

# Cognitive & Neurological Careers

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## WHAT'S COVERED

The next few lessons will discuss some of the different specialties available when considering a career in psychology.

The areas of focus for this lesson include:

1. Category of Cognitive and Neurological Psychology
2. Biopsychology
  - a. Sensory and Perception Psychology
3. Cognitive Psychology
  - a. Developmental Psychology
4. Educational Psychology
  - a. Learning Psychology

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## 1. Category of Cognitive and Neurological Psychology

All the specialties that this lesson will cover fall under the general category of cognitive and neurological psychology.

The main question that cognitive and neurological psychology aims to answer is, “How does the brain function?” or more specifically, “How does the brain create certain mental processes and events?”

A lot of the work that is considered cognitive and neurological is research-based, meaning that it takes place in university labs, and is often government-funded. While there are other areas of psychology that are research-based as well, this one generally fits under the scope of the biological perspective because it involves experiments being done to determine why certain things happen.

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## 2. Biopsychology

The first specialized area of study under cognitive and neurological psychology is **biopsychology**. As you may

recall from an earlier lesson, biopsychology is the study of how the physical, chemical, and biological processes in our bodies influence the way we think, feel, and perceive.

In other words, biopsychologists are trying to identify the biological underpinnings for all of the psychological concepts encountered within the broader field of psychology.

In order to understand the brain's structure, biopsychologists make use of an array of different tools, such as the CT scan, which essentially takes a 3-D x-ray of the brain, or the MRI (Magnetic Resonance Imaging), which uses a magnetic field to show the internal structures of the brain.

There are also tools that help biopsychologists understand how the brain functions. These are things like an EEG (Electroencephalogram), which measures the electric activity of the brain as certain things are happening, and the PET scan, which uses radioactive isotopes in the brain to identify certain areas of activity.

Additionally, the fMRI, which is similar to the MRI and uses that same magnetic field, creates a 3-D image showing how different changes occur over time.

Someone studying biopsychology might also make use of electrodes, which directly stimulate different parts of the brain and nervous system, to see how that stimulation might affect such areas.



#### TERM TO KNOW

#### Biopsychology

Genetics, nervous system, brain, endocrine system or other physiological root of behavior and mental processes

#### 2a. Sensory and Perception Psychology

An area of study related to biopsychology, **sensory and perception** psychology is the study of how the different sense organs work, as well as the processes that go into perception, meaning how people see, smell, taste, hear, and feel.



**EXAMPLE** Undergraduates who study psychology might participate in experiments in a smell laboratory, where psychologists study how smelling different types of things might affect physical stimulation. This involves measuring what is happening with a person's skin. Specifically, the electric activity occurring there, and how that relates to the different substances that the psychologists injected for the subject to smell.



#### TERM TO KNOW

#### Sensory and Perception

Sense organs and how the brain makes sense of, or perceives, that information

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## 3. Cognitive Psychology

Other areas of study under cognitive and neurological psychology make use of a more psychological approach, and one of these areas is the study of cognitive development as a psychology.

**Cognitive psychology** involves trying to determine how the mind and the brain develop over time, from

childhood to adulthood.

As a reference, you might remember that we talked a bit about Piaget's stages of cognitive development. That is one of the ways the development of the mind over time can be studied, and we'll discuss this in more detail in a later lesson.



#### TERM TO KNOW

### Cognitive Psychology

How humans encode, store, process and retrieve information

#### 3a. Developmental Psychology

Under the umbrella of cognitive psychology, **developmental psychology** is the study of how progressive changes in behavior and ability occur from conception all the way to the time of death.

One way of studying developmental psychology is through developmental linguistics, which involves studying how children acquire language, and how children show the different stages of language acquisition occurring.

➦ **EXAMPLE** Children generally start babbling as their earliest form of verbal expression. They might start with simple syllables, like “ba” or “da,” repeating them over and over. Then, they may begin to combine their babbling (e.g., “ba-da”). This may then lead to single words, like “yes,” “no,” “Mom,” or “Dad.” Then, children start to combine those words to make phrases, until they finally develop and understand the different linguistic and grammatical rules involved in the native speaking of a particular language.



#### TERM TO KNOW

### Developmental Psychology

Examines lifespan psychology and the progress of changes and abilities

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## 4. Educational Psychology

**Educational psychology** is another specialized field in the larger category of cognitive and neurological psychology. Educational psychologists study how people learn and how teachers instruct different students.

Along with this, a lot of educational psychologists try to identify the optimal conditions for learning. They want to figure out how to best construct schools and classrooms so that students will get the most out of learning. Thus, educational psychology is a very applied field of psychology.

➦ **EXAMPLE** On the subject of English language learners or people for whom English is their second language, there has been a lot of debate about whether stricter rules-based approaches to education--things like grammar and phonics--are better, or if people learn English better by studying it within a meaningful context. In other words, do people learn English better by learning the rules of the language, or by learning other content areas as they're starting to acquire knowledge of the English language? Contemporary theories of educational psychology tend to veer towards the latter. These theories state that understanding language within a context helps people develop that language faster, and in a more meaningful way.



## TERM TO KNOW

### Educational Psychology

Studies and helps students in schools and other educational setting; administers psychological testing, constructs referrals, assists with classroom learning, counseling students, assesses learning disabilities, devises plans for students with learning disabilities.

### 4a. Learning Psychology

**Learning psychology** is a field related to educational psychology, and involves the study of how various learning theories, such as those explaining what learning is and how people learn, relate to different classical theories of psychology.

Three of these classical theories studied in conjunction with learning psychology are:

- Behavioral learning theory
- Cognitive constructivist theory
- Sociocultural theory

Behavioral learning theory studies the effects of outside stimuli on how people are learning, and cognitive constructivist theory studies how people construct knowledge in their own minds. Lastly, sociocultural theory studies how learning occurs as a social process, and eventually gets internalized into the brain.



## TERM TO KNOW

### Learning Psychology

Studies theories of learning, how and why learning occurs.



## SUMMARY

In this lesson, you learned about some different career trajectories in the broader **category of cognitive and neurological psychology**. There is **biopsychology** and its related field of **sensory and perception psychology**, **cognitive psychology** and its related field of **developmental psychology**, and finally **educational psychology** and its related field of **learning psychology**.

You now understand that according to the modern perspectives of psychology, biopsychology, and sensory and perception psychology fall under the biological perspective, while the other fields discussed in this lesson take a more psychological approach.

Good luck!

Source: This work is adapted from Sophia author Erick Taggart.



## TERMS TO KNOW

### Biopsychology

Genetics, nervous system, brain, endocrine system or other physiological root of behavior and mental

processes.

**Cognitive Psychology**

How humans encode, store, process and retrieve information.

**Developmental Psychology**

Examine lifespan psychology and the progress of changes and abilities.

**Educational Psychology**

Studies and helps students in schools and other educational setting; administer psychological testing, construct referrals, assist with classroom learning, counseling students, assess learning disabilities, devise plans for students with learning disabilities.

**Learning Psychology**

Studies theories of learning, how and why learning occurs.

**Sensory and Perception**

Sense organs and how the brain makes sense of, or perceives, that information.