that investigators observe events but report them as the operation of constructs, such as mind or processing or memory stores and confuse them with the events they observe. Yet things and events are all that anyone anywhere has ever observed or ever can observe. Scientific constructs must have referents in concrete events, events with time-space coordinates. When investigators test hypotheses and

theories, which are statements about how things and events may interact with one another, they are actually testing the events which the constructs predict.

Circular Constructs

All too often constructs become circular. Barber (1981) pointed out that hypnosis has been typically defined by a trance state: We know that someone is hypnotized because he or she is in a trance. Then we explain the person's hypnotic behavior by the trance. In other words, the definition of hypnosis as a trance state is not independent of what the trance is supposed to explain. Barber discarded the trance construct completely and described hypnosis as directed imagining that is continuous with other behaviors with which we are familiar. An understanding of hypnosis, he argued, does not require a hypothetical construct of trance. By distinguishing the construct from the event he was able to develop an understanding of hypnosis that fully accounted for the observations with descriptions closely tied to the observations. Circularity also enters into a fundamental construct in psychoanalysis: Freud originally defined libido as sexual needs and then began to use it to explain sexual behaviors. Similarly, it is circular to state that a child is distractible because of attention-deficit hyperactivity disorder (ADHD). The term only refers to the child's interest in something other than what the teacher wants to teach (as in the motivation construct above) and other behaviors that sometimes cluster with it. McHugh (1999) pointed out circularity in such diagnostic categories as dissociation, post-traumatic stress, multiple personality, and attention deficit. An example from dissociation: "Why don't I remember first grade?/Because you have dissociated

your memory./How do you know that?/Because you can't remember first grade" (p. 36).

As other examples of circular constructs, forty years ago Ebel (1974) pointed to intelligence, motivation, and creativity. We hear that because a person performs certain behaviors she is intelligent and we know that she is intelligent because she behaves in that way. Or we hear that an individual works hard because he is motivated, and we know that he is motivated because he works hard. Ebel compared these explanatory constructs to tree nymphs ("dryads") and other animistic powers of hunter-gatherers. The title of his paper, "And Still the Dryads Linger," indicated his thesis that we have not yet expunged these animistic explanations from psychology. Four decades later we still have not done so. They linger on as intelligence, personality traits, libido, processing, and others. We even refer to various amounts of intelligence, motivation, and creativity as if they were things with quantity. Constructs such as intelligence are important but should, he contended, be limited to an indication of functional relations; for these relations are all that explanation can be (see also Schlinger, 2003). Kantor (1983) held that explanatory constructs are fundamentally descriptive. They are analytic ways of relating things and events. They occur when one functional description is integrated with another which has already been functionally related to still others. Ebel noted further that we should not allow complexity of our subject matter to

keep us from recognizing our dryads for what they are—partial descriptions that masquerade as causal explanations. This need not keep us from understanding how useless they are in our search for understanding of behavioral phenomena. Let us be on guard against their deceptive pretensions. Let us make behavioral science, limited

and imperfect as it is, inhospitable to them. They can only weaken it. (p. 491).

Proposed Criteria for Constructs

The following list of criteria (Smith, 2007) for the use of constructs are consistent with the arguments presented here. They are proposed as an essential step in achieving a more scientific use of constructs. Distinguish carefully between constructs of all types—such as descriptive, explanatory, and manipulative—and the original events.

- Question all constructs derived from traditional cultural and philosophical sources.

- Begin all investigations with observations from which constructs may be derived; avoid starting with constructs and interpreting results in terms of those constructs.

- When means for obtaining critical information are lacking, keep constructs extremely tentative and make sure they point to events that have the potential to be observed.

- Note that only constructs derived from observed events have the potential of validity.

- Keep interpretive constructs consistent with the events observed; do not base them on other constructs, such as analogies.

- Take an adequate sample of events so that the interrelationships of events may be observed. This means examining a wider array of events than genes, neurons, reinforcements, stimulus conditions, stimulus and response history, or social processes. Adequate sampling means taking account of the context and its salient components as in research on setting events (Brown, Bryson-Brockman, & Fox, 1986).

- Anchor all constructs such as intelligence, motivation, personality, and attitudes in observed referents and avoid giving them independent existence as things or causes.

- Avoid turning participating conditions or those that may be necessary for the event into determining conditions. For example, the brain is a necessary condition for all psychological events but is only one of numerous necessary conditions that make up the event.

