Psychology

Theme 1:

Introduction & Research Methods

Name:
LESSON 1: WHAT IS PSYCHOLOGY?

Lesson Introduction

The purpose of this lesson is to introduce you to the field of psychology. To that end, we begin the lesson by defining psychology and its goals and we end it with a brief description of the different types of psychologists and the various career opportunities that exist.

Defining Psychology

People of every profession are faced with certain stereotypes or misconceptions. For instance, if you are introduced to a doctor you might ask for free medical advice, while if you meet a police officer you might ask about the crimes in a given area. Likewise, if you meet a psychologist, you might wonder if he or she is analyzing you. It is a common misconception that all psychologists are therapists waiting to analyze you. The truth is that many psychologists are not therapists: some are researchers, some are teachers, and some are consultants to business and industry.

Psychology is often thought of as a helping profession. It includes community involvement in help lines, crisis centres, and shelters, as well as testing students in schools, designing special education programs, and providing assistance to the legal system. It also includes marriage counselling, addiction counselling, and helping people cope with terminal illness.

So what is psychology? Psychology is defined as the scientific study of behaviour and mental processes. Psychologists investigate what people do, as well as their thoughts, feelings, perceptions, reasoning processes, and memories. They also investigate the biological bases of these processes.

The field of psychology relies upon the scientific method to discover ways of explaining, predicting, modifying, and improving behaviour. The study of behaviour and mental processes involves examining both animal and human subjects.

Behaviour can be either overt or covert. Overt behaviour is anything a person does that you can see, while covert behaviour is internal or hidden from view and cannot be observed by others. Think about the following behaviours and determine whether they are examples of overt behaviour or covert behaviour.

- Watching: Overt
- Thinking: Covert
- Being sad: Covert
Now that you know what psychology is, let's look at what psychology hopes to achieve; in other words, the goals of psychology.

The Four Goals of Psychology

As a science, psychology has some important goals. Psychologists gather information (data) in order to attain one or more of the following goals:

1. Description

**Description** involves making a detailed record of behavioural observations and organizing the information for future research.

Like any other science, psychology must observe and record facts in order to understand what is happening. It is sometimes difficult to achieve an **objective** description of behaviour because human behaviour is very complex. To describe behaviour objectively, psychologists must distinguish between what is actually observed and what a person might infer or assume from witnessing a situation. When you **infer**, you interpret data from a personal point of view. The opposite of objective is **subjective**. This is when you add your own point of view when interpreting data.

In this course, you will learn that psychology is a science and that it follows the same scientific processes that other sciences follow.

For example, in an actual observation the psychologist would say, “The person jumped up and down, smiled, and laughed.” In an inferred observation the psychologist would say, “The person was happy.” Suppose you wanted to determine how happy an individual was based solely on a photograph. You must objectively report your observations. This may include whether or not the person is smiling, and how much of a curve there is in the smile.

2. Explanation

**Explanation** involves being able to identify the causes of behaviour. Psychologists look for regular patterns in behaviour and mental processes. This helps researchers state the causes and tells us why a given event or behaviour occurred. But researchers do not reach the goal of explanation until their results have been tested, retested, and confirmed. They do this by eliminating or ruling out other explanations.
For example, psychologists might want to explain why you laugh at certain events and not at others. Another example might be to explain why some people get good grades in Psychology while others do not.

3. Prediction

**Prediction** involves forecasting behaviour reliably.

Through psychology, we seek to know the future regarding behaviour as we attempt to predict and prepare for events before they happen. This happens when the researcher has identified all the prior conditions that are required for a behaviour or event to occur. He or she can then predict the behaviour or event.

If, for example, we believe that your friend is shy, we could predict that your friend would be uncomfortable having a conversation with a stranger. As such, if we know that meeting a stranger produces anxiety, can we predict what would happen if the stranger were of a different species?

4. Control

**Control** involves altering conditions that influence behaviour in predictable ways. It is accomplished when researchers know how to apply a principle or change a condition to prevent unwanted occurrences or to bring about desired outcomes. Control means making behaviour happen or not happen. It involves starting it; maintaining it; stopping it; and influencing its form, strength, or rate of occurrence.

An example would be to determine how a smoker, who wants to live a long, healthy life, could go about the behavioural task of quitting smoking. Each factor that contributes to smoking must be recognized (such as oral satisfaction, nicotine addiction, and sexy attitude) and met with an opposing factor in order for the individual to overcome the habit.

The **four goals of psychology** are the description, explanation, prediction, and control of behaviour and mental processes. Psychological researchers always seek to attain one or more of these goals when they plan and conduct their studies. In the next section of this lesson, you will learn how people become psychologists and the many career opportunities that are available.

It is now time for you to complete the first learning activity. It is located on the following page. Make sure that you carefully complete this learning activity as well as all others. These will help you review what you have learned and prepare you to write your exams. Remember, you do **not** send in your learning activities to your tutor/marker.
Read the following scenarios and determine to which of the four goals of psychology each one corresponds. Remember that the four goals are description, explanation, prediction, and control. Write your answer in the space after each statement.

