Introduction to Psychology and Research Methods

How to Learn Psychology

We all use the principles of psychology everyday and probably don't even realize it. When we spank our child for doing something wrong, we are utilizing the learning principle of punishment. When we get nervous right before we have to give that big speech, we are activating our autonomic nervous system. When we talk to ourselves in our heads, telling ourselves to "calm down," "work harder," or "give up," we are utilizing cognitive approaches to change our behaviors and emotions.

This text is designed to give you a general idea of what psychology is, how information is developed, what we have learned about ourselves, and how psychology is applied to help improve people's lives. The chapters are organized so that you can get a better idea of how psychology works; from basic theories and principles, through research, understanding and explaining results, to the actual application of psychological techniques.

This text is not designed to make you a psychologist. It is written in a general format so that you can gain a better idea of all of the major concepts in psychology. If you were to major in psychology as an undergraduate, each chapter would be a separate course. And, to get your doctorate, which is required to be called a psychologist in most states, you would take an additional five to seven years further studying the concepts in this text.

You will learn a lot, however, and hopefully you will increase not only your knowledge base, but also your interest in the principles of psychology. This website provides a great deal of information about the applications of psychology in a self-help format, as do many other very helpful and professional sites. Read on…learn…and improve your understanding of your greatest asset…the human mind.

What is Psychology

Psychology is the study of cognitions, emotions, and behavior. Psychologists are involved in a variety of tasks. Many spend their careers designing and performing research to better understand how people behave in specific situations, how and why we think the way we do, and how emotions develop and what impact they have on our interactions with others. These are the research psychologists who often work in research organizations or universities. Industrial-organizational psychologists work with businesses and organizations to help them become more productive, effective, and efficient, and to assist them in working with their employees and their customers. Practitioners, typically counseling and clinical psychologists, work with individuals, couples, families, and small groups to help them feel less depressed, less anxious, become more productive or motivated, and overcome issues which prevent them from living up to their potential.

The study of psychology has five basic goals:

1. Describe – The first goal is to observe behavior and describe, often in minute detail, what was observed as objectively as possible

2. Explain – While descriptions come from observable data, psychologists must go beyond what is obvious and explain their observations. In other words, why did the subject do what he or she did?

3. Predict – Once we know what happens, and why it happens, we can begin to speculate what will happen in the future. There's an old saying, which very often holds true: "the best predictor of future behavior is past behavior."

4. Control – Once we know what happens, why it happens and what is likely to happen in the future, we can excerpt control over it. In other words, if we know you choose abusive partners because your father was abusive, we can assume you will choose another abusive partner, and can therefore intervene to change this negative behavior.

5. Improve – Not only do psychologists attempt to control behavior, they want to do so in a positive manner, they want to improve a person's life, not make it worse. This is not always the case, but it should always be the intention.

Influence of Research on Psychology

Psychology is not an absolute science and is often referred to as a 'Social Science' or a 'Soft Science.' This is because it deals with human thoughts, feelings, and behavior, and as we are all aware, humans are not always predictable and reliable. Instead, we interact with our environment in ways that alter how we behave, how we think, and how we feel. Change one thing and the domino effect can change everything else.

Nevertheless, research plays an extremely important role in psychology. Research helps us understand what makes people think, feel, and act in certain ways; allows us to categorize psychological disorders in order to understand the symptoms and impact on the individual and society; helps us to understand how intimate relationships, development, schools, family, peers, and religion affect us as individuals and as a society; and helps us to develop effective treatments to improve the quality of life of individuals and groups.

In this sense, psychological research is typically used for the following:

- Study development and external factors and the role they play on individuals' mental health
- Study people with specific psychological disorders, symptoms, or characteristics
- Develop tests to measure specific psychological phenomenon
- Develop treatment approaches to improve individuals' mental health

In the following sections, you will learn about how research is conducted and the different types of research methods used to gather information.

Experimental Methods

Starting from the general and moving to the more specific, the first concept we need to discuss is **Theory**. A theory can be defined as a "general principle proposed to explain how a number of separate facts are

related." In other words, a theory is an "idea about a relationship." In order to test whether a theory is correct or not, we need to do research. Theories are stated in general terms, so we need to define more accurately what we will be doing in our experiment.

To do this, we need to define the **variables** in our theory so that they are testable, and every experiment has two types of variables:

- **Independent Variable (IV)** – the variable that is manipulated by the experimenter (input variable)

- **Dependent Variable (DV)** – the outcome variable (results of the experiment)

By defining our variables that we will use to test our theory we derive at our **Hypothesis**, which is a testable form of a theory.