- Avoid adopting unobservables or analogies for what is unknown and regard admission of ignorance as a scientific virtue.

- Use only those constructs that refer to events that are observable at least in principle, for it is only through observation that science is possible. Brain processing of information has no observability. Though neural events as electrochemical impulses do have observability, such brain constructs as storage, retrieval, and consciousness do not, whereas attending, discriminating, learning, etc. are concrete actions that do.

A Construct-Based and An Event-Based Approach in Contrast

In the work that Gander (2003) regarded as the manifesto of evolutionary psychology, Barkow, Cosmides, and Tooby (1992) asserted that the brain receives environmental inputs from the sense organs, makes complex computations, and produces either representations in the mind or behavioral outputs. According to Pinker, (1997) these precise mechanical processes of information processing reduce psychology to mental operations or algorithms of the brain which are innate. Identification of such algorithms give scientific rigor to an account of the

mind. They provide us with an ability to specify the way the mind has evolved its mechanisms from natural selection in our hunter-gatherer ancestors and has continued the mechanisms to the present generation. These mechanisms, called “mental modules,” provide for innate mate selection, child rearing practices, facial recognition, and dozens of others that proponents have proposed. They are standard to all human minds and can be studied by laboratory experiments or by cross cultural comparison.

As an example of one module, parents who are able to provide the best resource investment in their children pass that trait on to their children. The module enables each parent to unconsciously calculate how much to invest in each child depending on its health, strength, age, and sex. The existence of this module is supported, say the proponents, by the fact that across cultures upper socioeconomic parents invest more in their male children and less in their female children (Gander 2003). This means that our hunter-gatherer ancestors did the same in accordance with their standing in the tribe: Higher status males would be more aggressive in attaining that status and would support their male children’s well being so that they would pass on the genes and maintain that status. The only reference to events is to those represented by the correlation between socioeconomic status and the investment of resources according to the sex of each child. The evolutionary psychologist presupposes the traditional construct of a human mind and adds that it has evolved by natural selection to enable the species to survive. To this is added analogical constructs of computation, information processing, and algorithms, which Gander (2003) notes give an appearance of modern science. Evolutionary psychologists apparently do not recognize the constructs as

such but treat them as events. These constructs they use circularly to explain the observed correlation so as to provide a seemingly precise and scientific theory of the events. Evolutionary psychologists are often charged with making up “just so stories” (from etiological folk tales and from Rudyard Kipling stories by that name) such as how the giraffe got its long neck or the leopard its spots. If they began with cross-cultural or laboratory findings then sought other behaviors in such concrete events as cultural behavior (shared stimulus functions: Kantor, 1982) and its evolution, and interactional histories of developing children including both biological and behavioral factors, the charges might be avoided. They might also develop theories whose scientific status rests on constructs tightly drawn from observed events rather than using constructs borrowed as analogies from other sciences. But this would be contrary to their ignoring the extensive body of knowledge, which, as Licklitter (2006) noted, shows that behavior develops on multi-levels. It would also be contrary to their assertion that interactional history and context have no relevance except as triggers for innate computational processes. Only the putative unfolding of genetic traits is of interest to them. Thus, the constructs preclude the corrections that an event-based approach would provide. It must be added, however, that some evolutionary psychologists, especially those who call themselves “human behavioral ecologists” (e.g., Barrett, Dunbar, and Lycett, 2002) incorporated a broader array of evidence while still placing heavy emphasis on biological reductionism and predeterminism. For example, in a study by Richerson and Boyd (1998) in which group members displayed “ultra-sociality” by behaving altruistically rather than selfishly to individuals within the group, thereby strengthening group living, Barrett, Dunbar, and Lycett (2002) concluded that

“the impressive coordination, cooperation and division of labor observed in modern-day western society can be traced back to ancient social instincts combined with modern cultural institutions” (p. 90).

Taking the opposite approach, one that is event-based, in conformity with the criteria, and therefore in marked contrast with evolutionary psychology, is the work of Baxter (1994, unpublished ms) on learning problems in elementary schools. He noted five shortcomings of schools’ approach to these problems: (a) The individual is diagnosed outside the situation in which a problem occurs, often in the office of a school psychologists with a standardized test which usually provides a construct such as perceptual reversal or disorientation, delayed learning, sequential memory reversal, or dyslexia. (b) The specialist who does the evaluation is usually unfamiliar with the interactions of the actual learning situation. (c) The situation gets largely ignored while concentration occurs on the deficits of the learner. In nearly all cases it is the child rather than the instructional method that is deemed to be at fault. (d) Diagnoses are based largely on group averages that say almost nothing about individuals. (e) Modification of the situation is seldom recommended. If delayed learning is said to be the cause, waiting is the remedy. If waiting produces no improvement, no further action occurs.