1. A daycare worker has developed a teaching program that increases each child’s self-esteem. __________________
2. The members of student council want to know why students don’t want to go to school dances. __________________
3. As the manager at the local fast-food restaurant, you must interview high school students for a job opening using the questions that the head office has given you. __________________
4. As part of your Family Studies course, you are asked to observe a two-year-old child through a one-way mirror as he or she interacts with a roomful of toys. You document how many toys the child plays with and the length of time spent with each toy. __________________
5. Researchers have recently identified a gene that predisposes certain individuals to obesity. __________________
6. Some psychologists believe that more playground accidents occur among young children who watch violent cartoons. __________________
7. Studies demonstrate that Family Life education programs in high school should be mandatory because this type of education has led to reduced teenage pregnancy rates. __________________
8. Surveys show that women who graduate from college earn as much money per year as men who graduate from high school. __________________

Check the answer key found at the end of this module.
Studying Psychology

If you study psychology, you can obtain an undergraduate (bachelor's) degree in psychology. This can be useful because students with this degree may obtain graduate degrees in fields like business, law, and social work, in addition to psychology. However, in order to become a psychologist, a graduate degree is required. This means that after completing your undergraduate degree you must continue your university studies. There are three common graduate degrees.

1. Masters degree (M.A.)
2. Doctor of Psychology (Psy.D.)
3. Doctor of Philosophy in Psychology (Ph.D.)

Psychologists are not the same as psychiatrists. Psychiatrists are medical doctors who specialize in psychiatry. Of the two, only psychiatrists can prescribe drugs.
Psychologists at Work

The following table lists some specialties (subfields) within the field of psychology as well as some of the typical activities for each.

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Typical Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Psychology</td>
<td>Providing therapy, researching, teaching, writing, and helping people with behavioural or mental disorders</td>
</tr>
<tr>
<td>Counselling Psychology</td>
<td>Helping people with problems pertaining to everyday life such as marital problems, school problems, and family crises</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>Teaching, and researching teaching and learning in educational systems (mostly in colleges and universities)</td>
</tr>
<tr>
<td>School Psychology</td>
<td>Testing and diagnosing gifted students as well as those with learning disabilities, mostly in the school setting</td>
</tr>
<tr>
<td>Social Psychology</td>
<td>Teaching and researching social influences on individuals</td>
</tr>
<tr>
<td>Industrial/Organizational Psychology</td>
<td>Teaching, researching, or programming design concerning business and industry</td>
</tr>
<tr>
<td>Experimental and Cognitive Psychology</td>
<td>Teaching, and researching human information processing such as perception, language, and memory</td>
</tr>
<tr>
<td>Engineering Psychology</td>
<td>Researching the interactions between humans and tools, equipment, and systems</td>
</tr>
<tr>
<td>Community Psychology</td>
<td>Providing activities that will benefit the community</td>
</tr>
<tr>
<td>Developmental Psychology</td>
<td>Studying human development from conception to death</td>
</tr>
<tr>
<td>Physiological Psychology, Biopsychology, Neuroscience</td>
<td>Examining biological approaches to psychology</td>
</tr>
<tr>
<td>Health Psychology</td>
<td>Relating to health and medicine or taking place in hospitals</td>
</tr>
<tr>
<td>Comparative and Animal Psychology</td>
<td>Involving the analysis of animal behaviour and the comparison of different species</td>
</tr>
<tr>
<td>Forensic Psychology</td>
<td>Involving the legal system, the prison system, and the court systems</td>
</tr>
<tr>
<td>Methodology and Statistical Consultation</td>
<td>Conducting experiments and analyzing data in research settings</td>
</tr>
<tr>
<td>Sports Psychology</td>
<td>Applying principles to athletic activity and exercise</td>
</tr>
<tr>
<td>Personality Psychology</td>
<td>Focusing on the traits that differentiate one person from another</td>
</tr>
</tbody>
</table>
Learning Activity 1.2: Psychologists at Work

Here are some examples of issues or questions that a psychologist would address. Determine the subfield of psychology that would study that issue or question. Write your answer in the space after each statement. Use the table in the Psychologists at Work section to help you choose the subfield of psychology. Sometimes there will be more than one answer for each question. Choose the one that you think is the best answer.

1. Joan, a Grade 12 student, is panicking. She needs to acquire better organizational skills and study habits in order to cope with the demands of her Grade 12 courses. ________________

2. At what age do children generally begin to develop an emotional attachment to their fathers? ________________

3. It is thought that watching pornographic films that depict violence against women can prompt aggressive behaviour in some men. ________________

4. What chemicals are released in the human body as a result of a stressful event? What are their effects on behaviour? ________________

5. Luke is unique in his manner of responding to crisis situations. He has an even temper and a positive outlook. ________________

6. Eight-year-old Sarah’s teachers are concerned that she has recently begun to withdraw socially and to show little interest in school work. They are seeking an explanation. ________________

7. Martin’s job is demanding and stressful. He wonders if his lifestyle is making him more prone to certain illnesses, such as cancer and heart disease. ________________

8. A strong fear of crowds leads a young woman to seek treatment for her problem. ________________

9. What mental strategies are involved in solving complex word problems? ________________

continued
Learning Activity 1.2: Psychologists at Work (continued)

10. What teaching methods most effectively motivate elementary school students to successfully complete academic tests?

11. Jessica is asked to develop a management strategy that will encourage safer work practices in an assembly plant.

Lesson Summary

In this lesson, psychology was defined as the science of behaviour and mental processes. You learned, through the goals of psychology, that psychology is a science. You also learned that many career opportunities exist in the field of psychology. These opportunities were outlined to help clarify what psychologists do.
Lesson 2: Development of Perspectives in Psychology

Lesson Introduction

Modern psychology is comprised of six main perspectives used to study behaviour and mental processes. They are the biological, behavioural, cognitive, socio-cultural, humanistic, and psychodynamic perspectives. In this lesson, you will learn about these six perspectives and how they compare to each other. We will begin with an overview of when, where, and how psychology began.

