

# Why All Published Research Findings Are Likely False (and a possible remedy)

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## Abstract

**The physiological constraints of our neuro-sensory instrumentation limit the information we receive and from which we fashion our impressions. These limitations precede the psychological issues of data generation and analysis described by Ioannidis [1]. Scientific models widely accepted for at least 50 years [2,3] suggest that the peripheral and central nervous systems do not provide direct information about phenomena as they exist in nature. Instead, perceptible phenomena stimulate sense organs to produce nerve impulses. Sensory nerve impulses are not replicas of the phenomena stimulating their production. The brain, by obscure mechanisms, then fabricates personal experience from the sensory nerve impulses. The relationship of phenomena to the brain's experiential construct is unknown. Since evidence is produced by sense organs and the brain (neither of which incorporates *bona fide* replicas of phenomena), all scientific conclusions are likely false in the sense that they are not based on direct knowledge of phenomena as they exist in nature.**

**Abbreviations:** EMR, electromagnetic radiation

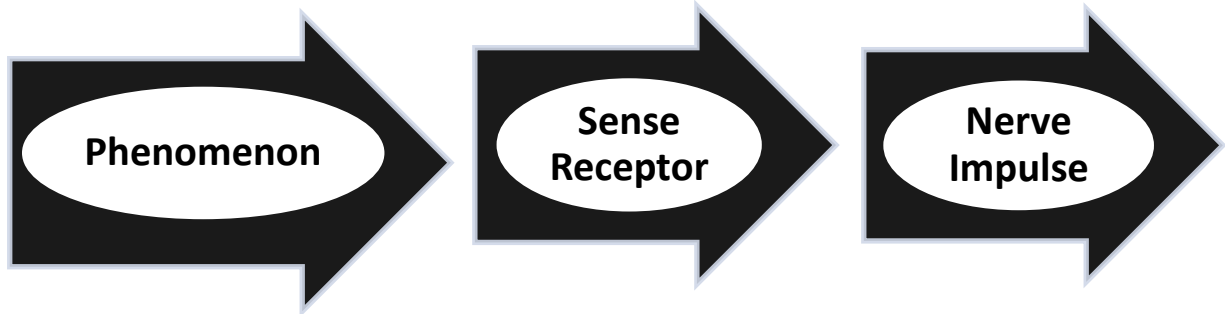
## Our Senses Do Not Replicate Phenomena As They Occur In Nature

All information we receive comes to us through our five senses—sight, sound, taste, touch and smell [2,3].

The process by which in our sense organs convert phenomena into nerve impulses is illustrated in Fig. 1.

*Figure 1.*

The Five Senses Convert Phenomena Into Nerve Impulses.

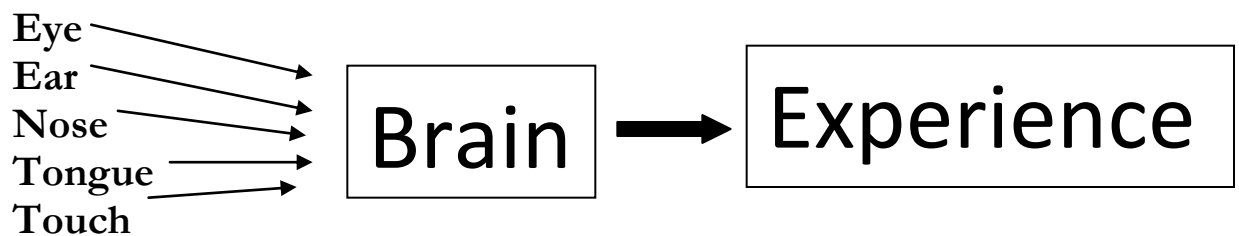


Phenomena are naturally present. Nerve impulses, on the other hand, are derived from phenomena by sense organs. Nerve impulses appear during the process of sense receptor stimulation by perceptible phenomena. Nerve impulses are thus artifacts produced by our sensory instrumentation (sense organs) when they interact with perceptible phenomena. However, since nerve impulses are merely conduits of information, their resemblance to the phenomena stimulating their production is unknown.

Nerve impulses travel from our sense organs to our brain, where they are transformed into our personal experience—or the universe as we know it. This process is illustrated in Figure 2.

*Figure 2.*

The Brain Fabricates Personal Experience From The Raw Material Of Nerve Impulse.



