Course: Introduction to Psychology (8411)
Semester: Autumn, 2021

ASSIGNMENT No. 1

Q. 1 Explain the term psychology. Critically discuss the history of psychology.

Psychology is the scientific study of the mind and behavior, according to the American Psychological Association. Psychology is a multifaceted discipline and includes many sub-fields of study such areas as human development, sports, health, clinical, social behavior and cognitive processes.

It is always a difficult question to ask, where to begin to tell the story of the history of psychology. Some would start with ancient Greece; others would look to a demarcation in the late 19th century when the science of psychology was formally proposed and instituted. These two perspectives, and all that is in between, are appropriate for describing a history of psychology. The interested student will have no trouble finding an abundance of resources on all of these time frames and perspectives. For the purposes of this module, we will examine the development of psychology in America and use the mid-19th century as our starting point. For the sake of convenience, we refer to this as a history of modern psychology.

Psychology is an exciting field and the history of psychology offers the opportunity to make sense of how it has grown and developed. The history of psychology also provides perspective. Rather than a dry collection of names and dates, the history of psychology tells us about the important intersection of time and place that defines who we are. Consider what happens when you meet someone for the first time. The conversation usually begins with a series of questions such as, "Where did you grow up?" "How long have you lived here?" "Where did you go to school?" The importance of history in defining who we are cannot be overstated. Whether you are seeing a physician, talking with a counselor, or applying for a job, everything begins with a history. The same is true for studying the history of psychology; getting a history of the field helps to make sense of where we are and how we got here.

Precursors to American psychology can be found in philosophy and physiology. The work of Locke, Reid, and others emphasized the role of the human observer and the primacy of the senses in defining how the mind comes to acquire knowledge. In American colleges and universities in the early 1800s, these principles were taught as courses on mental and moral philosophy. Most often these courses taught about the mind based on the faculties of intellect, will, and the senses.

Philosophical questions about the nature of mind and knowledge were matched in the 19th century by physiological investigations of the sensory systems of the human observer. German physiologist Hermann von Helmholtz measured the speed of the **neural impulse** and explored the physiology of hearing and vision. His work indicated that our senses can deceive us and are not a mirror of the external world. Such work showed that even though the human senses were fallible, the mind could be measured using the methods of science. In all, it suggested that a science of psychology was feasible.

An important implication of Helmholtz's work was that there is a psychological reality and a physical reality and that the two are not identical. This was not a new idea; philosophers like John Locke had written

extensively on the topic, and in the 19th century, philosophical speculation about the nature of mind became subject to the rigors of science.

The question of the relationship between the mental (experiences of the senses) and the material (external reality) was investigated by a number of German researchers including Ernst Weber and Gustav Fechner. Their work was called **psychophysics**, and it introduced methods for measuring the relationship between physical stimuli and human perception that would serve as the basis for the new science of psychology.

Experimental psychology spread rather rapidly throughout North America. By 1900, there were more than 40 laboratories in the United States and Canada. Psychology in America also organized early with the establishment of the American Psychological Association (APA) in 1892. Titchener felt that this new organization did not adequately represent the interests of experimental psychology, so, in 1904, he organized a group of colleagues to create what is now known as the Society of Experimental Psychologists. The group met annually to discuss research in experimental psychology. Reflecting the times, women researchers were not invited (or welcome). It is interesting to note that Titchener's first doctoral student was a woman. Despite many barriers, in 1894, Washburn became the first woman in America to earn a Ph.D. in psychology and, in 1921, only the second woman to be elected president of the American Psychological Association.

Growth and expansion have been a constant in American psychology. In the latter part of the 20th century, areas such as social, developmental, and personality psychology made major contributions to our understanding of what it means to be human. Today neuroscience is enjoying tremendous interest and growth.