History of Psychology

To better understand psychology, it is important to see how it began.

Phrenology and Psychophysics

In the early 1800s, there was no distinct science of psychology. The word psychology was used to label a branch of philosophy that concerned itself with human consciousness. Two ancestors of scientific psychology emerged from this branch of philosophy. They are phrenology and psychophysics.

- Phrenology was a theory based on the assumption that bumps on the skull reflected a person's character or personality traits. The original idea came from Francis Gall. He believed that brain areas, like muscles, should grow when exercised. The shape of the skull should reflect the size or development of the underlying brain tissue, and a bump on the skull might indicate well-developed brain tissue. And so, the skull was mapped and numbered for this purpose. Unfortunately for the phrenologists, bumps on the skull do not reflect the size or development of underlying brain areas. Despite the fact that phrenology was a false science, it foreshadowed the modern psychology belief that different brain regions have distinct skills or functions.
**Psychophysics** refers to the interaction of the mind (psyche) and the physical world (physics). Psychophysicists were interested in how information from the physical world (light and sound) was translated into mental experiences (brightness and loudness). Modern experimental psychology began with a book published in 1869 by Gustav Fechner.

**Wundt’s Psychology and Structuralism**

Wilhelm Wundt (1832–1920) was the first professional to call himself a psychologist. He founded one of the first psychological labs in Germany. He believed that if psychology was to be a science, psychologists would have to collect data about experience. He carefully gathered information about how quickly people responded to a stimulus and what they experienced. He did this in a controlled laboratory setting. He believed these experiments would lead to a consensus or agreement among scientists about the nature of experience. Wundt thought that careful scientific observers could simply look inside themselves to see the mind in action. The technique of “looking inside” to gather data about the mind is called **introspection**. Introspection was the dominant technique in psychology for several decades. The problem with it was that there was no way to resolve differences of opinion about what people saw when they looked inside. In other words, there was no way to arrive at a consensus about the nature of the human mind.
Wundt’s student Edward Titchener introduced structuralism. This was the first prominent system for organizing psychological beliefs. Structuralists tried to understand the structure of the conscious experience by analyzing the intensity, clarity, and quality of its basic parts. Successful descriptions were the building blocks of consciousness. The focus was on the “what” of mental processes or thinking, not on the “why” or the “how”.

For example, if structuralists were to look at a blade of grass, they would focus on the intensity of the green, the texture of the blade, and the roughly rectangular shape. This would determine the conscious experience.

James and Functionalism

Another approach to psychology, functionalism, was formulated in the 1890s by William James. He regarded the mind as a process or a function of the organism. This related to Darwin’s theory that humans had evolved from simpler animals. James argued that consciousness must have evolved because it was useful for something; it had a function. For James, the goal of psychology was to study the functions of consciousness, or the ways consciousness helps people adapt to their environment.

For example, if functionalists were to look at a blade of grass, they would be interested in why or how someone interprets the blade of grass.

Freud and Psychoanalysis

Sigmund Freud was a mid-century psychiatrist from Vienna. He believed that psychological problems could often be traced to childhood sexual conflicts over issues such as breastfeeding, toilet training, and sexual jealousy centered on the parents. In 1900, he introduced the first complete theory of personality which he called psychoanalysis. It focused on abnormal behaviour and relied on personal observation and reflection instead of controlled laboratory experimentation.

Pavlov and Conditioning

The classical studies of animal learning in 1906 by Ivan Pavlov, a Russian physiologist, fuelled a move in psychology toward interest in observable behaviour and away from the self-examination of inner ideas and experiences. His experiments with salivating dogs have become famous. His study of the conditioned reflex provided psychology with a model of learning that is called classical conditioning.
Watson and Behaviourism

Around 1900, the time was right for a new approach to psychology. John B. Watson, an American psychologist, believed that psychology should be defined as the study of behaviour. He called this behaviourism. He completely eliminated introspection (looking inside oneself to gather data about the mind) from psychology and relied solely on the scientific method. This meant studying only things that could be observed and measured. For Watson, studying the unconscious or anything that you can't see was of little value. In the past 40 years, this perspective has been modified by other behaviourists, such as B.F. Skinner and Albert Bandura. Today, behaviourism focuses on learning through rewards and observation. By the end of the 1970s, extreme forms of behaviourism were disappearing and humanistic psychology became a dominant perspective.

Maslow, Rogers, and Humanism

Humanistic psychology focuses on inner needs, fulfillment, the search for identity, and other distinctly human concerns. It is less concerned with researching human behaviour than with describing its meaning and purpose. Abraham Maslow and Carl Rogers emphasized conscious experience as the focus of psychology. They believed that humans have free will in their decision making, and that healthy people strive to reach their full potential. They rejected the idea that humans are controlled by a series of rewards and reinforcements.

Modern Trends of Cognition, Neuroscience, and Socio-cultural Ideas

Cognition emphasizes information processing within humans. It focuses on how people think. More specifically, how they take in, process, store, and retrieve information.

Neuroscience emphasizes the biology of the brain and nervous system. Neuroscientists use a variety of scanning techniques that reveal brain structures and activity.

The socio-cultural perspective examines how thinking and behaviour change depending on the setting or situation.