Baxter’s approach is that of “direct learning.” In the case of a child who reverses numbers, the child is taught the components of the number and then practices them a few times until the reversal no longer occurs. In teaching numbers the teacher can show that numbers 1-9 fall into three groups according to the direction in which the lines for each is drawn. By clustering those of each group together and teaching each group with an interval of time between

them, reversals and other confusions are minimized. Other problems are similarly dealt with by observing the behaviors involved and their context and using teaching methods that address these observations. The success of this event-based approach is supported by a massive study (Stebbin et al., 1977) and by follow-up studies of Adams and Engelmann (1996) all of which has been almost entirely ignored (Watkins, 1988). According to Baxter (1994) effective teaching requires...“instructional communications, in accompaniment with other interacting variables that define the event, such as those of the teacher-learner interaction, setting, and event history” (p.37). He has discarded the institutionalized constructs and procedures in elementary education, turned to events as a guide, and opened the door to more promising results.

Similarly, a survey of research that adheres to the above criteria and uses a broad range of methodologies, demonstrates that by moving beyond mind-brain and its many derivatives such as biology as a producer and container of psychological events, the way is open to “discovering interdependent relations as they occur in nature and of developing interpretive constructs that adhere to those observed relations” (Smith, 2006b, p. 132).

Modes of Expression

One sometimes finds recommendations to refer to psychological events as verbs rather than as nouns: sensing rather than sensation, knowing rather than knowledge, thinking rather than thought, imagining rather than imagination. Woodworth (1929) was an early advocate of this procedure.

Instead of “memory,” we should say “remembering,” instead of “thought” we should say “thinking,” instead of “sensation,” we should say “seeing,” “hearing,” etc. But like other learned branches, psychology is prone to transform its verbs into nouns. Then what happens? We forget that our nouns are merely substitutes for verbs and go hunting for the things denoted by the nouns; but there are no such things, they are only the activities that we started with seeing, remembering, and so on. Intelligence, consciousness, the unconscious, are by rights not nouns, nor even adjectives or verbs. They are adverbs. The real facts are that the individual acts intelligently—more or less so—acts consciously or unconsciously, as he may also act skillfully, persistently, excitedly. It is a safe rule, then, on encountering any menacing psychological noun, to strip off its linguistic mask, and see what manner of activity lies behind. (p. 82)

Similarly, White (1939) argued that the mind-body problem would be eliminated if we referred to “minding” rather than “mind.” This recommendation to use verbs alerts us to the fact that we are dealing with events rather than with things. And no doubt this is helpful, but one cannot turn intelligence or personality into verbs even though they too can only refer to some pattern of actions for which the label is a convenient form of reference. Moreover, even the verb form fails to indicate that the action is actually an interaction; that is, when we think, we think about something; when we sense, we sense something; when we speak, we speak about something. Nevertheless, substituting verbs for nouns wherever possible may help avoid reification.

Consider Kosslyn’s (1995) statement: “People experience visual mental images” (p. 6). Do people experience images or do they imagine? The first refers to constructs and the second to events. The assumptions are quite different in the two: traditional dualistic philosophy and reliance on observation, respectively. The former might

look primarily to the findings of brain imaging to explain behavior whereas the latter might well include brain activity as a necessary condition but also look to a history of organism-object interactions and the role of the setting or context in which they occur (Smith, 2006a). Other modes of expression can invoke either a mind-body dualism or refer to a whole person or a person's behavior. For example, does it take a keen mind to solve complex problems or a does it take a person behaving highly intelligently? Does the prima donna's personality cause problems or does she behave inappropriately? Does the playwright use his imagination or does he write imaginatively? In short, do we give the person credit or do we invoke an impersonal construct to carry out the action? Do we start with a construct or an observed event?

Note the impersonal and autonomous character of mind in the following passages from Simon (1992) who pioneered the use of computer analogies in cognitive psychology: "It [mind] chooses behaviors in the light of its goals, and as appropriate to the particular context in which it is working...It can learn" (p. 156). Further, "The human mind is an adaptive system. It chooses behaviors in the light of its goals, and as appropriate to the particular context in which it is working" (p. 156). The author has continued to treat the construct, which he apparently does not recognize as such, as a thing and has given it self-acting powers. He began with mind as a construct and not only imposed it on the event of choosing but, in a classical case of circularity, used it to explain the behavior he observed.

