

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्तमान विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गांधी



ignou
THE PEOPLE'S
UNIVERSITY

“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi



**DEVELOPMENT OF
PSYCHOLOGICAL THOUGHT**

**School of Social Sciences
Indira Gandhi National Open University**

EXPERT COMMITTEE

Prof. Shanmukh Kamble
Department of Psychology
Karnataka University, Dharwad

Dr. Arvind Mishra
Zakir Husain Centre for Educational Studies
JNU, New Delhi

Prof. Swati Patra
Professor of Psychology
SOSS, IGNOU, New Delhi

Prof. Suhas Shetgovekar
Professor of Psychology
SOSS, IGNOU, New Delhi

Dr. Smita Gupta
Sr. Assistant Professor of Psychology
SOSS, IGNOU, New Delhi

Dr. Monika Misra
Sr. Assistant Professor of Psychology
SOSS, IGNOU, New Delhi

COURSE COORDINATOR

Dr. Monika Misra
Discipline of Psychology
School of Social Sciences
IGNOU, New Delhi

Content Editor

Dr. Monika Misra
Discipline of Psychology, SOSS, IGNOU

COURSE PREPARATION TEAM

Block	Unit Writer
Block I	PSYCHOLOGICAL PERSPECTIVES
Unit 1 Historical and Philosophical Context	Dr. Arvind Mishra, Zakir Hussain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi
Unit 2 Contributions to Early Modern Psychology: Hermann Helmholtz, Gustav Fechner, Wilhelm Wundt, William James	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Block II	EARLY PSYCHOLOGY
Unit 3 Associationism	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Unit 4 Structuralism	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Unit 5 Functionalism	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Block III	THE PSYCHODYNAMIC APPROACH
Unit 6 Psychoanalysis	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Unit 7 Neo-Freudians	Ms. Vrushali Pathak, Research Scholar, Department of Psychology, Jamia Millia Islamia, New Delhi.
Block IV	THE BEHAVIOURAL AND HUMANISTIC PERSPECTIVES
Unit 8 Behaviourism	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi

Unit 9 Neo-Behaviourism	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Unit 10 Gestalt Psychology	Ms. Vrushali Pathak, Research Scholar, Dept. of Psychology, Jamia Millia Islamia, New Delhi
Unit 11 Humanistic-Existential Psychology	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Bock V	TRENDS AND DEBATES IN MODERN PSYCHOLOGY
Unit 12 Current Trends in Psychology	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi
Unit 13 Issues and Debates in Psychology	Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi.

Cover Design: Ms. Selene Khosla, Research Scholar, Discipline of Psychology, SOSS, IGNOU, New Delhi

Secretarial Assistance

PRINT PRODUCTION

Mr. Rajiv Girdhar
Assistant Registrar
MPDD, IGNOU, New Delhi

Mr. Hemant Kumar
Section Officer
MPDD, IGNOU, New Delhi

June, 2021

© Indira Gandhi National Open University, 2021

ISBN : 978-93-91229-32-0

All right reserved. No part of this work may be reproduced in any form by mimeograph or any other means, without permission in writing from the Indira Gandhi National Open University.

Further information about the Indira Gandhi National Open University courses may be obtained from the University's office at Maidan Garhi, New Delhi-110068.

Printed and Published on behalf of the Indira Gandhi National Open University, New Delhi by Registrar, MPDD, IGNOU, New Delhi.

Printed at: Amety Offset Printers 12/38, Site-iv, Shahibabad Industrial Area Ghaziabad (U.P.)



ignou
THE PEOPLE'S
UNIVERSITY

Course Contents

Page No.

BLOCK I PSYCHOLOGICAL PERSPECTIVES

Unit 1	Historical and Philosophical Context of Psychological Thought	13
Unit 2	Contributions To Early Modern Psychology: Helmholtz, Fechner, Wundt and James	25

BLOCK II EARLY PSYCHOLOGY

Unit 3	Associationism	47
Unit 4	Structuralism	67
Unit 5	Functionalism	80

BLOCK III THE PSYCHODYNAMIC APPROACH

Unit 6	Psychoanalysis	96
Unit 7	Neo-Freudians	120

BLOCK IV THE BEHAVIOURAL AND HUMANISTIC PERSPECTIVES

Unit 8	Behaviourism	144
Unit 9	Neo-Behaviourism	160
Unit 10	Gestalt Psychology	176
Unit 11	Humanistic-Existential Psychology	195

BLOCK V TRENDS AND DEBATES IN MODERN PSYCHOLOGY

Unit 12	Current Trends in Psychology	217
Unit 13	Issues and Debates in Psychology	241



ignou
THE PEOPLE'S
UNIVERSITY

DEVELOPMENT OF PSYCHOLOGICAL THOUGHT: HOW TO PROCEED IN THE COURSE?

The course on *Development of Psychological Thought* (BPCC-106) is one of the core courses offered in 3rd Semester of BA Honours Programme of IGNOU. The course is of 06 Credits, comprising Theory (04 Credits) and Tutorial (02 Credits). In the beginning, some important psychologists and their landmark achievements are summarized and presented in a tabular form. The course is divided into five blocks. Each of these blocks represents a specific theme which is discussed in one to four units. The units are arranged in a logical sequence so as to cover the main aspects of each theme. Each unit contains a brief introduction in the beginning and a list of references and further reading, as well as, web resources at the end. The list of web resources has been mentioned for additional information on various topics. You are advised to read Course Introduction carefully, in order to know about the rationale and content of the course you have offered to read.

You have in your hands, all the five blocks and thirteen units of this course. Before proceeding to read the units, you are advised to go through instructions about how to read the course material. Given below is the explanation of the organization and sequencing of the unit. We will tell you what is contained in various sections of a unit, and you should go about completing different tasks involved while reading the course material.

ORGANIZATION AND SEQUENCING OF A UNIT

The unit starts with,

- 1.0 Learning Objectives
- 1.1 Introduction
- 1.2 Section (Theme of the section)
 - 1.2.1 Sub-section of 1

.....

Check your progress

- 1.3 Section (Theme of the section)
 - 1.3.1 Sub-section of 2

.....

Check your progress

The numbering and length of each section and sub-sections may vary from one unit to the other unit, depending upon the depth of information in each unit. The last four sections in each unit with the following headings are also numbered. They are as follows,

- Review Questions
- References and Further Reading
- References for Figures
- Web Resources

As the scheme suggests, each unit is divided into sections for easy reading and better comprehension. Each section is indicated by **BOLD CAPITALS** and each sub-section by a **relatively smaller but bold typeface**. Divisions within the sub-sections are in **relatively smaller bold typeface** so as to make it easy for you to understand.

Let us now discuss the **pedagogical features of a unit** as given in the self-learning material.

We begin each unit with the section **Learning Objectives**. It tells you briefly what we expect from you once you complete working on the unit. In the section **Introduction**, we specify, the relationship of the present unit to the previous unit (if any), theme of the present unit, and the order of presentation of all the sections in the unit from Introduction to Summary. The section of each unit under the heading **Summary**, encapsulates the whole unit for the purpose of ready reference and recapitulation.