New Areas of Interest

There are three new areas of interest in psychology. They are behaviour genetics, evolutionary psychology, and positive psychology.
Those studying **behaviour genetics** focus on the relative effects of our genes and environment on our behaviour. It is a combination of biology and behaviourism.

Those studying **evolutionary psychology** focus on studying behaviours that helped our ancestors survive. This approach combines biological, psychological, and social aspects of human behaviour.

Martin Seligman began the **positive psychology** movement in 1998. The focus is on making life more productive and fulfilling, and on identifying and nurturing talent and wisdom. Though it resembles the humanistic perspective, there is, however, a research component.

**Eclectic View**

No one perspective alone can answer all of the questions that psychology addresses. Each perspective examines behaviour and mental processes from a different point of view. Most psychologists today choose to view behaviour from more than one perspective because they know that this choice will increase their understanding of topics that interest them.

**The Six Psychological Perspectives**

**Perspective 1: The Biological Perspective**

The biological perspective focuses on how internal physical, chemical, and biological processes affect behaviour. Human genes, hormones, and neurotransmitters in the brain affect human thinking and reactions.

**Perspective 2: The Behavioural Perspective**

The behavioural perspective focuses on how the environment shapes and controls behaviour. Human thought and behaviour are explained in terms of conditioning. Observable behaviours and reactions in response to specific behaviours are examined.

**Perspective 3: The Cognitive Perspective**

The cognitive perspective focuses on how mental processing of information guides behaviour. In other words, how we interpret, process, and remember environmental events. The rules that we use to view the world are important in understanding why we think and behave the way we do.
Perspective 4: The Socio-cultural Perspective

The socio-cultural perspective focuses on how thinking and behaviour change depending on the setting or situation. It examines how our thoughts and behaviours vary from people living in other cultures. There is an emphasis on the influence that culture has on how we think and act.

Perspective 5: The Humanistic Perspective

The humanistic perspective focuses on how self-image and perceptions guide behaviour. There is a belief that we choose most of our behaviours and that these choices are guided by physiological, emotional, or spiritual needs.

Perspective 6: The Psychodynamic Perspective

The psychodynamic perspective focuses on how behaviour comes from hidden or unconscious parts of the mind. The unconscious mind (the part that we don’t have control over or access to) controls many of our thoughts and actions.

Timeline of Psychological Perspectives

The following timeline will show you the time periods in which each of the perspectives mentioned in this lesson had the greatest historical significance in psychology’s development.

<table>
<thead>
<tr>
<th>1850</th>
<th>1875</th>
<th>1900</th>
<th>1925</th>
<th>1950</th>
<th>1975</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestalt Psychology (1930-1960)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now that you have an understanding of how modern psychology came to be, let’s take a look at how each of the modern perspectives would explain a particular behaviour.
Example of the Modern Perspectives

The following is an example of how the different perspectives might explain whether or not a person will help a stranger pick up a spilled bag of groceries when given the opportunity.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Explanation of the Helping Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>Brain chemistry controls the emotions and thoughts that eventually produce helping behaviour. Levels of a naturally occurring “feel-good” chemical found in the brain could affect helping behaviour. Those lacking normal amounts of this brain chemical may be depressed. Consequently, the depression could keep the person from wanting to help pick up the groceries.</td>
</tr>
<tr>
<td>Behavioural</td>
<td>If we have witnessed or been rewarded for helping behaviour, we are more likely to help. Learning that rewards come to those who help others fosters helping behaviours.</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Our individual interpretations of an event affect how we respond. We may choose to help the shopper because we think it will make us look good to others. If we think helping will cause us to look silly, we will leave the groceries on the ground.</td>
</tr>
<tr>
<td>Socio-cultural</td>
<td>If we come from a cultural background that values helping, we are more likely to help. We are also more likely to help if we are in a comfortable situation, such as in the company of a good friend rather than if we are in a large, unfamiliar crowd.</td>
</tr>
<tr>
<td>Humanistic</td>
<td>If our needs for nourishment and safety have been met, we are more likely to feel we can reach out and help others.</td>
</tr>
<tr>
<td>Psychodynamic</td>
<td>Unresolved inner conflicts can affect whether or not we help others. Helpful behaviour results from an unfulfilled childhood wish to have one’s mother accept one’s offer to help.</td>
</tr>
</tbody>
</table>
Learning Activity 1.3: Psychological Perspectives

Look at the following statements that all have to do with studying anger. Decide which of the six perspectives might be involved and write your answer in the space after each statement. The perspectives are
- biological
- behavioural
- cognitive
- socio-cultural
- humanistic
- psychodynamic

1. Which perspective might study the brain circuits that produce the physical state of being “red in the face”? ________________

2. Which perspective might view an angry outburst as an outlet for our unconscious thoughts? ________________

3. Which perspective might study the facial expressions and body gestures that accompany anger? ________________

4. Which perspective might study how our interpretation of a situation affects our anger and how our anger affects our thinking? ________________

5. Which perspective might explore which situations produce the most anger and how expressions of anger vary across cultures? ________________

6. Which perspective would look at the personal values and social conditions behind exhibiting anger so that behaviour can be controlled and the person can reach their full potential? ________________

Check the answer key.
Lesson Summary

In this lesson, the history of psychology was explored.