Do we need the concept of mind in psychology?

A beginning approach to this question that might be fruitful is to look at some terms that now have meanings of psychophysical dualism that originally did not.

Psyche to Aristotle meant the life functions of the organism including nutritive and reproductive acts, locomotion, sensing, and thinking. *Psyche*, he said, is to the body what seeing is to the eye. *Psyche* is what the organism does, its most characteristic acts. Aristotle developed a systematic psychology around this usage including sensing, thinking, remembering, imagining, and dreaming. He seemed to be at no disadvantage for not having psychophysical dualism (Everson, 1997; Randall, 1960; Shute, 1941; Smith, 1971, 1974, 2001, Varela, 2014).

In the traditional usage of *psyche* (left side of Fig. 1.1), the object as an agent causes the *psyche* to produce, for example, a sensation or motive or mental act which causes a response. In Aristotle's approach (right side), *psyche* consists of an interaction as indicated by the double headed arrow. It is not a thing or an agent, has no independent existence, and cannot cause anything; for it exists only as a relationship. All the action is between the responding organism and the object.

Soul in Old English as used in *Beowulf* referred to life itself or components of the body such as blood that were associated with life and with life actions such as thinking (Smith 2001).

Mind goes back to Indo-European origins, perhaps 4000 year ago or more, to *men-*, meaning "the one who thinks". It

was not an entity or agent or internal process but thinking activity. “Mind” (as *gemynd*) is first recorded in English in the year 971 and was used as the action of thinking about something as in the phrase “to have mind of” or to intend as in “have a mind to do some gardening” (*Oxford English Dictionary on Historical Principles* [OED], 1933). It was not until the twelfth century that it came to be something distinct from the body (OED), and this was under the influence of Christianity. It then became the seat or agent of perceiving, thinking, willing, etc. and was contrasted with matter. Figure 2 shows the evolution of psyche (psuché is the Hellenic Greek form of the word) and its influence on English “soul” and “mind”.

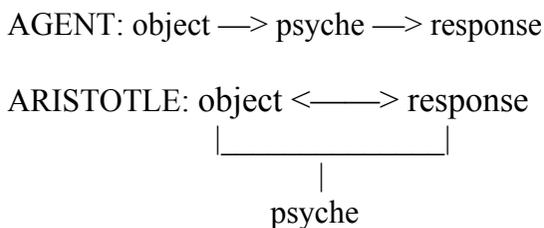


Figure 1. 1. The contrast between psyche as an agent or thing and Aristotle’s usage of psyche as a relationship.

Psychophysical dualism is a relatively recent creation. It is not an inevitably or necessary way of thinking. How did it arise? It arose as a retreat, a turning inward and away from a cruel world, that existed through the Hellenistic and Graeco-Roman times. It began in the School of Alexandria about 200 BCE and was refined and carried to great levels of abstraction by the theologians such as Clement of Alexandria. Origin, Hippolytus, Gregory of Nyssa, and others and by that supreme mystic, Plotinus. There were a