As mentioned at the beginning of the module, it is a challenge to cover all the history of psychology in such a short space. Errors of omission and commission are likely in such a selective review. The history of psychology helps to set a stage upon which the story of psychology can be told. This brief summary provides some glimpse into the depth and rich content offered by the history of psychology. The learning modules in the Noba psychology collection are all elaborations on the foundation created by our shared past. It is hoped that you will be able to see these connections and have a greater understanding and appreciation for both the unity and diversity of the field of psychology.

Q. 2 Explain Behaviorists Psychology. Critically discuss the applications of Behaviorists Psychology with examples.

Behaviorism, also known as behavioral psychology, is a theory of learning based on the idea that all behaviors are acquired through conditioning. Conditioning occurs through interaction with the environment. Behaviorists believe that our responses to environmental stimuli shape our actions.[1]

According to this school of thought, behavior can be studied in a systematic and observable manner regardless of internal mental states.[2] According to this perspective, only observable behavior should be considered—cognitions, emotions, and moods are far too subjective.

Strict behaviorists believed that any person can potentially be trained to perform any task, regardless of genetic background, personality traits, and internal thoughts (within the limits of their physical capabilities). It only requires the right conditioning.

Behaviorism was formally established with the 1913 publication of John B. Watson's classic paper, "Psychology as the Behaviorist Views It."[3] It is best summed up by the following quote from Watson, who is often considered the "father" of behaviorism:

"Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors."

From about 1920 through the mid-1950s, behaviorism grew to become the dominant school of thought in psychology. Some suggest that the popularity of behavioral psychology grew out of the desire to establish psychology as an objective and measurable science.

At this time, researchers were interested in creating theories that could be clearly described and empirically measured but also used to make contributions that might have an influence on the fabric of everyday human lives.

There are several principles that distinguish behavioral psychology from other psychological approaches.

Two Types of Conditioning

According to behavioral psychology, there are two major types of conditioning, classical conditioning and operant conditioning.

Classical Conditioning

Classical conditioning is a technique frequently used in behavioral training in which a neutral stimulus is paired with a naturally occurring stimulus. Eventually, the neutral stimulus comes to evoke the same response as the naturally occurring stimulus, even without the naturally occurring stimulus presenting itself.

Throughout the course of three distinct phases, the associated stimulus becomes known as the conditioned stimulus and the learned behavior is known as the conditioned response.[4]

How Classical Conditioning Works

Operant Conditioning

Operant conditioning (sometimes referred to as instrumental conditioning) is a method of learning that occurs through reinforcements and punishments. Through operant conditioning, an association is made between a behavior and a consequence for that behavior.

When a desirable result follows an action, the behavior becomes more likely to occur again in the future. Responses followed by adverse outcomes, on the other hand, become less likely to happen again in the future.

Learning Through Association

The classical conditioning process works by developing an association between an environmental stimulus and a naturally occurring stimulus.

In physiologist Ivan Pavlov's classic experiments, dogs associated the presentation of food (something that naturally and automatically triggers a salivation response) with the sound of a bell, at first, and then the sight of a lab assistant's white coat. Eventually, the lab coat alone elicited a salivation response from the dogs.[6]

Conditioning Can Be Influenced

During the first part of the classical conditioning process, known as acquisition, a response is established and strengthened. Factors such as the prominence of the stimuli and the timing of presentation can play an important role in how quickly an association is formed.

When an association disappears, this is known as extinction, causing the behavior to weaken gradually or vanish. Factors such as the strength of the original response can play a role in how quickly extinction occurs. The longer a response has been conditioned, for example, the longer it may take for it to become extinct.

Consequences Affect Learning

Behaviorist B.F. Skinner described operant conditioning as the process in which learning can occur through reinforcement and punishment. More specifically, by forming an association between a certain behavior and the consequences of that behavior, you learn.

For example, if a parent rewards their child with praise every time they pick up their toys, the desired behavior is consistently reinforced. As a result, the child will become more likely to clean up messes.

Timing Plays a Role

Reinforcement schedules are important in operant conditioning. This process seems fairly straight forward—simply observe a behavior and then offer a reward or punishment.