Sometimes certain topics may deal with abstract ideas and related concepts, as well as some case studies. Thus, it becomes necessary to explain these related concepts in a separate enclosure, which is called **Box**, in our units. This is added information which is necessary to comprehend the main text. These boxes may include (i) explanatory notes regarding concepts, (ii) information about main works of scientists/psychologists who have contributed to a particular topic, (iii) certain case-studies that are related to the concepts being discussed, etc.

There are several **illustrations** in each unit in the form of pictures, figures, diagrams and images. The main purpose of these illustrations is to make the study comprehensive and interesting. We have given self-check exercises under the caption **Check Your Progress** in between or at the end of main sections. To answer the Check Your Progress questions, you should, (i) write your answers using the space given below each question; (b) label the diagrams in the space provided (if asked). You will be tempted to have a glance of the main text as soon as you come across an exercise. But we do hope that you will resist this temptation and turn to the main text only after completing the answers. You should read each unit and note the important points in the margin provided in the course material. This will help in your study. It will also help you to answer the self-check exercises and the assignment questions, as well as help in revising your course before appearing for your Term End Examination.

Each unit has **Key Words** at the end of the unit, to explain the basic ideas, technical terms and difficult words. We have given a list of **References and Further Reading** at the end of each unit. This is a list of books and articles used by the course writers to prepare the units. This reflects that your course material is based on a wide spectrum of literature available on a particular theme, related to your course. This also informs you of the wide literature available in the particular area of study. If interested in widening your knowledge, you may look for the mentioned references. Each reference mentions the name of the author, year of publication, title of the book/article, name of publisher and place of publication.

Further readings help you to increase your level of understanding of a particular theme in each unit, though it is not a compulsory reading.

We have provided a **References for Figures** (the sources of images and pictures), in each unit, after the References and Further Reading section. The images and pictures in the units have been retrieved from online sources and hence, the URL for the figures has been mentioned. If interested, you may also look for the mentioned references. We have given a list of **Web Resources**, on various topics, in each unit after References for Figures section. Apart from the text material, if you are interested in learning more about the topic, then you may access the website as mentioned, for a particular topic.

Besides Check Your Progress, we have given **Review Questions** after Key Words section in each unit. You may practice these questions which will help you in answering assignments and Term End Examination Question Paper, though the pattern and style of questions asked may not be similar.

Some Units have been selected for the **audio and video** programmes to supplement the printed material. This will help you to understand the units with greater clarity. Apart from this, you may also access IGNOU's FM radio channel, Gyanvani (105.6 FM) which is available across many cities in India, for regular programmes, related to themes on Psychology. You can listen to the live discussions by faculty and experts on the topic of the day and interact with them through telephone, email, and through chat mode. You may also watch Gyandarshan TV channel (free to air educational channel), for programmes related to topics on Psychology. The schedule of Gyanvani and Gyandarshan is displayed on www.ignou.ac.in. The radio and TV channels may also be accessed on Gyandhara, webcast facility for Gyanvani and Gyandarshan, provided by the University.

The course on Development of Psychological Thought will include **Tutorial**. The tutorial activities will be given as a separate activity in the assignment. It is a compulsory activity that is of 02 Credits and will be evaluated by the academic counsellor separately. The tutorial activity will help you to develop an understanding about the different schools of thought in Psychology as well as the emergence of the discipline. There are a set of **assignments** for the whole course uploaded on www.ignou.ac.in>downloads>assignments>BA CBCS>Core **Courses**. You need to check the course code and title of the course carefully, before downloading the assignment. These are Tutor Marked Assignments, which are to be submitted to the respective Study Centre after completion. These assignments will be evaluated by academic counsellor from your Study Centre. Ensure that you complete all your assignments because the grades that you get in each of these assignments are included in the final evaluation of your degree (30%). Before answering the assignments, read all the units carefully. While working on the assignments, kindly ensure the following points,

Clearly write your enrollment number

- 1) Answer them in your handwriting and in your own words
- 2) Write clearly and neatly so that it is easy to read your answers
- 3) Leave margins on one side of your answer-sheets so that evaluator may write his/ her comments on your performance

- 4) You will submit the assignments at your Study Centre on or before the date mentioned as per the admission cycle. Kindly check the dates from www.ignou.ac.in or your Regional Centre website.

After reading and understanding the course material, as well as referring to the audio and video programmes, you will be writing the **Term End Examination** (TEE) for the course. TEE carries 70% weightage in the evaluation scheme. Consider the following points while answering for TEE.

- 1) Questions should be replied in one's own words and should be focused.
- 2) Answer questions keeping in mind the word limit.

The syllabus of course material BPC 106 is designed by an Expert Committee (see page 2 of this course) and prepared by **Course Preparation Team** which comprises the author(s) of units, content editor(s), language editor, and the course coordinator. The expert committee selected the themes and sub-themes of the blocks and units, keeping in view the prescribed syllabi of UGC (CBCS model). The authors of units have provided their expertise in elaborating them in the form of the main text of each unit. The content editor has carefully examined the course contents and has made an attempt to make the material clear and comprehensible.

For any query or feedback related to the course, you may contact the Course Coordinator at,

Dr. Monika Misra

Room No.31, Block-F,

School of Social Sciences

IGNOU, New Delhi

E: bapchsooss@ignou.ac.in

monikamisra@ignou.ac.in

O: 011-29572781

COURSE INTRODUCTION: DEVELOPMENT OF PSYCHOLOGICAL THOUGHT

In continuation with the core courses offered in the earlier semesters, you must have got a fair idea about the discipline of psychology and some of its domains. The present course is in a way, the ‘story of psychology’, how the discipline emerged and parted ways from philosophy. The psychological scientists wanted to uncover the basic laws of human behaviour and animal behaviour through scientific investigation. Thus, the course explains the philosophical origins of the discipline, highlighting the works and contribution of various psychologists which made the discipline objective and scientific. Each unit focuses on a particular school of thought or perspective, and discusses the works and contributions by psychologists from that school of thought.

BLOCK INTRODUCTION

There are five blocks and thirteen units, in this course. Block I tells you about the historical and philosophical context of psychological thought, and the contribution by early psychologists. Block II will focus on the changes that came during 1800s. The highlight will be associationism, structuralism, and functionalism as schools of thought within psychology. Block III explains one of the most well-known psychological perspectives to understand behaviour, that is psychodynamic approach. A group of followers modified the Freudian ideas and gradually came up with their own personality theories, known as Neo-Freudians. Their perspectives will also be highlighted in this block. Block IV will focus on Behaviourism, Neo-behaviourism, Gestalt Psychology, and Humanistic-Existential psychology. Block-V will discuss the current trends in psychology as well the issues and debates within the field of psychology.