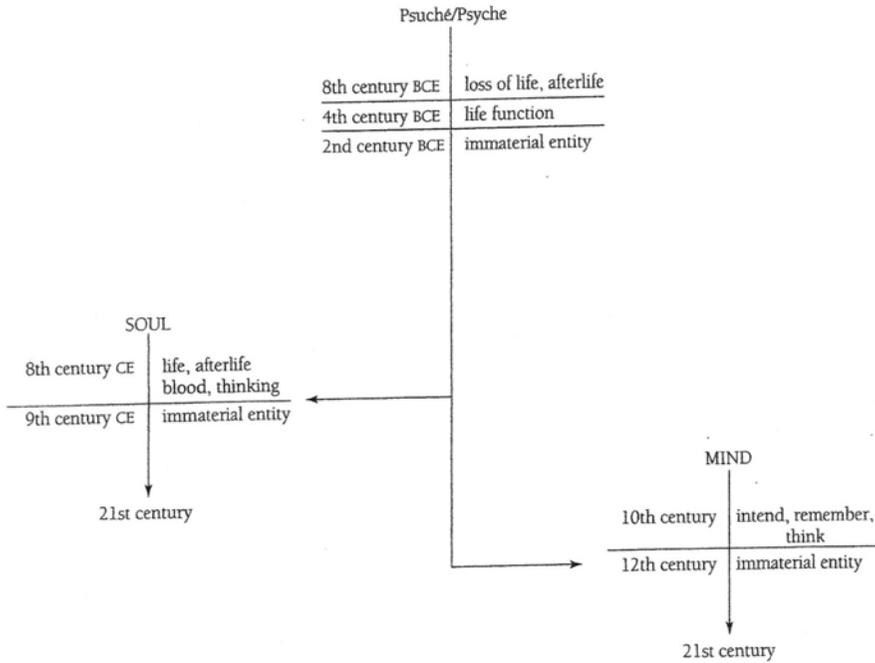


Figure 1.2. The distinction between later views of psyche as a causal agent (usually a supernatural one) and Aristotle's meaning. It shows that natural meanings turn to supernatural ones under the influence of the Christianized psyche.

few opponents of this way of thinking. Lucretius (*De Rerum Natura*), for example, argued that there could be only matter and space and no third thing, but this was a voice in the wilderness in a period of great social insecurity. The overwhelming need was not for rationality but for a belief in a nonphysical psychological event which would survive the destruction of the body and live in a paradise in the hereafter. This was vital to oppressed and insecure people (Kantor, 1963-1969; Smith, 2001)

Once psychophysical dualism had been created there was no effort to resolve it until the 17th century. Descartes

(1596-1650) declared, quite illogically, that nonphysical mind and physical body interacted, but he was severely criticized by other philosophers. They pointed out that there is no way for Descartes' proposal of unextended/nonphysical to act on the extended/physical, for they are in different realms. In an attempt to avoid this problem Leibnitz (1646-1716) said that mind and body operated in parallel without any contact with each other. They were set on this parallel course by the Creator. He proposed a clock analogy. God created mind and body in perfect harmony, each following its own independent laws, just as a clock maker might make two clocks that are always in agreement although neither has any influence on the other. This means that when one's mind decides it is time to leave the classroom the body gets up and walks out, not because mind acts on body but because the two are perfectly synchronized by a divine act of the creator. This doctrine is called "preestablished harmony". Less interested in solving the mind-body problem or in elaborating the characteristics of a theological soul than in the function of a mind in human knowledge was John Locke (1632-1704). He rejected the views of Descartes and Leibnitz that argued for innate ideas and proposed that all knowledge comes from experience, a view called "empiricism" (or British empiricism because of other British writers who held similar positions). His famous analogy was the infant's mind as a blank slate on which experience writes. We gain knowledge through sensation of the outer world and reflection of the inner. He declared that "secondary qualities" such as odor, taste, touch, sound, pleasure, pain, and color are produced by the organism and are unextended unlike "primary qualities" such as shape, solidity, number, and movement that are independent of mind and are extended.

Taking his cue from Locke, George Berkeley (1685-1753) reasoned that if secondary qualities are in the mind there is no reason why the primary qualities are not also in the mind. Therefore, *everything is in the mind*. Because sensations exist only in someone's mind, objects are just packages of sensations. The physical world has no existence independent of minds. Even so, he emphasizes the importance of experience as in associating one sensation with another. Insisting that extended matter could not act on unextended experience, Berkeley abolished one half of the mind-body dualism and proposed a monism in which all existence is spirit. An anonymous jokester cleverly captured Berkeley's position in a limerick:

There was a faith-healer of Deal,
 Who said, "Although pain isn't real,
 If I sit on a pin,
 And it punctures my skin,
 I dislike what I fancy I feel."

David Hume (1711-1776), a Scotsman, rejected both mind and spirit as unverifiable and thereby went a step beyond Berkeley. Our experience, he argued, consists of a collection of sensations or "impressions" and these, by habit of association (experience) of seeing things occur together, results in attributing causality to the impressions. The impression of causality and other associations consists of mental gravity that brings these mental particles together. Like Locke and Berkeley, he reduced qualities of the world to mental sensations. Despite his dismissal of mind, mind serves as a kind of theater where successive sensations appear and mingle with others and with various situations. They are associated by psychic gravity. Mind is nothing but

a collection of sensations. This position, building on other British empiricists, brings to a climax the atomistic mind as against the unified mind of those on the European continent (called “Continental” philosophy). For British empiricists, the atoms of the mind arise from the world whereas for Continental philosophy the mind’s unity assumes innate ideas or innate organization of sensations from the world. The atomistic mind promoted by Hume is a radical departure from the unified soul/mind of the Patristics, Augustine, Plotinus, Thomas Aquinas, Descartes, Leibnitz, and others.

