verywell mind

Perception and the Perceptual Process

By Kendra Cherry

Updated October 15, 2019

The perceptual process allows us to experience the world around us. Take a moment to think of all the things you perceive on a daily basis. At any given moment, you might see familiar objects in your environment, feel the touch of objects and people against your skin, smell the aroma of a home-cooked meal and hear the sound of music playing in your next-door neighbor's apartment. All of these things help make up our conscious experience and allow us to interact with the people and objects around us.

In this overview of perception and the perceptual process, we will learn more about how we go from detecting stimuli in the environment to actually taking action based on that information.

1 What Is Perception?

Hans Solcer / Moment / Getty Images

Perception is our sensory experience of the world around us and involves both recognizing environmental stimuli and actions in response to these stimuli. Through the perceptual process, we gain information about the properties and elements of the environment that are critical to our survival. Perception not only creates our experience of the world around us; it allows us to act within our environment.

Perception includes the five senses; touch, sight, sound, smell, and taste. It also includes what is known as proprioception, a set of senses involving the ability to detect changes in body positions and movements. It also involves the cognitive processes required to process information, such as recognizing the face of a friend or detecting a familiar scent.

2 Steps in the Perceptual Process

woman's hand touching grass

Manuel Orero Galen / Moment / Getty Images

The perceptual process is a sequence of steps that begins with the environment and leads to our perception of a stimulus and action in response to the stimulus. This process is continual, but you do not spend a great deal of time thinking about the actual *process* that occurs when you perceive the many stimuli that surround you at any given moment.

The process of transforming the light that falls on your retinas into an actual visual image happens unconsciously and automatically. The subtle changes in pressure against your skin that allow you to feel objects occur without a single thought.

In order to fully understand how the perception process works, we'll start by breaking down each step.

Steps in the Perceptual Process

1. The Environmental Stimulus
2. The Attended Stimulus
3. The Image on the Retina
4. Transduction
5. Neural Processing
6. Perception
7. Recognition
8. Action

3 The Environmental Stimulus

Woman running in park

Stanislaw Pytel / DigitalVision / Getty Images

The world is full of stimuli that can attract our attention through various senses. The

environmental stimulus is everything in our environment that has the potential to be perceived.

This might include anything that can be seen, touched, tasted, smelled, or heard. It might also involve the sense of proprioception, such as the movements of the arms and legs or the change in position of the body in relation to objects in the environment.

For example, imagine that you are out on a morning jog at your local park. As you perform your workout, there are a wide variety of environmental stimuli that might capture your attention. The tree branches are swaying in the slight breeze; a man is out on the grass playing fetch with his Golden Retriever; a car drives past with the windows rolled down and the music blaring; a duck splashes in a nearby pond. All of these things represent environmental stimuli and serve as a starting point for the perceptual process.

4 The Attended Stimulus

Mallard ducklings

Mark Newman / Getty Images

The attended stimulus is the specific object in the environment on which our attention is focused. In many cases, we might focus on stimuli that are familiar to us, such as the face of a friend in a crowd of strangers at the local coffee shop. In other instances, we are likely to attend to stimuli that have some degree of novelty.

From our earlier example, let's imagine that during your morning jog you focus your attention on the duck floating in the nearby pond. The duck represents the attended stimulus. During the next step of the perceptual process, the visual process will progress.

5 The Image on the Retina

Close up of a human eye

Caelan Stulken / EyeEm / Getty Images

Next, the attended stimulus is formed as an image on the retina. The first part of this process involves the light actually passing through the cornea and pupil and onto the lens of the eye. The cornea helps focus the light as it enters the eye, and the iris of the eye controls the size of the pupils in order to determine how much light to let in. The cornea and lens act together to project an inverted image onto the retina.

As you might already be aware, the image on the retina is actually upside down from the actual image in the environment. At this stage of the perceptual process, this is not terribly important. The image has still not been perceived, and this visual information will be changed even more dramatically in the next step of the process.

6 Transduction

Cross section of the eye

Dorling Kindersley / Getty Images

The image on the retina is then transformed into electrical signals in a process known as transduction. This allows the visual messages to be transmitted to the brain to be interpreted.

The retina contains many photoreceptor cells. These cells contain proteins known as rods and cones. Rods are primarily for seeing things in low light, while cones are associated with detecting color and shapes at normal light levels.

The rods and cones contain a molecule called retinal, which is responsible for transducing the light into visual signals that are then transmitted via nerve impulses.

7. Neural Processing

Brain network

Science Photo Library - PASIEKA / Brand X Pictures / Getty Images

The electrical signals then undergo neural processing. The path followed by a particular signal depends on what type of signal it is (i.e. an auditory signal or a visual signal).

Through the series of interconnecting neurons located throughout the body, electrical signals are propagated from the receptors cells to the brain. In our previous example, the image of a duck floating in the pond is received as a light on the retina, which is then transduced into an electrical signal and then processed through the neurons in the visual network.

In the next step of the perceptual process, you will actually perceive the stimuli and become aware of its presence in the environment.

8 Perception

Perceiving ducks on a pond

Jordan Siemens / DigitalVision / Getty Images

In the next step of the perception process, we actually perceive the stimulus object in the environment. It is at this point that we become consciously aware of the stimulus.

Let's consider our previous example, in which we imagined that you were out for a morning jog in the park. At the perception stage, you have become aware that there is something out on the pond to perceive.

Now, it is one thing to be *aware* of stimuli in the environment, and quite another to actually become fully consciously aware of what we have perceived. In the next stage of the perceptual process, we will sort the perceived information into meaningful categories.

9 Recognition

Woman looking at screen

Tim Robberts / The Image Bank / Getty Images

Perception doesn't just involve becoming consciously aware of the stimuli. It is also necessary for our brain to categorize and interpret what it is we are sensing. Our ability to interpret and give meaning to the object is the next step, known as recognition.

Continuing our example, it is at the recognition stage of the perceptual process that you realize that there is a duck floating on the water. The recognition stage is an essential part of perception since it allows us to make sense of the world around us. By placing objects in meaningful categories, we are able to understand and react to the world around us.

10 Action

Man looking through binoculars

Katie Huisman / Digital Vision / Getty Images

The final step of the perceptual process involves some sort of action in response to the environmental stimulus. This could involve a variety of actions, such as turning your head for a closer look or turning away to look at something else.

The action phase of perceptual development involves some type of motor activity that occurs in response to the perceived and recognized stimulus. This might involve a major action, like running toward a person in distress, or something as subtle as blinking your eyes in response to a puff of dust blowing through the air.

Article Sources

- Goldstein, E. (2010). *Sensation and Perception*. Belmont, CA: Cengage Learning.
- Yantis, S. (2014). *Sensation and Perception*. New York: Worth Publishers.