- Psychology came to be in the mid-1800s. It was defined as the science of consciousness.
- By the 1920s, psychologists were more likely to define their field as the science of behaviour. Behaviourists argued that a truly scientific psychologist should report only the data that is actually observed—behaviour. The behavioural era dominated from the 1920s to the 1950s.
- As a reaction to the neglect of the study of the mind, humanistic psychology emerged during the 1960s.
- In the 1970s, cognitive psychology began as computers provided a way to look at mental processing and human information processing.
- In the 1980s, neuroscience emerged as an important source of information about behaviour and mental processes.
- Today, the six major approaches to psychology coexist giving way to an eclectic view. These six approaches, known as perspectives, are as follows:
  - biological
  - behavioural
  - cognitive
  - socio-cultural
  - humanistic
  - psychodynamic
Lesson Introduction

How do you know what you know? There are, in fact, many ways that you know what you know. You know because a friend told you, you read about it, or it just seems obvious. While this may be correct, it may also be wrong. Psychologists rely on knowledge gained by using the scientific method. In this lesson, you will learn how research in psychology is conducted by looking at two main types of research strategies. These research strategies are quantitative and qualitative. The strategies include observation, case studies, correlational studies, surveys, longitudinal and cross-sectional studies, and experiments.

Why is Research Important?

Did you sign up for this course hoping to study the fun stuff associated with psychology that you have seen on television and in popular magazines? Without research, there would be no reliable and systematic way to consider the answers to the many questions that you have.

Research is a set of methods; it is a way of asking questions about the world and drawing logical, supported conclusions. You learned about this when you studied science in previous grades.

Throughout this lesson, we will use an example to help you understand all of the ideas. The text in the boxes will indicate how each idea relates to the example.

Let's say that your school is about to implement a new policy banning the use of MP3 players for listening to music while studying in the library.

Observation and Bias

The simplest scientific technique is observation. It is systematic. This means that you watch for specific behaviours and record what you see. For example, you might be asked to document the colour of the cars that go by your house between the hours of five and seven in the evening. Or, you could be asked to observe two dogs playing in your backyard and write down what you see. The information that you collect is called data.
There are many ways that data can be collected. Data might be collected by using a video recording device, administering a questionnaire, or using a checklist. The important thing is that it has to be collected so that other researchers who wish to repeat the observations can do so. No experiment is conducted when using this method. The researcher does not attempt to change the environment during the data collection phase. The data are analyzed and researchers look for interesting or important patterns. This technique can be used in the study of children.

There are three types of observation. They are naturalistic, controlled, and clinical.

1. Naturalistic Observation

Naturalistic observation is observational research that takes place in a natural or everyday setting such as a school. There is usually an effort to minimize the observer’s impact by carrying out observations secretly or from a hidden vantage point. The following are examples of naturalistic observation:

- observing and recording the behaviour of students in the cafeteria
- observing and recording the behaviour of geese in the field
- observing and recording the behaviour of children at recess in the playground

2. Controlled Observation

Controlled observation occurs when observational research is carried out under carefully arranged conditions. Each subject is exposed to the same situation to see differences between individual reactions. The following are examples of controlled observation:

- observing and recording the behaviour of students in the cafeteria when someone is crying or not crying
- observing and recording the behaviour of geese in the field when a horn is blaring and is not blaring
- observing and recording the behaviour of children at recess in the playground when there is an adult supervisor present and not present

3. Clinical Observation

Clinical observation consists of observations made by a skilled clinician interacting with a patient or client. The clinician takes notes pertaining to the interaction, usually immediately after the interview or meeting with the client.
Researcher Bias

Your observations may be influenced by what you want to discover. This is called researcher bias. Bias occurs whenever any factor unfairly increases the likelihood that the researcher will reach a particular conclusion. Researchers try to avoid bias.

In our example, you might observe students using MP3 players and compare them with students not using MP3 players. Your observations may be influenced in such a way that you and the principal might observe students using MP3 players while studying and come to completely opposite conclusions.

The principal, who wants MP3 players banned, notices that students spend time mouthing the words to the songs that they are listening to instead of studying. You, on the other hand, see that the students who have MP3 players are not distracted by the other students in the library. Everyone notices only the behaviours that support their own ideas.

Critical Thinking

One way to reduce researcher bias is to use critical thinking. This is thinking that does not blindly accept arguments and conclusions.

In our example, you could compare the grades of students who use MP3 players while studying with the grades of students who do not use MP3 players. Or, you could have observers count specific behaviours such as how many times a student has a conversation with another student in a ten minute period, or how many pages a student reads in ten minutes. One of the flaws in this method is that turning pages doesn't mean that studying is occurring.
Participant Bias

Researchers must also watch out for participant bias. This is the tendency for research participants to respond in a certain way because they know they are being observed or they believe they know what the researcher wants.

Maybe the students in our example will act differently when they know someone is watching them. They might study harder.

Case Studies

Researchers who study individuals in depth use the case study method. This method is prone to bias. Sometimes a case study is all that can be done. For example, the only way to get information on the effects of child abuse is to find people who have reported abuse and to study that person or group of people. Since no two cases are ever exactly alike, there is always some doubt as to the real effects.

In our example, we could do an in-depth study of just one student in the library who uses an MP3 player. The results of this study would be unrepresentative. This means that you wouldn’t be able to make the same conclusions about everyone who uses an MP3 player while studying.

Correlation

It is often useful to know if two things or variables are related. The research technique that is used is the correlational study.

In our example, the two variables are the use or non-use of MP3 players and the effectiveness of the students’ studying.