However, Skinner discovered that the timing of these rewards and punishments has an important influence on how quickly a new behavior is acquired and the strength of the corresponding response.

- **Continuous reinforcement** involves rewarding every single instance of a behavior. It is often utilized at the beginning of the operant conditioning process. But as the behavior is learned, the schedule might switch to one of partial reinforcement.
- **Partial reinforcement** involves offering a reward after a number of responses or after a period of time has elapsed. Sometimes, partial reinforcement occurs on a consistent or fixed schedule. In other instances, a variable and an unpredictable number of responses or time must occur before the reinforcement is delivered.

Q. 3 How correlation study could be conducted in psychology? Discuss with examples.

A correlation refers to a **relationship between two variables**. Correlations can be strong or weak and positive or negative. Sometimes, there is no correlation.

- Correlational research involves measuring two variables and assessing the relationship between them, with no manipulation of an independent variable.
- Correlational research is not defined by where or how the data are collected. However, some approaches to data collection are strongly associated with correlational research. These include naturalistic observation (in which researchers observe people's behaviour in the context in which it normally occurs) and the use of archival data that were already collected for some other purpose.

There are three possible outcomes of a correlation study: a positive correlation, a negative correlation, or no correlation. Researchers can present the results using a numerical value called the correlation coefficient.

- **Positive correlations**: Both variables increase or decrease at the same time. A correlation coefficient close to +1.00 indicates a strong positive correlation.
- **Negative correlations**: As the amount of one variable increases, the other decreases (and vice versa). A correlation coefficient close to -1.00 indicates a strong negative correlation.
- **No correlation**: There is no relationship between the two variables. A correlation coefficient of 0 indicates no correlation.
- Correlational studies are a type of research often used in psychology, as well as other fields like medicine. Correlational research is a preliminary way to gather information about a topic. The method is also useful if researchers are unable to perform an experiment.
- Researchers use correlations to see if a relationship between two or more variables exists, but the variables themselves are not under the control of the researchers.
- While correlational research can demonstrate a relationship between variables, it cannot prove that changing one variable will change another. In other words, correlational studies cannot prove cause-and-effect relationships.[4]

Advantages

- Can inspire ideas for further research
- Option if lab experiment not available
- View variables in natural setting

Disadvantages

- Can be time-consuming and expensive
- Extraneous variables can't be controlled
- No scientific control of variables
- Subjects might behave differently if aware of being observed

This method is well-suited to studies where researchers want to see how variables behave in their natural setting or state. Inspiration can then be drawn from the observations to inform future avenues of research.

In some cases, it might be the only method available to researchers; for example, if lab experimentation would be precluded by access, resources, or ethics. It might be preferable to not being able to conduct research at all, but the method can be costly and usually takes a lot of time.

Another potential benefit is that these sources often provide an enormous amount of data that was collected over a very long period of time, which can give researchers a way to view trends, relationships, and outcomes related to their research.

While the inability to change variables can be a disadvantage of some methods, it can be a benefit of archival research. That said, using historical records or information that was collected a long time ago also presents challenges. For one, important information might be missing or incomplete and some aspects of older studies might not be useful to researchers in a modern context.

A primary issue with archival research is reliability.

When reviewing old research, little information might be available about who conducted the research, how a study was designed, who participated in the research, as well as how data was collected and interpreted.

1. An educational researcher compares the academic performance of students from the "rich" side of town with that of students from the "poor" side of town.
2. A cognitive psychologist compares the ability of people to recall words that they were instructed to "read" with their ability to recall words that they were instructed to "imagine."
3. A manager studies the correlation between new employees' college grade point averages and their first-year performance reports.
4. An automotive engineer installs different stick shifts in a new car prototype, each time asking several people to rate how comfortable the stick shift feels.
5. A food scientist studies the relationship between the temperature inside people's refrigerators and the amount of bacteria on their food.
6. A social psychologist tells some research participants that they need to hurry over to the next building to complete a study. She tells others that they can take their time. Then she observes whether they stop to help a research assistant who is pretending to be hurt.