Block I gives an introduction to the traditional perspectives in the field of psychology and the contributions by early psychologists. Unit 1 discusses the diverse thoughts from non-western and western perspectives in psychology. Unit 2 traces the development of psychology as a scientific discipline. The contributions by early experimental psychologists like *Helmholtz*, *Fechner*, *Wundt* and *James*, are discussed in detail. The role of experimental physiology is also highlighted in the unit.

Block II introduces you to the early schools of thought in psychology. This block constitutes of three units (Unit 3, Unit 4, and Unit 5). Unit 3 describes the contribution by British empiricists like *Hobbes*, *Locke*, *Hume*, *Berkeley*, *Mill* and *Bain*. It will also discuss the role of learning theorists like, *Ebbinghaus*, *Pavlov*, and *Thorndike*, in associationism. Unit 4 explains structuralism as a school of thought, whose goal is to identify the basic structures of psychological experience. The work of most significant structuralists, *Wundt* and *Titchener* are discussed. Unit 5 discusses the contribution by *Darwin*, *Galton*, *Romanes*, *Morgan* and *Spencer*, as the forerunner of functionalism. The works of The Chicago School, led by *Dewey*, *Angell* and *Carr*, along with the main proponent of The Columbia School, *Woodworth* will be examined.

Block III consists of two units (Unit 6 and Unit 7). Unit 6 addresses one of the most influential perspectives, i.e. psychodynamic approach. *Freud* was the first to systematically study and theorize the working of the unconscious mind. In psychoanalysis, Freud's ideas on unconscious mind, psychopathology, and views on sexuality will be highlighted. Psychoanalysis as a method of treatment, personality theory, and the criticism of psychodynamic perspective will also be discussed. Unit 7 will focus on the perspectives of Neo-Freudians. *Erikson, Jung, Horney, Sullivan* and *Adler's* view on human nature will be discussed in this Unit.

Block IV consists of four units (Unit 8, Unit 9, Unit 10, and Unit 11). Unit 8 gives a description of the antecedents of behaviourism, and Watsonian behaviourism. Overall impact of behaviourism and the criticism of this perspective is also elucidated. Unit 9 explains logical positivism, and operationism. It further discusses about the contributions of *Guthrie, Hull, Tolman and Skinner*. Unit 10 explains Gestalt psychology. It covers the antecedent forces, basic principles of gestalt psychology and the most important contribution by *Lewin*, field theory and group dynamics. Unit 11 aims to uncover the third force in psychology. The precursors of third-force are discussed in this unit. Humanistic psychology and existential psychology are discussed in detail. The contributions by humanists like *Maslow* and *Rogers*, and existentialists like, *Frankl* and *May*, have been highlighted. The similarities and differences between humanistic and existential psychology is also talked about in detail.

Block V has two units (Unit 12, and Unit 13). Unit 12 discusses the current trends in psychology. The main focus is on cognitivism, social constructivism, cultural, cross-cultural and indigenous psychology, feminist psychology and positive psychology. How the current perspectives emerged, and the works of *Bruner, Miller & Neisser, Gergen, Marx, Weber, Miller, Weisstein, Bem* and *Seligman* are discussed in detail. The last Unit talks about the different issues and debates within the discipline of psychology like, nature and nurture, free will and determinism, mind-body relationship, and the relationship of individual and society.

The content will help you in framing ideas and views related to the emergence and subject matter of psychology. Lastly, the course has a Tutorial component. The tutorial activity will be included in the assignments.

UNIT 1 HISTORICAL AND PHILOSOPHICAL CONTEXT OF PSYCHOLOGICAL THOUGHT*

Structure

- 1.0 Introduction
- 1.1 Philosophical Context
- 1.2 Historical Perspectives
- 1.3 Non-Western Traditions in Psychology
 - 1.3.1 India
 - 1.3.1.1 Hinduism
 - 1.3.1.2 Buddhism
 - 1.3.1.3 Jainism
 - 1.3.2 China
- 1.4 Concluding Comments
- 1.5 Summary
- 1.6 Key Words
- 1.7 Review Questions
- 1.8 References and Further Reading
- 1.9 Web Resources

Learning Objectives

After reading this Unit, you will be able to;

- Explain the philosophical basis of diversity in modern psychological thought;
- Discuss the role of social and cultural forces in the development of knowledge;
- Appreciate the relativity of Western psychological thought; and
- Identify the difference between the Western and non-Western psychological thoughts.

1.0 INTRODUCTION

Many students of psychology, as well as some faculty from psychology, often raise questions about the usefulness of learning about the historical and philosophical context of the discipline for developing a proper understanding of the contemporary theoretical and practical issues in the field of psychology. They argue that although psychology was part of philosophy in the past, it has now achieved independent status as a discipline

* Dr. Arvind Kumar Mishra, Zakhir Hussain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi

and psychological knowledge is distinct from the philosophical discourse. They further contend that psychologists should be concerned only with the current problems human beings have been struggling with and should help them to cope with these problems. Prima facie, these arguments appear convincing and, therefore, it should be accepted by everyone. However, when one tries to understand the meaning of the term ‘psychology’, one realizes that it refers to many things such as mental processes, behaviour, creativity, intelligence, mental disorder, prejudice, personality, attitude, belief, motivation, etc. Needless to say, the range of meanings this term is associated with, tends to confuse the new student of psychology. To overcome the confusion arising out of the diversity and complexity of the discipline, it becomes necessary for the new students to acquaint themselves with the philosophical sources, historical, and other factors that have helped shape the psychological knowledge until recently. It is expected that after knowing them, the reader will be in a better position to make sense of a myriad meanings associated with this discipline.

The Unit will begin with the discussion of the two philosophical perspectives – empiricism and rationalism – that have influenced psychologists to investigate the various psychological phenomena. The discussion of philosophical perspectives of psychological thoughts will help the learner to understand one source of diversity in the psychological thoughts. However, to understand why did different psychologists adopt different philosophical perspectives, in the next section historical perspectives in which these psychological thoughts developed will be discussed. The discussion on the historical perspective will help the readers to understand the link of psychological thoughts with the socio-cultural and idealogical milieu in which they developed.

1.1 PHILOSOPHICAL CONTEXT

A closer reading of the history and philosophy of science indicates that there is a contestation around the meaning, methodology, and purpose of science. In a broad sense, science refers to a systematic acquisition of knowledge. However, laypersons as well as many scholars hold a narrow view of science. According to a narrow view of science, acquisition of only sense observations based knowledge is considered valid and scientific. This perspective of science is termed *empiricism*. It is to be noted that the empiricist view of science is just one of the perspectives of science and a group of philosophers of science considers it as a limited and narrow perspective on science. *Rationalism*, another philosophical perspective, advocates the use of human reason/intellect to generate new knowledge. Although chronologically rationalism was advocated by the philosophers as the perspective of science much before the adoption of empiricism, the empiricist perspective dominated the discipline of psychology for a long time. However, some of the psychological theories have been influenced by the philosophy of rationalism as well.