Correlations can be either positive or negative.

A positive correlation exists between two things if one variable increases or decreases and the other one does the same.
If the effectiveness of studying increases when students use MP3 players and decreases when they do not use MP3 players, then the two variables are positively correlated.

A negative correlation exists between two things if one variable increases or decreases and the other variable does the opposite.

If the effectiveness of studying decreases when students use MP3 players and increases when they do not use MP3 players, then the two variables are negatively correlated.

If there is no correlation, it means that knowing something about one variable does not tell you something about the other variable.

In our example, this would mean that there is no relationship between the effectiveness of studying and the use or non-use of an MP3 player while studying in the library.

It is very important to remember that the discovery of a correlation does not prove that a cause and effect relationship exists. Correlational research results can tell you that certain variables are related, but not why they are related.

**Questionnaires, Surveys, and Polls**

One of the easiest forms of data collection is administering a questionnaire. This is very similar to taking a poll. Professionals usually conduct surveys and polls, while amateurs use questionnaires.

In our example, students could fill out a short questionnaire about the effects of using MP3 players while studying in the library.

Critical thinking is especially necessary when dealing with questionnaire research. Questionnaire research relies on self-reports. The purpose of a questionnaire is to tell researchers about a group.
Population

A population is the group from which a sample is taken for the study.

The population, in our example, could be every student who studies in the library.

Random Sample

A random sample from a population is used in a study because you couldn't possibly collect data on everyone in the population. This group must be representative of the population. Each member must have an equal chance of being included in the study. The sample should not be too small in number. There are many ways to randomly select members. For example, you could draw names out of a hat, choose every fifth name from a list, or give everyone a number and then choose the members.

In our example, in order to get a random sample, every member of the population must have an equal chance of being selected. If the population is the students who study in the library at your school, you could draw a random sample by selecting every tenth name from a list of students who say that they study in the library at the school.

Longitudinal and Cross-Sectional Studies

Longitudinal studies follow the same group of individuals over many years.

You could keep track of a group of students who study in the library throughout their lifetime to determine the long-term effects of using an MP3 player while studying.
Cross-sectional studies compare people of different ages at one time.

You could study students from different age groups who use the library for studying.

Longitudinal and cross-sectional studies are techniques of particular interest to developmental psychologists. They study how individuals change throughout their lifespan.

Experiments

The experimental method is the only method that allows us to draw conclusions about the cause and effect relationship.

Hypotheses and Operational Definitions

In designing an experiment, we would first generate a hypothesis. This hypothesis would become our testable prediction of the experiment’s outcome.

The hypothesis in our example would be, “Using an MP3 player influences concentration while studying in the library.”

Researchers often start with general expectations. They then put their variables in a more specific form that allows them to be precisely measured. In the language of research, they provide operational definitions of the variables.

The operational definition of the variables in our example is, “Students assigned to use MP3 players in the library will have lower average grades at the end of the semester than students banned from using MP3 players.”

There are many different ways to operationally define the variables. It could be, “Students who use MP3 players each day in the library while studying read fewer pages in a one-hour block of time than students who are banned from using MP3 players.”
Independent and Dependent Variables

Once we have agreed on the hypothesis and the operational definition of the variables, we still need to identify the two variables in the experiment as either the independent variable or the dependent variable.

The variable that should cause something to happen is the independent variable (IV).

In our example, the IV is the use or non-use of MP3 players.

The variable that should show the effect of the IV (or the outcome) is the dependent variable (DV).

In our example, the DV is the students' grade point average at the end of the semester.
Learning Activity 1.4: Determining the Variable

Identify the independent and dependent variables.

1. A group of social psychologists is interested in examining how the presence of bystanders affects whether or not students in a school will help another student who has fainted in the hallway.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

2. A cognitive psychologist is doing a study on the effects of caffeine on memory in high school students.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

3. A biopsychologist is interested in whether or not a new drug will alter the level of a neurotransmitter in the brains of rats.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

4. Your teachers are interested in whether or not distraction has an undesirable effect on memory.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

5. The band teacher is interested in the effects of music on academic performance.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

6. A group of psychologists is studying the effects of human contact on learning in rats.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

continued
Learning Activity 1.4: Determining the Variable (continued)

7. The math teacher has developed a new method to teach children algebra.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

8. A group of psychologists is interested in determining whether or not dancing will help alleviate mild depression.
   Independent Variable: ______________________________________
   Dependent Variable: ______________________________________

Check the answer key.
Groups, Random Assignment, and Confounding Variables

In order to make the independent variable vary (take on different values), we set up groups of participants. Typical experiments have at least two groups. One is an experimental group, while the other is a control group (sometimes referred to as the experimental and control conditions).

The participants in the experimental group are exposed to the treatment (independent variable) while the participants in the control group are not. The purpose of this second group is to serve as a comparison for the experimental group.

In our example, forty students are selected to participate in the experiment by selecting every tenth name on the list of students who use the library for studying. These names are then placed in a hat and the first twenty names are assigned to the experimental group and the next twenty to the control group.

The individual differences among participants are the largest category of a special kind of variable known as confounding variables. These are variables, other than the IV, that could produce a change in the DV. Confounding variables must be controlled. You must eliminate as many of these as possible before you get your sample so that your results are accurate.

Confounding variables, in our example, could include differences in IQ scores, the amount of sleep the students get, the number of personal problems the students have, and who the students’ teacher is for a specific subject.