Q. 4 Explain the term feeling. Discuss the impact of brains on feeling. Discuss with examples.

A new brain imaging study by psychologists reveals why verbalizing our feelings makes our sadness, anger and pain less intense. A second study combines modern neuroscience with ancient Buddhist teachings to provide the first neural evidence for why "mindfulness" -- the ability to live in the present moment, without distraction -- seems to produce a variety of health benefits.

Another study, with the same participants and three of the same members of the research team, combines modern neuroscience with ancient Buddhist teachings to provide the first neural evidence for why "mindfulness" -- the ability to live in the present moment, without distraction -- seems to produce a variety of health benefits.

When people see a photograph of an angry or fearful face, they have increased activity in a region of the brain called the amygdala, which serves as an alarm to activate a cascade of biological systems to protect the body in times of danger. Scientists see a robust amygdala response even when they show such emotional photographs subliminally, so fast a person can't even see them.

But does seeing an angry face and simply calling it an angry face change our brain response" The answer is yes, according to Matthew D. Lieberman, UCLA associate professor of psychology and a founder of social cognitive neuroscience.

"When you attach the word 'angry,' you see a decreased response in the amygdala," said Lieberman, lead author of the study, which appears in the current issue of the journal Psychological Science.

The study showed that while the amygdala was less active when an individual labeled the feeling, another region of the brain was more active: the right ventrolateral prefrontal cortex. This region is located behind the forehead and eyes and has been associated with thinking in words about emotional experiences. It has also been implicated in inhibiting behavior and processing emotions, but exactly what it contributes has not been known.

"What we're suggesting is when you start thinking in words about your emotions --labeling emotions -- that might be part of what the right ventrolateral region is responsible for," Lieberman said.

If a friend or loved one is sad or angry, getting the person to talk or write may have benefits beyond whatever actual insights are gained. These effects are likely to be modest, however, Lieberman said.

"We typically think of language processing in the left side of the brain; however, this effect was occurring only in this one region, on the right side of the brain," he said. "It's rare to see only one region of the brain responsive to a high-level process like labeling emotions."

Many people are not likely to realize why putting their feelings into words is helpful.

"If you ask people who are really sad why they are writing in a journal, they are not likely to say it's because they think this is a way to make themselves feel better," Lieberman said. "People don't do this to intentionally overcome their negative feelings; it just seems to have that effect. Popular psychology says when you're feeling down, just pick yourself up, but the world doesn't work that way. If you know you're trying to pick yourself up, it usually doesn't work -- self-deception is difficult. Because labeling your feelings doesn't require you to want to feel better, it doesn't have this problem."

Thirty people, 18 women and 12 men between ages of 18 and 36, participated in Lieberman's study at UCLA's Ahmanson-Lovelace Brain Mapping Center. They viewed images of individuals making different emotional expressions. Below the picture of the face they either saw two words, such as "angry" and "fearful," and chose which emotion described the face, or they saw two names, such as "Harry" and "Sally," and chose the gender-appropriate name that matched the face.

Lieberman and his co-authors -- UCLA assistant professor of psychology Naomi Eisenberger, former UCLA psychology undergraduate Molly Crockett, former UCLA psychology research assistant Sabrina Tom, UCLA

psychology graduate student Jennifer Pfeifer and Baldwin Way, a postdoctoral fellow in Lieberman's laboratory -- used functional magnetic resonance imaging to study subjects' brain activity.

"When you attach the word 'angry,' you see a decreased response in the amygdala," Lieberman said. "When you attach the name 'Harry,' you don't see the reduction in the amygdala response.

"When you put feelings into words, you're activating this prefrontal region and seeing a reduced response in the amygdala," he said. "In the same way you hit the brake when you're driving when you see a yellow light, when you put feelings into words, you seem to be hitting the brakes on your emotional responses."

As a result, an individual may feel less angry or less sad.

