

The mind and its functions



Psychology studies the mind and its functions, and biology studies living organisms and their physiology, psychobiology uses biological foundations to try and explain psychological phenomena's. This is basically science in the branch of the biological bases of behavior and mental experiences.

This is sometimes also known as biological psychology because it deals with the biological interactions such as hormones, neurotransmitters, cells and the social aspects of our environment (Where mind meets matter, n. d.).

Psychobiologists study the physiological and evolutionary mechanisms that effect human behavior as a way to understand why the brain works the way it does.

A psychobiologist has the belief that biology plays the major role in the actions and behaviors of humans. Some of the research psychobiology focuses on is positive emotions, capacity of self-regulation, social competence, and bonds made with caregivers (Feder, Nestler, ; Charney, 2009).

There is some psychobiology that focuses on the impact of our genetics and environment on one's own self, and how that can impact our mental state as well. Biological psychology is the broad overview of the sub disciplines of Comparative Psychology. Some of these similar/other names for Psychobiology would be behavioral neuroscience, and biopsychology.

The differences between some of the different sub disciplines include; physiological aspects, genetics, and developmental mechanisms of behavior. These all study the stimulants, and such that impacts behavior in humans

and animals and looks for the links for why certain people behave the way they do when presented with a particular stimulus.

Because some people react differently and at different degrees than others, it can serve as a measurement to help gauge where they are at stimulant wise. Some of the earliest history of this comes from philosophers who believed that the brain and mind were two separate entities, other known as dualism. Dualism is a theory where the mind and brain are made of different components and materials.

Where the mind is an independent material separate of any physical materials, the brain is physical a physical matter. But it wasn't until the 19th century, when scientists started studying the brain and its components, that scientists began to argue that the mind and brain were the same thing.

This is known as monism because they saw that the mind, and brain were one entity and that they could not be studied separately. There are quite a few psychologists who were in the search for behavior and its biological foundations. Some of these people who were interested in searching for this were Weber, Pavlov, and Freud. (Hergenhahn, ; Henley, pg. 567) Weber's Law was originally done to describe the research on weight lifting by Ernst Weber who was a physiologist.

It was later then applied to " measurement of sensation" by his student, Gustav Fechner, who eventually developed the law of science and psychophysics (Weber's Law, n. d.). The statement that the relationship between the spiritual world and the physical worlds to Fechner, indicated that the spiritual world was the only world.

But to others, they interpreted this as a possibility of a scientific quantitative psychology. Pavlov's contribution to psychobiology would be his research in animal physiology, which led to an understanding in behavior and conditioning responses (Burgemeester, 2016). Freud's influence on psychobiology would be his theory of the human mind and human behavior.

He also developed a clinical technique that is made for helping people who are unhappy (The man who revolutionized, n. d.). Another person who contributed a lot to physics, physiology, and psychology would be Hermann Helmholtz. Helmholtz was a poor child who struggled with the arts in school, but read science books and practiced geometry in his free time.

Though his family could not afford to send him to college, the government had a program for "gifted" children to go to med-school for free if they agreed to sign on with the army as surgeons for 8 years. Though Helmholtz agreed with his teacher Muller, they had many disagreements.

They disagreed over Muller's belief in vitalism, which in biology and physiology, the vitalism-materialism problem was similar to psychologists' mind-body problem. Vitalism is the view that life and its experiences cannot be explained by physical and chemical processes alone.

Helmholtz sided on the side of materialists who believed that no other forces such as the physical and chemical ones, are active within an organism. Basically by meaning that everything happens because of the physical aspect, and not the psychological. By believing and supporting the mechanistic-materialistic philosophy that humans had both physical and

nonphysical aspects to them, they had a big influence on physiology, medicine, and psychology.

By having the understand that mind, brain, and body are all separate but yet intertwined, it can help with understanding why certain interactions or medications might not work well with certain people because the way their body reacts to certain stimulants may be too much for them to handle.

But that could also work for another person who may not have such a high response to a stimulant whether it be environmental, psychological, or medicinal stimulant. Phrenology is the study that the shape and size of the cranium is supposed to be an indicator of one's character and mental abilities.

Franz Gall accepted the belief that there are faculties of the mind that act on and transform sensory information. He came up with three additional things to add on to phrenology; that mental faculties do not exist to the same extent in all humans, the faculties are houses in specific areas of the brain, and that if ones faculty is well developed, a person would have a bump that corresponds to that region of the brain. But if the faculty is underdeveloped, a hollow or depressionlike part would be on the corresponding region of the skull. (Hergenhahn, & Henley, pg. 230)

Phrenology became popular in the aspect of education where the belief became that as would a regular physical muscle, a brain would get stronger with practice by stimulating those faculties of the brain. This would be called formal discipline and it is the belief that educational experiences can arrange to strengthen the specific facilities of the brain related to that subject.

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This encouraged further research in that the brain and mind are related and different regions of the brain hold different bouts of information.

(Hergenhahn, & Henley, pg. 232) Another big aspect of psychobiology would be experimental psychology; which is seeing what is physically present, and what is psychologically experienced. (Hergenhahn, & Henley, pg. 237)

Though there was never doubt about the existence or presence of a conscious, it was a matter of how we would measure it in a scientific aspect. It was believed that conscious sensations were triggered by brain responses, but then were originally initiated by sense perceptions. Psychophysics is the study of the relationship between physical and psychological events that occur.

Weber's Law claims that the number of a physical stimulus, that must occur because a change has occurred and results in the change of awareness or sensations. Through a various series of calculations, Fechner came to his most known formula, which he believed showed the interaction/relationship between the physical and the mental state. $S = k \log R$ This formula basically states that for sensations to rise arithmetically, the magnitude of the physical stimulus must rise geometrically.

If the change is detected it means that as the stimulus grows so does the magnitude and it keeps growing and growing afterward (Hergenhahn, ; Henley, pg. 241) Psychobiology has a lot of factors and subsections that research into it. Not only is it important to research both the psychological side and the biological side, it is important to know why and how these things interrelate.

By furthering research in these fields we can make strides to better understanding how our genetics, as well as our environment impact our mental and physical well-being and how we may react to certain stimulants psychologically and biologically.