To illustrate the conversion of phenomena into experience, consider sight. Certain phenomena [for example, nuclear explosions on the sun] emit visible electromagnetic radiation, or what we experience subjectively as visible light. Visible electromagnetic radiation stimulates the retina to produce nerve impulses which travel to the brain via the optic nerve.

Using these optic nerve impulses as raw material, our brain constructs, or 'fabricates', our visual experience of sight. But, recall, we do not 'see' electromagnetic radiation, the initial phenomenon. Our experience of sight is derived from nerve impulses sent to our brain by our retinas, in response to encounters with visible electromagnetic radiation.

From an electrochemical point of view, nerve impulses are sodium and potassium ion trans-membrane fluctuations [2,3]. Thus, what we experience as sight is not an authentic replica of a phenomenon (i.e., EMR), but rather a derivative of optic nerve sodium and potassium ion fluctuations.

Likewise, what we hear is derived from variations in air pressure on our ear drums, converted to auditory nerve impulses by our inner ear. The brain creates our experience of sound from these auditory nerve impulses (sodium and potassium ion trans-membrane fluctuations).

This process is true of all five of our senses (sight, sound, touch, taste, smell), as summarized schematically in Fig. 1 and Fig. 2. The universe we perceive is constructed by the brain using nerve impulses which appear when the senses encounter perceptible phenomena. The relationship of our experiential rendition of phenomena to phenomena as they exist in nature is unknown.

## **The Physiological Constraints Of Scientific Investigation**

All scientific observations are ultimately derived from sensory nerve impulses—including observations made by human-made instruments such as microscopes, telescopes, Geiger Counters, etc. Thus what we consider evidence is at least twice removed from phenomena. Sense organs produce nerve impulses in response to stimulation by perceptible phenomena. The brain constructs personal experience from sensory nerve impulses. All research findings, to the extent that they rely on the products of our the peripheral and central nervous systems, are likely false in that they are absent direct information about phenomena as they exist in reality.

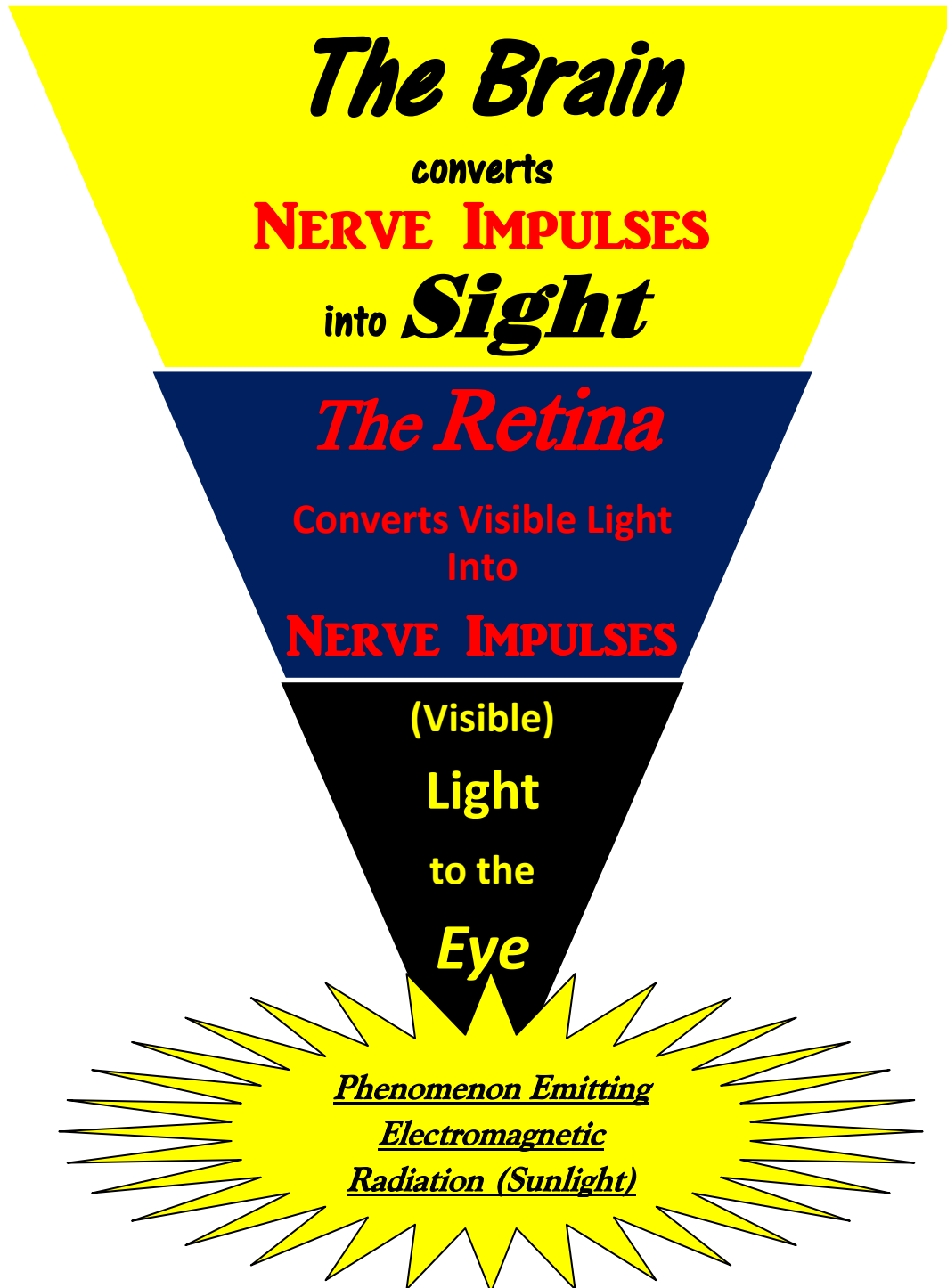
While the physiological constraints on human cognition outlined above are obvious and have been widely accepted for at least 50 years [2,3], they are rarely acknowledged. Often, both the physiological limitations of scientific investigations (presented here) and the psychological impediments to data generation and analysis described by Ioannidis [1] are ignored resulting, I suspect, in versions of 'reality' at a significant variance with phenomena as they exist in nature.