This is ancient wisdom," Lieberman said. "Putting our feelings into words helps us heal better. If a friend is sad and we can get them to talk about it, that probably will make them feel better."

The right ventrolateral prefrontal cortex undergoes much of its development during a child's preteen and teenage years. It is possible that interaction with friends and family during these years could shape the strength of this brain region's response, but this is not yet established, Lieberman said.

Q. 5 Discuss the differences and relationship between nervous system and Endocrine System. Discuss with arguments.

The brain is like a computer that controls the body's functions, and the nervous system is like a network that relays messages to parts of the body.

The brain controls what we think and feel, how we learn and remember, and the way we move and talk. But it also controls things we're less aware of — like the beating of our hearts and the digestion of our food.

Think of the brain as a central computer that controls all the body's functions. The rest of the nervous system is like a network that relays messages back and forth from the brain to different parts of the body. It does this via the **spinal cord**, which runs from the brain down through the back. It contains threadlike nerves that branch out to every organ and body part.

When a message comes into the brain from anywhere in the body, the brain tells the body how to react. For example, if you touch a hot stove, the nerves in your skin shoot a message of pain to your brain. The brain then sends a message back telling the muscles in your hand to pull away. Luckily, this neurological relay race happens in an instant.

The nervous system is made up of the central nervous system and the peripheral nervous system:

- The brain and the spinal cord are the **central nervous system**.
- The nerves that go through the whole body make up the **peripheral nervous system**.

The human brain is incredibly compact, weighing just 3 pounds. It has many folds and grooves, though. These give it the added surface area needed for storing the body's important information.

The spinal cord is a long bundle of nerve tissue about 18 inches long and 1/2-inch thick. It extends from the lower part of the brain down through spine. Along the way, nerves branch out to the entire body.

Both the brain and the spinal cord are protected by bone: the brain by the bones of the skull, and the spinal cord by a set of ring-shaped bones called vertebrae. They're both cushioned by layers of membranes called meninges and a special fluid called cerebrospinal fluid. This fluid helps protect the nerve tissue, keep it healthy, and remove waste products.

The brain is made up of three main sections: the forebrain, the midbrain, and the hindbrain.

The Forebrain

The forebrain is the largest and most complex part of the brain. It consists of the cerebrum — the area with all the folds and grooves typically seen in pictures of the brain — as well as some other structures under it.

The **cerebrum** contains the information that essentially makes us who we are: our intelligence, memory, personality, emotion, speech, and ability to feel and move. Specific areas of the cerebrum are in charge of processing these different types of information. These are called lobes, and there are four of them: the frontal, parietal, temporal, and occipital lobes.

The cerebrum has right and left halves, called hemispheres. They're connected in the middle by a band of nerve fibers (the corpus callosum) that lets them communicate. These halves may look like mirror images of each other, but many scientists believe they have different functions:

- The left side is considered the logical, analytical, objective side.
- The right side is thought to be more intuitive, creative, and subjective.

So when you're balancing your checkbook, you're using the left side. When you're listening to music, you're using the right side. It's believed that some people are more "right-brained" or "left-brained" while others are more "whole-brained," meaning they use both halves of their brain to the same degree.

The outer layer of the cerebrum is called the **cortex** (also known as "gray matter"). Information collected by the five senses comes into the brain to the cortex. This information is then directed to other parts of the nervous system for further processing. For example, when you touch the hot stove, not only does a message go out to move your hand but one also goes to another part of the brain to help you remember not to do that again.

In the inner part of the forebrain sits the thalamus, hypothalamus, and pituitary gland :

- The **thalamus** carries messages from the sensory organs like the eyes, ears, nose, and fingers to the cortex.
- The hypothalamus controls the pulse, thirst, appetite, sleep patterns, and other processes in our bodies that happen automatically.
- The hypothalamus also controls the **pituitary gland**, which makes the hormones that control growth, metabolism, water and mineral balance, sexual maturity, and response to stress.

