



**Scientific Introspection**

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## [Preface](#)

Psychology has lost its mind. It is now defined as the scientific study of almost anything but the mind: the body, the brain, human and animal behavior, animal-environment interactions, social relationships, information processing, social dynamics, and even “the whole person.” Psychotherapists might say they work every day with the vicissitudes of the mind, and let us thank them for that, but I am looking for, not a practice, but a systematic intellectual inquiry to discover what the mind is and how it works. There is very little of that in psychology.

Psychology, as a field of intellectual inquiry, prides itself on being a scientific endeavor. The American Psychological Association encourages even clinical practitioners to use evidence-based psychological practice (EBPP):

The purpose of EBPP is to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention...APA encourages the development of health care policies that reflect this view of evidence-based psychological practice. (American Psychological Association, 2005).

But the methods of science are designed for measurement of the physical world. There is no scientific way to measure, detect or observe intangible, immaterial objects, if any exist. What can be done then with objects such as thoughts, feelings, images, plans, hopes, deliberations, and urges? These are scientifically undetectable. The brain can be observed, but that's just a body part. If you dissect a brain, you find no images, words, numbers, songs, colors, or ideas in there. It is three pounds of meat, a physical thing, not a psychological event.

How can a self-proclaimed scientific study of psychology proceed then? Psychologists have developed a unique strategy, with roots going back to Gustav Fechner's 1860 book, *Elements of Psychophysics* (Fechner, 1860/1912): We try to make inferences about the mind from scientific observations of the behavior of the body. For example, we watch people solve problems, push buttons, make choices, or answer questions, and from those observations, we infer how the mind might be organized or how it works.

That would be a reasonable strategy if the inferences about the mind were sufficiently constrained, but they're usually not. The conclusions psychologists draw from observation of brain and behavior are little more than creative guesses, self-fulfilling hypotheses, or invalid circular inferences.

For example, psychologists Meltzoff and Brooks (2006) review experiments on human infants 12 to 18 months old. They watched infants turn their head to follow the gaze of an adult. That's remarkable social behavior, when you think about it. But the infants do not follow the adult's gaze if the adult's eyes are closed. Why not? The authors infer it must be because the infants are following the adult's visual intentionality, not simply the adult's head movements. That is, the infants are interested in whatever the adult means to look at. Therefore, the authors suggest, they have observed evidence of mind-reading in infants and it must be inborn, since there would not plausibly have been enough time for the infants to learn how to make inferences from observation of behavior to mental intentions, after having been alive only 12 to 18 months (and without language yet).

But how do the experimenters know that the infants are doing something called "gaze-following"? The scientific observation is that the infants move their heads to orient their faces to a target that an adult orients toward. They don't do it when the adult's eyes are closed. The experimenters assumed without question that the infants observed something in the adult called a "gaze," when all they observed (and all the experimenters could observe also) was a head movement (with eyes open). To gaze is to stare at something for a long time because you find it interesting or attractive or because you are actually thinking of something else. But none of that can be scientifically observed. That is all mental stuff. What you can actually see is head movement and eye movements. Anything else is inference.

The experimenters assume they observed "gaze-following" in infants, when all they really observed was more head movements. Maybe human infants have a built-in behavioral response to make head turns of a certain angle when presented with the appropriate sensory trigger of an adult angular head-movement. That would be a plausible behavioral inference.

The experimenters presupposed that they understood both the adult's and the infants' mentality, and then they interpreted the results of their observations in terms of those presuppositions. They did not scientifically observe anything but bodily behavior, which alone, provides no justification for inferring mentality.

Now, I do not doubt for a minute that Meltzoff and Brooks observed gaze-following, because I make the same unscientific presuppositions they did about the intrinsic meaning of certain behavior. I can tell when someone is "gazing." So the experiments are indeed nice demonstrations of mind-reading in infants. But they are "folk-psychology" demonstrations that exploit common sense understanding of what a "gaze" is and how you recognize it when you see it. The experimental observations do not, however, support the scientific inference the experimenters want to make.

There is nothing wrong with inference in science. In physics, if a certain subatomic particle is detected after a nuclear collision, scientists can infer the presence of other, unseen particles and their interactions. The inference is logically supported by statistics and by the observed and documented laws of physics. There are only so many things that could have happened. The inference is tightly constrained.

In psychology though, the inference is more like a free speculation. Did those infants really understand the adults' intentionality? Did an ape really demonstrate long range planning? Can we infer an unconscious process from this person's statement of what they did not see? Does a particular test really measure "intelligence?" The inferences psychologists make from observation to conclusion have few constraints. Any observation could imply any sort of mentality. Who is to say otherwise? So for psychologists like me, such experiments are generally unconvincing as examples of science.

I call scientific psychology a "quasi-science," because it has the trappings of science, but fundamentally it is only half a science. Half of it is based on scientific observation of bodies and their behavior, followed by the other half, wild speculation, unjustified presumption, or at best, marginally plausible inference. The second half is not, of course, scientific.

Understanding the mind by inference from behavior is sometimes compared to observing a factory through binoculars from a hill. We see truckloads of plastic, wood and rubber delivered to the loading dock, and we see boats on trailers leave the factory on the other side. So we make a guess: this factory manufactures boats.

The mind is a black box similar to that factory. We can vary its inputs, the displays or problems we present to a person. Then we observe the outputs, the person's answers, button-presses, or other behavior. From those observations we try to infer what's in the box. All scientists engage in that kind of reasoning, but psychologists stretch its limits.