The controlled application of empiricism is the experimental method, which attained the status of being the most popular and respected method in natural sciences. As natural sciences helped people to overcome the uncertainties and difficulties of life and also made human life more predictable and

comfortable, the experimental method was viewed as the most sophisticated and useful method to generate valid knowledge. Therefore, scholars in the field of social sciences too, thought that the experimental method could be fruitfully applied in the social domain to generate valid knowledge. **Wilhelm Wundt** developed a system of psychology that was based on the empiricist perspective of science. He advocated the use of controlled *introspection* (a type of experiment in which the person involved in introspection experiments on oneself) to unravel the structure of the mind. His basic training was in the discipline of physiology wherein experimental method had occupied a prominent place among the researchers. It is said that the (Wundtian) experimental psychology was an offspring of experimental physiology and mental philosophy, the former supplied the method and the latter its subject matter. The term ‘physiological’ in the book, “*Physiological Psychology*”, authored by Wundt signifies the use of the method of physiology, that is, the experimental method in psychology; it does not explicate the physiological basis of psychological processes as all the contemporary books on physiological psychology do.

It may be noted that some systems of psychology, such as *structuralism* and *behaviourism* relied on empiricism. **John Watson**, the founder of behaviourism, is known for his effort to make psychology a fully scientific discipline and opposed the study of mental structure and its functions. To him, only observable behaviour should be the subject matter of psychology whereas the **Gestalt school** drew on the logic of rationalism. Although **Sigmund Freud**, the founder of psychoanalysis, was trained in the modern discipline of neurology, his philosophical position is not very clear regarding the use of a particular scientific perspective for his system of thought. The proponents of another school of psychological thought, the **humanistic-existential psychology**, were critical of the use of the scientific method to study human psychology and they were particularly opposed to applying an analytical approach to understand human mental processes or behaviour. According to them, every person is born free and has the capabilities to develop his/her potential, and the discipline of psychology should help the person in this endeavor. This group of psychologists advocated the phenomenological approach to understand the experiences of the person.

From all the above examples it is clear that if scientific psychology is defined in a particular way, it specifies or defines the scope of the discipline in a limited sense. What constitutes the subject matter of psychology – mental structure or mental functions or consciousness or observable behaviour or unconscious motives or fully functioning person — depends on what the thinkers associated with a particular school of thought consider important. However, most of the standard textbooks define psychology as a scientific study of the brain, mind, and behaviour. Therefore, it can be argued that the current standard definition of psychology reflects views of only a few thinkers associated with a particular school of psychology or a combination of a few of them instead of representing the entire spectrum of psychological thoughts.

Upon reading the history of psychology in an introductory textbook of psychology, the reader may get the impression that Wilhelm Wundt was the founder of scientific psychology as he had established the first laboratory of

psychology at Leipzig University in 1879. At this point, it will be worthwhile to alert the reader that this is not an objective fact. This image of Wundt has been constructed and propagated by a group of psychologists who hold a particular image of science and scientific psychology. In fact, Wundt had understood the limitations of the experimental method in understanding mental processes. By using the experimental method, Wundt believed, the experimenter can study only the simple mental processes such as attention, perception, and some forms of memory. However, for studying the higher mental processes, according to him, anthropological and historical methods are more appropriate. Therefore, he started a new area of psychology, known as *Volkerpsychologies*, and which can be translated as ‘cultural’ or ‘social’ psychology, to study the products of higher mental processes, such as religion, customs, cultural artifacts, etc. He devoted more time to *Volkerpsychologies* than on experimental psychology. These facts about Wundt clearly show that Wundt himself had thought psychology should be broader than merely being an experimental discipline. Is it not puzzling to note that *Volkerpsychologies* advocated by Wundt is hardly discussed in the introductory textbook of psychology?

Similarly, **William James**, one of the founders of psychology and originally trained as a physiologist like Wundt, thought that psychology should focus on the study of consciousness. However, after realizing that in the prevalent scientific psychology it is not possible to study the stream of consciousness, he quit the discipline of psychology, accusing it of a ‘nasty little science’.

Based on the above discussion of the views of two eminent thinkers in psychology, one needs to appreciate the element of arbitrariness in defining psychology as a scientific (read experimental) discipline and how such a way of defining the discipline makes it narrow. Therefore, it is imperative to study the historical forces that shaped the discipline in a particular direction. By historicizing the various psychological thoughts, as a student of psychology, you will be able to understand how social, political, and ideological factors have played an important role in the development and perpetuation of certain kinds of psychological thoughts.

Check Your Progress 1

- 1) What are the different connotations of the term ‘psychology’?
.....
.....
- 2) What are the main philosophical positions on which psychological theories are based?
.....
.....

1.2 HISTORICAL PERSPECTIVES

According to the traditional approach, history refers to an objective account of past happenings. However, in examining the past, historians often make use of structures or models to analyze and explain past events. For example, **E.G. Boring**, one of the eminent historians of psychology, has distinguished

between two models of examining the past events of psychology – the *great man* and the *Zeitgeist models* of history. According to the great man model, historical changes occur due to the extraordinary talents and efforts of great persons. On the other hand, the zeitgeist, or “the spirit of the times” model attributes historical changes to momentum or historical forces. In this model the contributions of great men are not discounted, rather they are viewed as the manifestations of the historical forces. One example of the zeitgeist model of history is the contribution of **Thomas S. Kuhn** in the field of history of science. In his seminal book *The Structure of Scientific Revolutions* (1962), he has argued that cultural and social forces are involved in the development of a *paradigm* or *model* of science and the development of a new paradigm gives rise to change in the understanding and practice of science. The new paradigm develops either as a by-product of social and cultural forces or due to the inability of the old paradigm to explain new scientific findings.

Kuhn thinks that a paradigm that guides the thinking and practices of scientists is developed only in mature sciences such as physics, chemistry, biology, and argues that psychology is not a mature science and still it is in a pre-paradigmatic stage. Interestingly, Kuhn used the term ‘*paradigm*’ in various ways and according to one scholar, he used this concept with 21 different meanings. In contemporary scholarship, the term ‘paradigm’ is not necessarily used in a strict Kuhnian sense and it stands for any ‘framework’ or ‘system of thought about human nature’. Therefore, the various systems of psychological thoughts such as structuralism, functionalism, behaviourism, psychoanalysis, gestalt school, etc. may be viewed as examples of the paradigm of psychology. One important advantage of looking at different systems of psychology in terms of Kuhn’s concept of paradigm will be to link psychological thought with the prevailing historical, political, socio-cultural, and ideological social forces.

The zeitgeist approach to the history of scientific thought allows us to view philosophical systems/systems of thoughts in their historical context rather than existing as an autonomous and isolated corpus of thoughts. Further, this approach to look at the history of psychological thoughts makes room to look for the existence and development of psychological thoughts prevalent in non-Western cultural contexts. By now, it is hoped, that the you will be able appreciate that science is not only an intellectual pursuit but also a cultural and political enterprise.