In another attempt to solve the mind-body dilemma Spinoza (1632-1677) used the analogy of a concave-convex mirror which has a different curvature on each side but is a single lens. Analogously, mind and body were but two aspects of a single thing—nonphysical mind when looked at from the inside and physical body from the outside. The French materialists argued that mind was a byproduct of the body, something the body produces. This is found today in assertions that the brain produces mind. These and other attempted solutions all failed because the contradiction of physical body and non-physical mind/soul, cannot be brought into interplay or have mutual influence. Unfortunately, no one seemed to recognize that these arguments completely avoided any reference to actual events.

Drawing on a new analogy, Julien de La Mettrie (1709-1751) declared that a human is “an assemblage of springs” and “the soul is but a principle of motion, or a sensible material part of the brain. . . a principal spring of the whole machine. . . such that all the others are only an emanation from it” (La Mettrie, 1912/1748, p. 135). For La Mettrie, brain as a main spring produces mind or soul. Mind is an

epiphenomenon, an appearance that accompanies matter, a by-product.

Using another analogy consistent with epiphenomenalism, Pierre Cabanis (1757-1805), a physician, declared that just as the stomach digests food the brain digests impressions and secretes thought. This proposal was an attempt to convert psychology to biology and thus remove it from the grasp of theology. Mind as brain product was a significant departure from mind as spirit, although spirit still played a role. This epiphenomenalism finds a number of supporters today and is also called “emergentism”, meaning that mind emerges out of brain. Drawing heavily from Locke and taking a position that combined the atomistic mind of the British and the unified mind of the Continent, one of the most influential philosophers of all, Immanuel Kant (1742-1804) proposed that the physical world gives rise to nonphysical sensations. (As with Descartes, a question arises about a mechanism for such a connection.) The mind runs these atomistic units through innate categories and synthesizes them into an appearance (“phenomenal thing”) of the world. This appearance is all we can ever know about the world although, contrary to Berkeley, the world does exist as a physical “thing in itself” (Ding an Sich) but is unknowable. The mind he called “the transcendental unity of apperception”. That is, it transcends the physical world and is unified, apperception supplying the unification of sensations into meanings (“unity of apperception” he took from Leibnitz). What we experience as objects are only phantoms in us. The phenomenal thing that appears to be the world we know is just an internal representation. Consequently, we live in a double world, a real, physical world that we can never know and a mentally constructed

nonphysical one that we do know. Kant was following the tradition down through the centuries of allowing verbalizations that do not refer to observations to get in the way of making observations of human actions and the circumstances of those actions. In fact, Kant repudiated observation. He insisted that because psychological events are transcendental they could never be experimented on or quantified. If one accepts that they are indeed transcendental, Kant is absolutely right. One cannot quantify or experiment on spirits. Nor can one reconcile a transcendental mind with a physical body. Kant's double world is the strictest form of a one sided theory of knowledge (and is central to cognitive psychology); but that system, consistent with Cabanis, often assumes that the brain produces the representations.

Table 1 illustrates seven points of view on physical body and nonphysical mind. Descartes made no effort to resolve the dilemma, and it is not clear whether Hume intended to offer a solution. The other five were clearly looking for a solution.

Despite the efforts to resolve the dilemma by analogy, a very weak form of argument, these mutually contradictory entities, the physical and nonphysical or extended and unextended, could not be brought together any more readily than one can have a square circle. They are contradictions in terms. One can go on talking about their relationships as theologians have been doing for 2000 years just as one can talk about a square circle, but neither has any referent in observable events. Because science is based on observation, psychophysical dualism can never be part of a science even though it remains a part of theology and of philosophies that overlook the contradiction. None of these seven men nor anyone else of the period questioned whether it was

necessary to assume a dualism and what the alternative might be. That was simply not conceivable at the time. The next step was to convert mind into biology as the locus of mind, a step that Vives and Newton had already begun and to which Cabanis and a number of others carried to new heights. That effort continues in psychology to the present day despite mysteries it presents that are as great as those of psychophysical dualism. An alternative to both dualism and biologizing was as old as Aristotle but was not recognized because of the continuing medieval version of him which interpreted him as compatible with the prevailing theology. That alternative, however, was redeveloped in the twentieth century.