Control for Other Confounding Variables

Researchers use a variety of techniques to minimize the effects of confounding variables. The researcher must account for the following:

- individual differences among participants
- environmental differences such as lighting, noise, and temperature

Did both groups study at the same time of day? Were the room temperature and lighting conditions the same for both groups?
Expectation Effects

Expectation effects include making sure that participants are not aware of the hypothesis of the experiment. If they were, their expectations could influence the outcome.

Did the experimental group expect to do better? Did the researchers expect the experimental group to do better?

To reduce such effects, researchers use three different procedures. These procedures are known as the single-blind procedure, the double-blind procedure, and the placebo.

Single-blind Procedure

Researchers often use a blind or masked procedure. Accordingly, they don’t tell participants what the hypothesis is until after the data are collected.

Double-blind Procedure

In this procedure, the people collecting the data don’t know the expected outcome of the research or which participants are in which group. Also, the participants don’t know if they are in the experimental group or the control group.

Placebo

Researchers use this special kind of control in all drug studies. It involves a non-active substance or condition that is administered instead of the drug.
Let's review our example. We are conducting an experiment to test the hypothesis that students assigned to use MP3 players each day in the library while studying will have lower average grades at the end of the semester than students banned from using MP3 players.

The IV is the presence or absence of the MP3 player.

The DV is the average grades at the end of the semester.

Students were randomly selected from the entire population of students who use the library to study.

We randomly assigned students to either the experimental group (using the MP3 player) or the control group (not using the MP3 player).

All environmental conditions are as similar as possible.

Reliability and Validity

There are safeguards required for experiments to make sure that the research is both valid and reliable.

Research is valid when it measures what the researcher set out to measure. In other words, the research is accurate.

Research is reliable when it can be replicated. In other words, the research is consistent.

If an experimental result can be obtained only once, we must conclude that it was caused by chance and not by the independent variable. This means that there is no apparent cause and effect relationship between the independent variable and the dependent variable.
Summary of the Experimental Method

The steps of the experimental method are as follows:

1. Develop the hypothesis.
2. Create operational definitions for the independent and dependent variables.
3. Select a random sample of participants from the population.
4. Assign the participants randomly to the experimental and control groups.
5. Expose the experimental group, but not the control group, to the IV. If necessary, use a placebo with the control group to balance expectations.
6. Control other confounding variables by using a double-blind procedure and treating both groups the same except for exposure to the IV.
7. Learn the impact of the IV by measuring the DV for both groups.
8. Use statistical analysis to discover whether the difference in the DV between the two groups is likely to have been caused by the IV. (You will learn about this topic in the next lesson.)

It is now time for you to complete your first assignment. It is located on the following page. You will be sending this assignment, as well as the other assignments in Module 1, to your tutor/marker when you have completed Module 1.
Assignment 1.1: Research in Psychology (16 marks)

Name the independent variable, the dependent variable, the control group, and the experimental group for each scenario.

1. A researcher is interested in how the activity level of three-year-olds is affected by viewing a 30-minute video of either a violent or a non-violent cartoon. (4 marks)
   IV: __________________________________________
   DV: __________________________________________
   Experimental group: ____________________________
   Control group: ________________________________

2. A therapist wants to test a new drug designed to increase the ability of teenagers with ADHD to take accurate notes in class. (4 marks)
   IV: __________________________________________
   DV: __________________________________________
   Experimental group: ____________________________
   Control group: ________________________________

3. A biopsychologist wants to know whether exposing adult female rats to testosterone increases their aggressive behaviour. (4 marks)
   IV: __________________________________________
   DV: __________________________________________
   Experimental group: ____________________________
   Control group: ________________________________

4. An industrial psychologist believes that cooling the room temperature may affect the productivity of the workers on an assembly line. (4 marks)
   IV: __________________________________________
   DV: __________________________________________
   Experimental group: ____________________________
   Control group: ________________________________
Comparison of Research Methods

The following outlines the advantages and disadvantages of the various research methods that were covered in this lesson.

**Systematic Observation**: This method consists of the systematic study of behaviour in natural settings.
- **Advantage**: The behaviour is observed in the settings where it normally occurs.
- **Disadvantage**: It cannot be used to establish the cause and effect relationships and is often costly and difficult to perform.

**Case Study Method**: This method consists of the detailed study of a small number of persons.
- **Advantage**: Detailed information is gathered and individuals can be studied for long periods of time.
- **Disadvantage**: The ability to generalize results is uncertain and the objectivity of the researcher may be compromised.

**Surveys**: This method consists of asking a large number of people about their attitudes or views.
- **Advantage**: Large amounts of information can be acquired quickly and accurate predictions of large scale trends can sometimes be made.
- **Disadvantage**: The ability to generalize may be questionable unless persons surveyed are a representative sample of a larger population.

**Correlational Research**: This method consists of measuring two or more variables to determine if they are related in any way.
- **Advantage**: Large amounts of information can be gathered quickly. This method can be used in the field as well as in laboratory settings.
- **Disadvantage**: It is difficult to establish the cause and effect relationships.

**Experimentation**: This method consists of varying the presence or the strength of one or more variables.
- **Advantage**: The cause and effect relationships can be established and precise control can be exerted over other potentially confounding variables.
- **Disadvantage**: The results can be subject to several sources of bias and the ability to generalize can be doubtful if the behaviour is observed under highly artificial conditions.
Learning Activity 1.5: Name That Method

Read the following scenarios and determine if the method used is correlational, experimental, or observational.