The Western societies, due to the dominance of the philosophical perspective of empiricism and the ideology of individualism, have popularised a narrow view of science and the same has been applied in the field of psychology too. Further, historical events like the industrial revolution and colonization gave rise to a situation in which western societies became important centers of scientific knowledge production. Owing to the political power being exercised by the western societies over the rest of the world, especially over the colonized countries, the former was successful in declaring scientific knowledge as superior and universal and imposed the same on the non-western societies. After World War II, psychological theories, developed in the United States, reflecting the ideology of individualism, were exported to all the other countries due to its prominent position in world politics. As the modern (read Western) psychology has been exported in the non-

Western societies in the guise of being universal psychology, the prominent and influential scholars in the discipline of psychology in the non-Western countries, mostly being trained in the Western countries such as the UK, USA, Australia, Canada, and New Zealand, have adopted it uncritically and helped in propagating the Western psychology in their respective countries through their teaching and research programmes. However, it is well-known that some important civilizations grew in the non-Western world with their systems of elaborate and sophisticated philosophical thoughts (including psychological thoughts). Therefore, we should make a distinction between the “non-Western psychologies” and “psychology practiced by the scholars of non-Western societies”. The former refers to the systems that originated in non-Western societies intending to explain human nature and behaviour while the latter signifies the activities and practices of western psychology adopted by the scholars of non-Western societies.

Check Your Progress 2

- 1) Describe the two perspectives on history.
.....
.....
- 2) In what way does the zeitgeist approach to history differ from the traditional approach?
.....
.....

In this section, a brief introduction of some non-Western psychological thoughts will be discussed. It is hoped that as a student of psychology, one is sensitive to the fact that academic (Western) psychology is not necessarily universal, it simply reflects the psychology of the western people. As a corollary to this, western psychology should not be blindly applied to explain the behaviours of people from non-Western societies. Hence, you will be acquainted with the psychological thoughts developed in the non-Western world as well. This effort will not only serve the interest of the non-Western psychologies but has the potential to expand our understanding of human psychology in general.

1.3 NON-WESTERN TRADITIONS IN PSYCHOLOGY

As it is clear from the above discussion that modern psychology has its root in some philosophical discourses in the west. Similarly in some non-Western civilizations thinkers and sages have discussed in detail about nature of human beings and their relation to the world, the meaning of life, and nature of human knowledge. As in Western philosophical thought, reflections on psychological issues were linked with other aspects of life, in non-Western philosophical and religious discourses too, reflections on human psychology was part of a broader scholarship related to various aspects of human life and society. It will be important to note that discussion of human nature in the non-Western religious and philosophical systems reflect some fundamental values which are different from those of the Western civilizational values.

1.3.1 India

India has been the birthplace of some important religions, such as Hinduism, Buddhism, Jainism, and Sikhism. Like every religion, the founders and sages of the religions that have originated in the Indian sub-continent have developed a system of philosophical thoughts to guide the life and conduct of humankind.

1.3.1.1 Hinduism

Hinduism is like other religions having a single sacred book and a well-defined system of thought to guide the conduct of its followers. There are multiple religious and philosophical resources that the followers of Hinduism draw on to conduct their lives. However, the *Vedas*, the *Book of Knowledge*, is considered as one of the important religious resources. The *Vedas* are a collection of lessons, hymns, poetry, and prose that were compiled from oral recitations. Although there are four *Vedas*, the *Rig-veda*, the most important among them, is the most famous as a literary collection praising various objects of worship, such as the sun, moon, wind, dawn, and fire. However, the *Upanishads* reflect the collected wisdom of Hindu scholars in which a person's relation with the Universe has been discussed. Further, the *Upanishads* reflect the distinct theme of Indian philosophy. Skepticism of sensory knowledge and intellect is the dominant theme. Another important theme is the search for self-control, unity, and universal knowledge. Unlike the Western philosophical system in which a person is neither viewed as mind or body or both, but as an impersonal, neutral, and pervading reality. There is an emphasis on eliminating individual desires through self-control and ascetic living, so that one can escape from individualism and get reabsorbed into a whole unity of Being (the supreme reality). Person, according to the *Upanishads*, is not a unique individual but as an *Atman*, which is the part of the *Brahman* (the supreme reality). Thus, one can notice the goals expressed in the *Upanishads* as diametrically opposite to the basic goal of Western psychology. Whereas in Western psychology the individual is considered as an independent and autonomous entity and its focus is to facilitate the individuals to achieve and develop their uniqueness. In the *Upanishads*, on the other hand, the person should realize their essential connection with the *Brahman* and work for harmony by undermining individuality.

1.3.1.2 Buddhism

In contrast to the Hindu philosophy, Buddha (meaning literally, the enlightened person), the founder of Buddhism, rejected the notion of 'mind' or 'soul' terming them as the invention of human need. Unlike some Western psychology that posits that an individual has free will to decide one's fate, Buddha argued that human beings were governed by the determinism of habit, heredity, and environmental events. The perceived unity of personality, according to Buddha, arises due to our memory and habits. The individual personality doesn't exist after death. Like empiricism, Buddha also thought that the sensory inputs were the only source of knowledge. However, according to Buddhism, the study of psychological individualism is futile as the separate beings are merely passing manifestations of little worth. He emphasized ascetic self-discipline and training to attain happiness in the face of the annihilation of individual consciousness and also encouraged us to participate in the experience of Spirit, which lies at our essence.

1.3.1.3 Jainism

Jainism, also known as Jain Dharma, derives its philosophical and spiritual ideas and history through a succession of twenty-four leaders or *Tirthankars*. The 24th *Tirthankara*, Lord Mahavira lived around 600 BCE. Jainism is considered to be eternal *dharma* with the *Tirthankaras* guiding every time cycle of the cosmology. Jainism differs from Hinduism and Buddhism in ontological assumptions. While Hinduism believes in eternal unchanging atman and Buddhism assumes *anatta* (no eternal soul or self), Jainism incorporates an eternal but changing *jiva* (self). There are three main principles of Jainism – Ahimsa (non-violence), *Anekantavada* (many-sidedness), and *Aparigraha* (non-attachment). The last two principles have implications for contemporary psychological issues. According to the principle of *anekantavad*, reality or truth has several dimensions and it is impossible to express the experiences of truth through language. Our description of reality is relative and partial. Even, in contemporary cognitive psychology and philosophy research findings support this view about the description of reality. Jainism, further, postulates that there are three sources of true knowledge – *Pratyaksha* (perception), *Anumana* (inference), and *Sabda* (testimony). According to the principle of *aparigraha*, attachment to worldly things or emotions can cause damage to the soul. Therefore, the emphasis is to remain detached from the material and psychological reality for attaining well-being. In this respect, Jainism's teaching is different from that of Western psychology as the latter promotes the fulfillment of desires by the individuals for attaining well-being.

As India is characterised by its religious, cultural, ethnic, and linguistic diversity, the discussion of these three religious philosophies do not exhaust the complexities of the society. Any description of Indian psychology based on these three religious-philosophical systems only is a partial representation of Indian psychology. It is an important point, which we should keep in mind while discussing Indian psychology.