<i>Attempts to Reconcile Mind with Body</i>			
Theorist	Attempted Solution	Analogy	"Solution" Symbolized
Descartes	interaction		$M \leftrightarrow B$
Spinoza	double aspect	lens	\textcircled{MB}
Leibnitz	preestablished harmony: parallelism	clocks	$M \parallel B$
Berkeley	no body or world: all is spirit		$\textcircled{M} \boxtimes$
Hume	no body or mind, only impressions	gravity	$\boxtimes \boxtimes$
La Mettrie	epiphenomenalism	springs	\textcircled{M}
Cabanis		digestion	\boxed{B}

Fig 1.3 Proposed analogical solutions to mind-body quandary.

Biologizing the Mind

In the nineteenth century advances in physiology provided a biological model on which to attempt to wrench psychology from its mentalistic philosophy and give it the ostensible status of a natural science. Charles Bell (1774-1842) in England and François Magendie (1783-1855) in France independently discovered the distinction between sensory

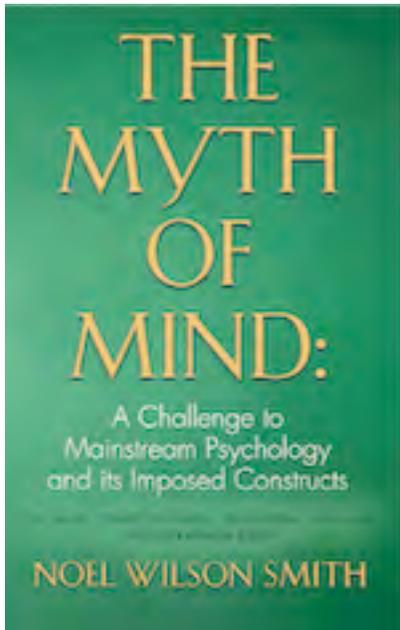
and motor nerves. Bell suggested that each sensory nerve conducted but one kind of experience. Visual nerves convey only visual experiences and auditory nerves convey only auditory experiences. An eminent pioneer German physiologist, Johannes Müller (1801-1858), extended this to mean that each quality of experience comes only through a specific quality or energy of a particular nerve. This is the doctrine of “specific nerve energies”. Each particular nerve has a specific energy and provides a specific sensation regardless of the type of stimulus. With one stroke he had converted Kant to biology. That is, we don’t respond to the real world; we only respond to our nerve endings, just as for Kant we only respond to our apperceptive phenomena. Müller was quite specific that the nerves and the brain, not the external world, support the soul and give it content. Kant’s double world gained a biological component. Hermann von Helmholtz (1821-1894), an even more eminent physiologist, also accepted the model of Kant and elaborated Müller’s doctrine: sensory organs are analyzers, and the kind of impulses they send determines the nature of the sensations received. It was only a small step for others to move the analyzers to the brain as the culminating effort to naturalize the soul by biologizing it. The concrete nervous system became the underpinning for the ethereal soul.

Conclusions

Mentalists and nonmentalists use vastly different approaches to events and constructs. History shows us that it is primarily the construct of mind-body dualism and the various derivatives from it and reactions to it that have created in psychology such vast disagreements about what comprises its basic subject matter (Kantor, 1963-1969;

Smith, 1993a, 2001, 2007). These disagreements began to emerge after the Middle Ages when the soul became an increasingly puzzling topic, both logically and empirically. Alternatives to this construct and to biological reductionism have been available since the time of Aristotle as numerous writers have shown (e.g., Everson, 1997; Kantor, 1963-1969; Randall, 1960, Shute, 1944; Smith, 1993a), but when psychologists do not consider the alternatives and allow cultural assumptions from the past to determine the character of various approaches, then problems arise. The overview of psychology's history attempts to show what lies behind today's confusions.

Few psychologists, it seems, understand the distinction between constructs and events or how to properly use them in scientific work. As a result, much of psychology is construct-based, and there is little agreement about those constructs due to the fact that they are not anchored in events. This chapter has focused primarily on the distinction between constructs and events (and history for its insights) in order to give heightened visibility to that distinction. A better understanding of the distinction and proper use of constructs could open the way toward a scientific platform for all of psychology, which, by being event-based, would help unite its disparate fragments and facilitate its scientific advancement. This work attempts to contribute toward that goal.



Investigations begin with observed events rather than with imposed constructs.

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