As an example of this, lets say that we have a theory that people who drive sports cars are more aggressive in theory interactions with others. Our independent variable would be the type of car you drive (sports, sedan, SUV, etc.). Our dependent variables, the outcome of our research, would be aggression. We would need to further define aggression so that it is something we can test such as speeding or cutting other people off in traffic. We now have the basics of our very simple experiment and can write our Hypothesis: People who drive sports cars drive over the speed limit more frequently than people who drive other types of cars.

Research Biases

Now we've got a hypothesis which is the first step in doing an experiment. Before we can continue, however, we need to be aware of some aspects of research that can contaminate our results. In other words, what could get in the way of our results in this study being accurate. These aspects are called research biases, and there are basically three main biases we need to be concerned with.

• **Selection Bias** – occurs when differences between groups are present at the beginning of the experiment.

• **Placebo Effect** – involves the influencing of performance due to the subject's belief about the results. In other words, if I believe the new medication will help me feel better, I may feel better even if the new medication is only a sugar pill. This demonstrates the power of the mind to change a person's perceptions of reality.

• **Experimenter Bias** – The same way a person's belief's can influence his or her perception, so can the belief of the experimenter. If I'm doing an experiment, and really believe my treatment works, or I really want the treatment to work because it will mean big bucks for me, I might behave in a manner that will influence the subject.

Controlling for Biases

After carefully reviewing our study and determining what might effect our results that are not part of the experiment, we need to control for these biases. To control for selection bias, most experiments use what's called **Random Assignment**, which means assigning the subjects to each group based on chance rather than human decision. To control for the placebo effect, subjects are often not informed of the purpose of the experiment. This is called a **Blind** study, because the subjects are blind to the expected results. To control for experimenter biases, we can utilize a **Double-Blind** study, which means that both the experimenter and the subjects are blind to the purpose and anticipated results of the study.

Standardization

We have our hypothesis, and we know what our subject pool is, the next thing we have to do is **standardize** the experiment. Standardization refers to a specific set of instructions. The reason we want the experiment to be standardized is twofold.

First, we want to make sure all subjects are given the same instructions, presented with the experiment in the same manner, and that all of the data is collected exactly the same or all subjects. Second, single experiments cannot typically stand on their own. To really show that are results are valid, experiments need to be replicated by other experimenters with different subjects. To do this, the experimenters need to know exactly what we did so they can replicate it.

Types of Research

What we've focused on is called Experimental Methods, the true experiment. It involves randomized assignment of subjects, standardized instructions, and at least one IV and one DV. There are several other types of research that are not as rigorous, but that you need to be aware of.

Perhaps the simplest form of research is **Naturalistic Observation**.

Observing behavior in their natural environment

Often involves counting behaviors, such as number of aggressive acts, number of smiles, etc.

Advantages: Behavior is naturally occurring and is not manipulated by a researcher and it can provide more qualitative data as opposed to merely quantitative information.

Limitations: Even the presence of someone observing can cause those being observed to alter their behavior. Researcher's beliefs can also alter their observations. And, it is very difficult to coordinate multiple observers since observed behaviors must be operationally defined (e.g. what constitutes an aggressive act)

Case Study

Following a single case, typically over an extended period of time

Can involve naturalistic observations, and include psychological testing, interviews, interviews with others, and the application of a treatment or observation

Advantages: Can gather extensive information, both qualitative and quantitative and it can be helpful in better understanding rare cases or very specific interventions

Limitations: Only one case is involved, severely limiting the generalization to the rest of the population. Can be very time consuming and can involve other problems specific to the techniques used, including researcher bias.

Survey

Everyone has probably heard of this and many of you have been involved in research involving surveys. They are often used in the news, especially to gather viewer opinions such as during a race for president

Advantages: Can gather large amounts of information in a relatively short time, especially now with many surveys being conducted on the internet.

Limitations: Survey data is based solely on subjects' responses which can be inaccurate due to outright lying, misunderstanding of the question, placebo effect, and even the manner in which the question is asked

Correlational Studies

Correlation means relationship, so the purpose of a correlational study is to determine if a relationship exists, what direction the relationship is, and how strong it is.

Advantages: Can assess the strength of a relationship**.** Is popular with lay population because it is relatively easy to explain and understand.

Limitations: Can not make any assumptions of cause and effect (explain how third a variable can be involved, or how the variables can influence each other).

Psychological Testing

Utilizing testing to gather information about a group or an individual

Advantages: Most tests are normed and standardized, which means they have very reliable and valid results. Popular with businesses looking for data on employees and with difficult or specific therapy cases

Limitations: Tests which are not rigorously normed and standardized can easily result in inaccurate results.