1.3.2 China

Written around 1120 BCE the *I-Ching*, or the *Book of Change*, attributed to Wen Wang, is one of the earliest recorded Chinese literature on metaphysics. **Confucius** (551-479 BCE), an eminent Chinese philosopher, found this book above all other books and wanted to live 50 years longer to study this book properly. *I-Ching* highlights the vagueness of theology and relativity of moral principles and thus shows the search for the absolute truth and universal principle futile and untenable. Instead, it promotes the development of practical knowledge. **Lao-tze** (604-531 BCE), probably the greatest philosopher of the pre-Confucian era, wrote *Tao-Te-Ching*, the *Book of the Ways and Virtues*, which is the main basis of Taoist philosophy. Taoist philosophy encourages living in harmony with the natural order and finds little value in pursuing intellectual knowledge as it creates confusion in the minds of the people. Confucius, the greatest of Chinese philosophers, did not deny the existence of God and can be viewed as an agnostic. His philosophy, known as *Confucianism*, consists of an array of practical teachings leading to the development of morality and conducting politics. In his view, ideal persons are very important for society, and for him, an ideal person is trustworthy, loyal, sincere, and intellectually curious, but

aloof and thoughtful. For him, the family is an important social institution that can nurture ideal persons as well as support the larger social structure. His philosophy was conservative as he thought preserving the unity of life is more important than pursuing individual goals in life. Chinese history did not produce a scientific age like that of post-renaissance Europe. The scientific study never was the dominant ideal for the Chinese philosophers as they valued maintaining harmony and order rather than innovative knowledge. Due to the influence of such philosophies, the goal of socialization was to encourage a tendency to conform to the moral code of society.

1.4 CONCLUDING COMMENTS

The discussion of the various philosophical systems of non-Western societies, despite being heterogeneous, reveals that they are fundamentally different from the Western philosophies. In the latter, individual persons and fulfillment of their desires are accorded a lot of importance, and society is expected to support the individuals to pursue their personal goals. Further, innovation and experimentation are valued and encouraged in Western psychological thoughts. On the other hand, in the non-Western philosophies, individualism is not valued and importance is given to the renouncement of personal desires so that social harmony can be maintained. As the Western philosophies have a major influence in nurturing self-conscious individuals by developing new types of social, cultural, and political institutions, in a similar way the non-Western philosophies nurtured socially or spiritually oriented persons by promoting different ideals for their people. Therefore, Western psychological concepts and theories may not be useful to understand and explain the psychological processes and behaviours of non-Western people. Hence, we should avoid applying Western psychologies in Indian situations. At this point, there is a word of caution for the student of psychology. These differences between the Western and the non-Western societies are not absolute and permanent. In contemporary times, due to increasing facilities of communication and affordable air-travel, people from both the worlds are getting exposure of the other societies and hence there is a possibility that the differences in the psychology of the people of the two worlds will reduce significantly.

Keeping this discussion in mind, you will understand that all the subsequent Units in this course deal with the different schools of Western psychology only, and there is a need to know about other non-Western psychological thoughts as well.

Check Your Progress 3

1. How is the Western psychological concept of 'person' different from that in Hinduism?
.....
.....
2. List two significant characteristics of the philosophical systems from non-Western societies.
.....
.....

1.5 SUMMARY

Now that we have come to the end of this Unit, let us list all the major points that we have learned:

- The term ‘psychology’ refers to a set of diverse concepts. One important source of diversity in psychological thoughts is the philosophical positions that the thinkers held.
- Three philosophical positions — rationalism, empiricism, and phenomenology have influenced the various psychological thoughts.
- Zeitgeist approach to the history of psychological thought sensitizes the readers to the connection between psychological thoughts and the broader socio-political factors.
- Psychological theories developed in the United States, especially after World War II, dominated academic psychology. Academic psychology is, in fact, Western psychology, and the thinkers from the non-Western societies, especially during the ancient and medieval period, have also developed distinct psychological thoughts.
- In Western psychological thoughts, an individual fulfilling a person’s needs is given importance whereas in non-Western thoughts person’s relation with the society or universe has been given importance.
- In Hindu philosophy, transcending individualism is the goal. In Buddhism, humans are governed by the determinism of habit, heredity, and environmental events. Jainism includes an eternal but changing self.
- Taoism and Confucianism are two important philosophies that emerged from China. The former is concerned with the search for meaning and the latter deals with social matters.

1.6 KEY WORDS

Empiricism: A philosophical position that states that valid knowledge comes only from sensory experiences. Any knowledge that is not based on sensory information not considered as valid knowledge.

Rationalism: A philosophical position according to which knowledge is based on the use of reason or logic. Rene Descartes, the famous French philosopher, is supposed to formalize this perspective in the western philosophy.

Phenomenology: Study of structures of consciousness as experienced by the first-person point of view.

Paradigm A system of belief, assumptions, values, and thinking about the world. Rather than being a theory of a particular thing or phenomenon, it is a world view.

Zeitgeist: Refers to an invisible agent or force dominating the characteristics of a given epoch.

Atman: According to the Vedanta school of Hindu philosophy, Atman is the true self of an individual beyond identification with phenomena, the essence of an individual.

Brahman: Connotes the highest Universal Principle, the ultimate reality in the universe. The atman is the part of Brahman.

Ahimsa: Principle of non-violence. It is one of the important principles of Buddhism.

Aparigraha: In Hinduism and Jainism, aparigraha refers to the virtue of non-possessiveness, non-greediness.

Anekantavada: Jain doctrine that states that the ultimate truth and reality is complex and has multiple aspects.

Taoism: Chinese philosophical tradition that emphasizes living in harmony with nature.

1.7 REVIEW QUESTIONS

- 1) Structuralism and Behaviourism rely mainly on experimental method whereas humanistic school uses
- 2) According to Kuhn, scientific knowledge is
- 3) Why is it important to know the philosophical bases of psychological thoughts?
- 4) How does the zeitgeist approach to history explain the changes in psychological thoughts?
- 5) Why only Western psychological thoughts are taught in most of the non-Western academic institutions?
- 6) Discuss at least two points of differences between the Western and the non-Western psychological thoughts.

1.8 REFERENCES AND FURTHER READING

Brennan, J. F. (2014). *History and Systems of Psychology*. Harlow: Pearson Education Ltd.

Danziger, K. (1990). *Constructing the Subject: Historical Origins of Psychological Research*. Cambridge, England: Cambridge University Press.

Danziger, K. (2006). Universalism and indigenization in the history of modern psychology. In A.C. Brock (Ed.), *Internationalizing the History of Psychology*. New York University Press, 2006, pp. 208-225.

Hergenhahn, B. R. & Henley, T. B. (2009). *An Introduction to the History of Psychology*. Wadsworth: Cengage Learning.

Kuhn, T.S. (1962). *The Structure of Scientific Revolutions*. Chicago and London: The University of Chicago Press.