1. Professor Black is interested in understanding the relationship between self-esteem and anxiety in group situations.

2. Researchers at a university are interested in studying relationships among employees at a specific airplane-manufacturing company. These researchers decide to observe the interactions of co-workers in the factory.

3. Professor Guptah wishes to study the effects of food deprivation on learning in rats.

4. Dr. Cheung and her colleagues wish to study the aggressive behaviour of children in elementary school by observing children at play.

5. A group of researchers from a child advocacy group wishes to examine the relationship between exposure to televised violence and aggressive behaviour in children by asking parents to report on how much television their children watch, as well as what types of programs are watched.

6. Dr. Beauchamp wishes to investigate the effects of a new training program at a fast-food restaurant on employees' job performance.

7. A group of researchers wishes to study the organizational culture of successful schools.

8. Dr. Cortez is interested in the relationship between the different strategies used by a therapist and their effectiveness.

continued
Learning Activity 1.5: Name That Method (continued)

9. A group of researchers is interested in the effects of caffeinated beverages on test performance.

10. Dr. Courchene is interested in studying peer influence among high school students by recording their clothing choices and their hairstyles.

Check the answer key.

Lesson Summary

In this lesson, different methods used by psychologists to gather information about behaviour and mental processes were presented. The main methods are systematic observation, case study, surveys, correlational studies, and experimentation. The advantages and disadvantages of each research method were also discussed.
Assignment 1.2: Which Design Would You Choose? (9 marks)

For each of the following research questions, decide which research design would be best and circle it. Then complete the design information only for the method that you chose.

Research Question 1: Is it better to send your children to daycare or to stay at home with them in order for them to achieve later success in elementary school? (3 marks)

Correlational design
Variable 1: ____________________________________________
Variable 2: ____________________________________________
Limitations: ____________________________________________
or
Experimental design
Independent Variable: _____________________________________
Dependent Variable: _____________________________________
Limitations: ____________________________________________

Research Question 2: Does the number of hours slept at night impact the grades obtained by students in their first period of the day? (3 marks)

Correlational design
Variable 1: ____________________________________________
Variable 2: ____________________________________________
Limitations: ____________________________________________
or
Experimental design
Independent Variable: _____________________________________
Dependent Variable: _____________________________________
Limitations: ____________________________________________

continued
Assignment 1.2: Which Design Would You Choose? (continued)

Research Question 3: Does text messaging help a person increase their computer-typing speed? (3 marks)

Correlational design
Variable 1: ______________________________________________
Variable 2: ______________________________________________
Limitations: ______________________________________________
or
Experimental design
Independent Variable: _______________________________________
Dependent Variable: _______________________________________
Limitations: ______________________________________________

_______________________________________________
Lesson Introduction

In this lesson, you will learn about the ethical guidelines that are established by the American Psychological Association (APA). Ethics are important in all research on both humans and animals. When something is considered ethical, it means that it is considered morally right. Many hypotheses cannot be tested experimentally because they are unethical or immoral. Ethics committees are set up to read and screen all research proposals. To determine if the research is ethical or not, guidelines have been established for human research and for animal research.

Human Research

Research involving human subjects must follow these guidelines:

- **Informed consent:** Participants must know that they are involved in research and give their consent. It is at this time that participants need to be told about any potential risks.
- **Coercion:** Participation must be voluntary. No one can be forced to participate. Participants have the right to refuse to participate or to withdraw at any time from the study.
- **Anonymity/Confidentiality:** Participants’ privacy must be protected. The researcher must never reveal their identities.
- **Risk:** Participants cannot be placed in any significant mental or physical risk.
- **Debriefing:** Participants must be told the purpose of the study and provided with ways to contact the researchers about the study results.

Animal Research

Research involving animals must follow these guidelines:

- **Clear scientific purpose:** The research must answer a specific, important scientific question. Animals are chosen because they are best-suited.
- **Humane treatment:** The animals used in the research must be cared for and housed in a humane way.
- **Legal possession of animals:** The animals used in research must be purchased from legal companies. If wild animals are used they must be trapped in a humane manner.
Minimum suffering: The experimental procedures must be designed to use the least amount of suffering possible.

Psychologists use animals in research for several reasons. Some of these reasons are as follows:

- Many psychologists are simply interested in animal behaviour.
- There are biological and behavioural similarities between animals and humans. Consequently, by studying animals we can learn things that apply to humans.
- Because the lifespan of most animals is shorter than that of humans, we can study genetic effects over generations much faster in animals than in humans.
- Researchers have more control over experiments with animals than with humans.

Lesson Summary

In order to protect research participants (human and animal), members of the American Psychological Association (APA) have agreed to specific guidelines. All research proposals must be read and approved by committees of professionals who decide whether or not the research can be done.
Assignment 1.5: Ethical or Not (8 marks)

1. Give an example of research on human subjects that would be ethical. Use the guidelines of the APA to help you answer this question. (2 marks)

2. Give an example of research on human subjects that would be unethical. Use the guidelines of the APA to help you answer this question. (2 marks)

continued
Assignment 1.5: Ethical or Not (continued)

3. Give an example of research on animal subjects that would be ethical. Use the guidelines of the APA to help you answer this question. (2 marks)

4. Give an example of research on animal subjects that would be unethical. Use the guidelines of the APA to help you answer this question. (2 marks)