## **A Possible Remedy: Subjective Data—Information Not Derived From Sense Organs**

Given the physiological limitations of our instrumentation (sense organs and brain), what options are available to better explore reality? I believe the most promising alternative is to shift attention from the use of our sensory instrumentation (that is, the application of the five senses via the scientific method), to the mysterious mechanism by which the brain converts sense perceptions into experience. I call the puzzling process by which the brain converts the raw data of nerve impulses into the final product of personal experience the 'Central Enigma', due to its paramount function in human life and its anatomical location in the central nervous system.

Nerve impulses from all five senses are (enigmatically) converted into experience by the brain. Using the experience of sight, the Central Enigma is diagrammatically represented in Figure 3.

*Figure 3.*  
**The Central Enigma**  
Illustrated by Vision



In my view, attention should be directed to the Central Enigma, via introspective observation [4].

Novel information about phenomena may be obtained through introspection. When the mind observes the mind, it may be possible to gain insight into the means by which the brain fabricates personal experience from nerve impulses.

The limitations of objective analysis encourage more subjective approaches, which have less obvious constraints. Introspection may be a more promising approach to understanding phenomena as they exist in nature than reasoning from the sensory artifacts of objective data. Perhaps the most fundamental unsolved mystery of all—the origin of experience—can best be approached through introspective analysis of the Central Enigma.

## References

1. Ioannidis, J.P.A. (2005). *Why Most Published Research Findings Are False*, PLOS Med 2(8) : e124. doi:10.1371/journal.pmed.002124
2. Guyton, A.C. *Textbook of Medical Physiology*, 3<sup>rd</sup> Edition (1966) Saunders (Philadelphia). Library of Congress catalog number 66-10197. Chapter 5 and Chapters 55-59.
3. Hall, J.E. Guyton and Hall, *Textbook of Medical Physiology*, 13<sup>th</sup> Edition (2016) Elsevier Inc. ISBN 978-1-457-7005-2. Chapter 5 and Chapters 46-62.
4. James, William. *The Principles of Psychology*, Dover Edition (2013), Dover Publications, Inc., New York. Library of Congress Catalog Card Number: 50-7801. ISBN-13:978-0-486-20381-2. Volume One, p. 185: 'Introspective observation... means, of course, the looking into our own minds and reporting what we there discover.'