Misra G. (2013). Culture and self: Some emerging concerns. In G.Misra (Ed.) *Psychology and Psychoanalysis vol. 13, part 3 . (pp.371-383) as a part of* D.P. Chattopadhyay (Gen. Ed.) *History of Science, Philosophy, and Culture in Indian Civilization*. New Delhi: Centre for Studies in Civilizations.

Schultz D. P. & Schultz, S. E. (2008). *A History of Modern Psychology*. Wadsworth: Thomson Learning, Inc.

1.9 WEB RESOURCES

For more information, visit;

- The Core and Context of Indian Psychology [PDS~22_1_05-Dalal & Misra.indd \(ipi.org.in\)](#)
- A journey back to the roots: Psychology in India [À \(ipi.org.in\)](#)
- Indian thought and tradition: A psychohistorical perspective [IPI — Indian thought and tradition: A psychohistorical perspective](#)
- [Classics in the History of Psychology -- Topic Index \(yorku.ca\)](#)
- [History of Psychology | Noba \(nobaproject.com\)](#)

Answers to Review Questions (1-2)

- 1) phenomenological approach to understand the experiences of the person.
- 2) relative



ignou
THE PEOPLE'S
UNIVERSITY

UNIT 2 CONTRIBUTIONS TO EARLY MODERN PSYCHOLOGY: HELMHOLTZ, FECHNER, WUNDT, AND JAMES*

Structure

- 2.0 Introduction
- 2.1 Helmholtz
 - 2.1.1 Principle of Conservation of Energy
 - 2.1.2 Rate of Nerve Conduction
 - 2.1.3 Theory of Perception
 - 2.1.4 Young-Helmholtz Theory of Color Vision
 - 2.1.5 Visual Illusions
 - 2.1.6 Auditory Perception
- 2.2 Fechner
 - 2.2.1 Psychophysics
 - 2.2.2 The JND (Just-Noticeable-Difference) as the Unit of Sensation
 - 2.2.3 Psychophysical Methods
- 2.3 Wilhelm Wundt
 - 2.3.1 Consciousness
 - 2.3.2 Voluntarism
 - 2.3.3 Mediate and Immediate Experience
 - 2.3.4 Introspection
 - 2.3.5 Elements of Consciousness
 - 2.3.6 Organization of the Elements of Consciousness
- 2.4 William James
 - 2.4.1 The Principles of Psychology
 - 2.4.2 Consciousness
 - 2.4.3 The Methods of Psychology
 - 2.4.4 Pragmatism
 - 2.4.5 Emotions
 - 2.4.6 The Three-Piece Self
 - 2.4.7 Habit
- 2.5 Summary
- 2.6 Key Words
- 2.7 Review Questions

* Dr. Saif R. Farooqi, Department of Applied Psychology, Vivekananda College, University of Delhi

- 2.8 References and Further Reading
- 2.9 References for Figures
- 2.10 Web Resources

Learning Objectives

After reading this Unit, you will be able to;

- Trace the development of psychology as a scientific discipline;
- Discuss the role of experimental physiology in the discipline of psychology; and
- Describe the contributions of Hermann von Helmholtz, Gustav Theodor Fechner, Wilhelm Wundt, and William James.

2.0 INTRODUCTION

The scientific discoveries that took place in the seventeenth and eighteenth centuries made it possible for many of the longstanding philosophical questions to be explored and analyzed in a lot more precision. These discoveries gave a lot of answers about the physical world, and it seemed to be the right time for science to make a shift towards understanding the physiological mechanisms that help in understanding the physical world. This led to the rise of empirical research in physiology. In the nineteenth century, many significant investigations such as nervous system activity, sensations, and brain physiology took place, indicating the advantages of systematic, empirical research. This benefited the discipline of psychology to a great extent, as it allowed physiological explanations of mental operations.

Scholars, in that time, were majorly interested in understanding the ways in which external events are represented in consciousness. Intensive investigations were made in many areas such as sense perception and motor reactions, which eventually led to the emergence of experimental psychology. In 1879, Wilhelm Wundt established the first experimental psychology laboratory at the University of Leipzig. The laboratory consisted of four rooms. Four years later, in 1883, a four-room experimental psychology laboratory opened at John Hopkins University, USA. Similar experimental laboratories began opening in different parts of the world, within a short period of time. In 1886, an experimental psychology laboratory opened in University of Kazan, Russia (1889), at the Sorbonne, France (1892), at the University of Groningen, Netherlands, and in 1898, at University College London, England.

These different laboratories opening in different parts of the world, in a short period of time, gave an indication that the first experimental psychology opening at Leipzig was not an unusual event. It actually resulted due to the intellectual developments that were taking place in different parts of the world. It was the spirit of times that was making psychology develop into a scientific, academic discipline. Surely, the contribution in this development made by Wilhelm Wundt cannot be denied. But it was the contributions of others such as Helmholtz and Fechner that gave Wundt that platform.

2.1 HERMANN VON HELMHOLTZ

Contributions To Early Modern Psychology: Helmholtz, Fechner, Wundt, and James

Hermann Ludwig Ferdinand von Helmholtz is considered to be one of the greatest German scientists of the nineteenth century. He made significant contributions in physics, physiology, and psychology. He gave emphasis to a mechanistic and deterministic approach, suggesting that human sense organs function just like a machine. Among physics, physiology, and psychology, psychology was the least preferred discipline for Helmholtz. Despite that, his contributions in psychology made it instrumental to make it a scientific discipline.

Box 2.1: Hermann von Helmholtz

Hermann von Helmholtz was highly scientific in his nature. With great experimental rigor, more than anyone else before him, he demonstrated the mechanisms by people interacted with the physical world. He gave his explanations in terms of objective, physical laws. Helmholtz emphasized on the applied or practical benefits of scientific research. He did not believe in conducting experiments just to gather large numbers of data. He actually believed that scientific research should be used to solve practical problems.

Helmholtz did not consider himself to be a psychologist. But his contributions in the study of human senses helped to strengthen the experimental approach in understanding psychological issues. The work of Helmholtz brought physics, chemistry, physiology, and psychology closer together. This, eventually, led to the emergence of experimental psychology. In many ways, experimental psychology is considered to be the inevitable step after the work of Helmholtz.

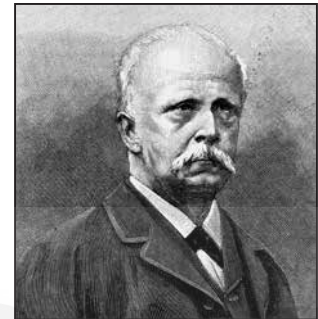


Figure 2.1: Hermann von Helmholtz (1821-1894)

Source: www.britannica.com

2.1.1 Principle of Conservation of Energy

In one of his earliest researches, Helmholtz studied the metabolic processes of frogs. He demonstrated that the consumption of food and oxygen by the frog were able to account for the total energy consumed by the organism. By doing so, Helmholtz applied the well-known principle of conservation of energy to living organisms. The principle had been earlier used to explain physical phenomena. The principle of conservation of energy suggests that energy is never lost in a system, it only gets transformed from one form to another. Helmholtz used the materialist philosophy by the applying the principle of conservation of energy to living organisms. In doing so, he brought physics, chemistry, and biology close to each other. In 1847, Helmholtz published a highly influential paper called *The Conservation of Force*. Later, Sigmund Freud was highly influenced by Helmholtz in the usage of the principle of conservation of energy for living organisms. Freud applied the principle in explaining his idea of psychic energy.