The Midbrain

The midbrain, underneath the middle of the forebrain, acts as a master coordinator for all the messages going in and out of the brain to the spinal cord.

The Hindbrain

The hindbrain sits underneath the back end of the cerebrum. It consists of the cerebellum, pons, and medulla. The **cerebellum** — also called the "little brain" because it looks like a small version of the cerebrum — is responsible for balance, movement, and coordination.

The pons and the medulla, along with the midbrain, are often called the **brainstem**. The brainstem takes in, sends out, and coordinates the brain's messages. It also controls many of the body's automatic functions, like breathing, heart rate, blood pressure, swallowing, digestion, and blinking.

The basic workings of the nervous system depend a lot on tiny cells called **neurons**. The brain has billions of them, and they have many specialized jobs. For example, sensory neurons send information from the eyes, ears, nose, tongue, and skin to the brain. Motor neurons carry messages away from the brain to the rest of the body.

All neurons, however, relay information to each other through a complex electrochemical process, making connections that affect the way we think, learn, move, and behave.

Intelligence, learning, and memory. As we grow and learn, messages travel from one neuron to another over and over, creating connections, or pathways, in the brain. It's why driving takes so much concentration when someone first learns it, but later is second nature: The pathway became established.

In young children, the brain is highly adaptable. In fact, when one part of a young child's brain is injured, another part often can learn to take over some of the lost function. But as we age, the brain has to work harder to make new neural pathways, making it harder to master new tasks or change set behavior patterns. That's why many scientists believe it's important to keep challenging the brain to learn new things and make new connections — it helps keeps the brain active over the course of a lifetime.

Memory is another complex function of the brain. The things we've done, learned, and seen are first processed in the cortex. Then, if we sense that this information is important enough to remember permanently, it's passed inward to other regions of the brain (such as the hippocampus and amygdala) for long-term storage and retrieval. As these messages travel through the brain, they too create pathways that serve as the basis of memory.

Movement. Different parts of the cerebrum move different body parts. The left side of the brain controls the movements of the right side of the body, and the right side of the brain controls the movements of the left side of the body. When you press your car's accelerator with your right foot, for example, it's the left side of your brain that sends the message allowing you to do it.

Basic body functions. A part of the peripheral nervous system called the **autonomic nervous system** controls many of the body processes we almost never need to think about, like breathing, digestion, sweating, and shivering. The autonomic nervous system has two parts: the sympathetic nervous system and the parasympathetic nervous system.

The **sympathetic nervous system** prepares the body for sudden stress, like if you witness a robbery. When something frightening happens, the sympathetic nervous system makes the heart beat faster so that it sends

blood quickly to the different body parts that might need it. It also causes the adrenal glands at the top of the kidneys to release adrenaline, a hormone that helps give extra power to the muscles for a quick getaway. This process is known as the body's "fight or flight" response.

The **parasympathetic nervous system** does the exact opposite: It prepares the body for rest. It also helps the digestive tract move along so our bodies can efficiently take in nutrients from the food we eat.

The Senses

Sight. Sight probably tells us more about the world than any other sense. Light entering the eye forms an upside-down image on the retina. The retina transforms the light into nerve signals for the brain. The brain then turns the image right-side up and tells us what we are seeing.

Hearing. Every sound we hear is the result of sound waves entering our ears and making our eardrums vibrate. These vibrations then move along the tiny bones of the middle ear and turned into nerve signals. The cortex processes these signals, telling us what we're hearing.

Taste. The tongue contains small groups of sensory cells called taste buds that react to chemicals in foods. Taste buds react to sweet, sour, salty, bitter, and savory. The taste buds send messages to the areas in the cortex responsible for processing taste.

Smell. Olfactory cells in the mucous membranes lining each nostril react to chemicals we breathe in and send messages along specific nerves to the brain.

Touch. The skin contains millions of sensory receptors that gather information related to touch, pressure, temperature, and pain and send it to the brain for processing and reaction.