Inferring a boat factory seems reasonable because we already have a pretty good idea what it means to manufacture something, and we understand how factories work in general. When we conclude a factory must be making boats, we can be fairly confident about it, and we can verify the inference by going down the hill to look inside the factory.

But with the black box of the mind, we have no idea what might be going on in there. We did not build that factory, we have never seen anything like it before in the world,

and we will never be able to verify our guess about its activity because there is no scientific way to go in there and directly observe. You can look inside the brain but you will see only brain. There is no scientific way to look inside a mind.

So we speculate. The mental black box must “process ideas,” we say, without knowing for sure what that means. How do you “process” an idea? It’s a loose computer analogy at best. We stack unclear and unverified inferences upon earlier ones until we have an elaborate house of cards that we call a theory. But none of it is well-grounded.

This is an unsatisfactory way to proceed, but what else can a scientific psychology do? The alternative is to forget about the mind. Study instead that which can be scientifically studied: the brain and bodily performance, including verbal behavior. You can observe and record those things. If the inferences drawn are tenuous, so be it. It is the best we can do. That is the status of quasi-science, the direction modern empirical psychology has taken.

By restricting psychology to what can be scientifically observed, the field has survived as a legitimate intellectual inquiry, but unfortunately, as a mindless one. Psychology did not really lose its mind, it abandoned it on the doorstep of science, hoping for a good adoption. There is no blame. It was a choice between science and philosophy, and psychology was determined to be a science.

I am not happy with this state of affairs. I don’t think we are getting anywhere with the strategy of quasi-science. We know a lot more about the brain today than ever before, but I don’t think we know much more about how the mind works than did William James, Wilhelm Wundt, or Sigmund Freud. Maybe we know more about the mind than Plato did, but I’m not even sure about that.

What I would like is some way to observe the mind directly so we wouldn’t have to guess. Can’t we just examine the mind directly? We can. Implausibly, we have a perfect method in introspection. Any mature, normally socialized adult is capable of observing their own mind. We don’t always articulate well, and self-deception is ever a hazard, but there can be no doubt about the fact that we can introspect. That is a very odd quirk of nature. Why can we introspect? It is an amazing ability that does not seem pre-ordained by evolution. But for whatever reason, we have that ability.

Introspection is not a perfect method. We do not have direct observational access to any mind other than our own, so we never know if we are talking about different things when we share introspective reports. Under that strange condition, consensus is only achieved by chance or persuasion, not by agreement about shared observations. So unlike science, introspection lacks a systematic method for building consensus.

A more subtle problem is that introspection is confusing. Who is the observer and what is the observed, in introspection? Does “observation” even have a meaning when the observer and observed are identical? Introspection is extremely difficult to understand.

The psychologist who wants to investigate the structure and function of the human mind is therefore stymied:

- Direct scientific observation is not possible, since science can only address physical phenomena, publicly observed.

- Making inferences about the mind from scientific observations of the body and its behavior is questionable because the inferences are underdetermined and can never be directly confirmed or disconfirmed.
- Non-scientific (“folk”) descriptions of the mind based on convention and tradition do not rely on systematic observational evidence, which is needed for building broad consensus.
- Direct observation of the mind using introspection is private to each person.

The prospects do not look good. But I think there is a way past this logjam. What we need is to define a practice of introspection that standardizes observational methods and language, optimizing communication to improve the likelihood that introspectors are talking about the same experience. This would be a Scientific Introspection, based on empirical observation. It would not contradict any procedures or findings of science, so it could work alongside existing scientific psychology. That’s basically the proposal of this book, presented in detail in the first chapter.

Most psychologists know there was a school of introspective psychology that flourished in the last years of the nineteenth century but was abandoned in the early twentieth. I take a close look at that episode in the second chapter, to see what went wrong. I think there are some salvageable ideas that can be polished up and used to support a new Scientific Introspection.

For Scientific Introspection to be a publicly accessible method, we would have to understand how it works. Is it like perception inwardly directed? The third chapter explains why that is not correct. Literal self-observation is not possible and introspection is not like perception. We need a different model of observation. Chapter four identifies the observer, so introspection can be considered as its own kind of observation rather than as an analogy to perception. The fifth chapter compares the mechanics of introspective observation to several other descriptions that have appeared since the mid 1800’s. Surveying historical and current accounts of introspection sharpens the description of Scientific Introspection.

In Chapter Six, the definition of Scientific Introspection is elaborated to reveal that introspection is fundamentally a social activity, not a solitary one as often assumed. We find that to introspect, one must conceptualize one’s mental contents as if to communicate them, and conceptualization is a socially acquired and maintained process. Thus, introspection is a kind of communication, a social activity.

But how could any introspective method could support a shared epistemology, since introspection seems to be private rather than public, and lacks observational controls such as those found in science? Chapter Seven demonstrates that those are practical problems that can be engineered, not metaphysical showstoppers.

In Chapter Eight, the practice of Scientific Introspection is described as a blend of three introspective techniques, reflection, phenomenology, and meditation, Each is described.

In the last chapter, I describe the application of Scientific Introspection, with a simple demonstration, introspection upon a red tomato. It is an example that can be replicated and confirmed or disconfirmed by anyone who follows the defined procedure.

Scientific Introspection needs to be specified in enough detail to bring about training programs and to test its efficacy in developing broad consensus about mental operations. In this book I only introduce the possibility of such an undertaking. But imagine if it worked, what a frontier would open for public inquiry into the human mind by direct examination.

END of SAMPLE

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