2.1.2 Rate of Nerve Conduction

Earlier it was believed that nerve conduction was too fast to be measured. However, Helmholtz did not agree with it and made pioneering efforts to measure the rate of nerve conduction. In order to do this, Helmholtz electrically stimulated the motor nerve of the leg of a frog. The frog was already dead, but there was life in its leg. The stimulation of the nerve

caused the contracting of the muscle. He attached a minute pen to the end of the frog's leg, which drew upon a moving drum. Using this arrangement, Helmholtz was able to compare the time between the stimulation of the nerve and the time the pen first moved. He was able to calculate the rate of the motor nerve transmission, as he knew the length of the nerve. The rate of nerve transmission, according to Helmholtz, came out to be 25 to 30 meters per second.

After measuring the nerve transmission in a frog, Helmholtz decided to measure the rate of transmission of sensory nerves in humans. He tried to do this by using touch as a stimulus. Helmholtz found that reaction time is longer when the foot is stimulated as compared to the face. This means reaction time is determined by how further away the stimulus is from the brain. By subtracting the reaction time of the short distance with that of the long distance, Helmholtz was able to calculate the rate of sensory nerve conduction, which came out to be 50 to 100 meters per second.

Helmholtz's research for measuring nerve conduction was highly significant because it demonstrated that nerve impulses can actually be measured, and are also relatively slow than it was initially believed to be. This also gave evidence that physical and chemical processes are a part of interactions with the environment, and are entities that are not beyond scientific evaluation. Later on, Helmholtz found that reaction time, in order to measure nerve conduction varied in different individuals. It even varied for the same individual at different times. He came to the conclusion that reaction time is not a reliable and valid method of measuring nerve conduction, and eventually abandoned it. This discovery, however, does not deny the significance of the pioneering research done by Helmholtz.

2.1.3 Theory of Perception

According to Helmholtz, the past experiences of an observer play a role in converting sensation to perception. Sensations, thus, can be considered to be the raw elements of consciousness. When sensations are given some meaning with respect to past experiences, then it is called perception. This transformation of sensation to perception, that is, sensation given meaning, on the basis of past experiences was termed by Helmholtz as *unconscious inference*. Helmholtz suggested that the label given to any object involves applying past experiences. This was further explained by Helmholtz by using the example of depth perception. Depth perception takes place because the retinal image an object causes is slightly different on the two retinas. An individual's past experiences with such retinal disparity causes the unconscious inference of depth.

Helmholtz's theory of perception can be supported by his observation of people who are blind at birth and acquire sight later on. Such people need to learn how to perceive, even though all the sensations furnished by the visual apparatus are available. Apart from these observations, Helmholtz's classic experiments with lenses that distort vision, provide further evidence for his theory. In these experiments, Helmholtz had subjects wear lenses that displaced the visual field several inches to the right or left. Initially, the subjects made mistakes in reaching for the objects. After some time, however, perceptual adaptation took place, and despite wearing the glasses,

the subjects were able to interact accurately with the environment. When the subjects removed the glasses, they again made mistakes initially, but then after a while recovered.

2.1.4 Young-Helmholtz Theory of Colour Vision

Thomas Young (1801) had proposed a theory of colour vision, which was similar to what Helmholtz had come up with, many years later. The theory of Young had not been very widely accepted. Helmholtz made slight changes in the theory of Young and supported it with experimental evidence. The theory, then, came to be known as the Young-Helmholtz theory of colour vision. The theory is also called the *trichromatic theory*. Helmholtz postulated that there are three different types of colour receptors on the retina, corresponding to the three primary colors, which are red, green, and blue. He further suggested that if a red light is shown, then the red receptors get stimulated, leading to a sensation of red. Similarly, if a green or blue light is shown, then green or blue receptors, respectively, get stimulated, leading to a sensation of green or blue. In addition to that, all the these primary colours are shown at once, then there is an experience of white. If none of the primary colours are shown, then it will stimulate different combinations of the three receptors, which will lead to an experience of a subjective colour, corresponding to the combination of wavelengths present.

The Young-Helmholtz theory of colour vision has been found to be very useful in explaining different forms of colour blindness. If a person lacks one or more receptors corresponding to any of the primary colours, that person will not be able to experience certain colours subjectively, even when the physical world remains the same.

2.1.5 Visual Illusions

Helmholtz was one of the earlier researchers who investigated the phenomenon of visual illusions. According to Helmholtz, illusions take place when visual conditions are not normal. Due to this, Helmholtz felt that illusions can help in the understanding of the normal functioning of the eye. This means that abnormality can help in studying the normal. Regarding this, Helmholtz made a significant contribution when it comes to analysing the optics of the eye. For this, he developed a wide range of optical instruments such as optometers, ophthalmometers, and ophthalmoscopes. These instruments were used by scientists to investigate the functioning of the eye.

2.1.6 Theory of Auditory Perception

Helmholtz found that the ear is not a single sense receptor. Instead, the ear is actually a highly complicated system of many receptors. Compared to the visual system that has three nerve fibres, the auditory system is known to have thousands of nerve fibres, each nerve fibres having its own specific nerve energy. Helmholtz speculated that different fibres along the basilar membrane are sensitive to differences in the frequency of sound waves. The short fibres respond to the higher frequencies, and the longer fibres respond to the lower frequencies. A wave of a specific frequency causes the appropriate fibre of the basilar membrane to vibrate, which leads to a sensation of sound that corresponds to that frequency. This process is referred to as *sympathetic vibration*.

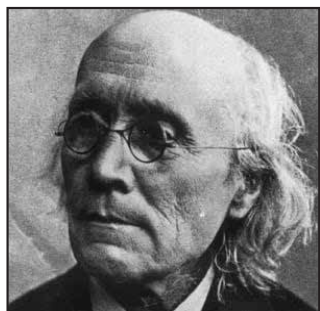


Figure 2.2: Gustav Theodor Fechner (1801-1897)

Source: www.history-of-psychology.readthedocs.io

Helmholtz believed that a similar process takes place in the middle ear. Through various combinations of fibre stimulation, the wide range of auditory experiences can be explained. This theory is known as the *Resonance Place Theory of Auditory Perception*. There are some variations of this theory in today's time.

2.2 GUSTAV THEODOR FECHNER

Gustav Theodor Fechner contributed to a number of intellectual pursuits in his life. He was a German physiologist, physicist, philosopher, psychophysicist, and experimental ethicist. Among all his contributions, he is mostly known for his work in psychophysics. His contributions in psychophysics are considered to be a major precursor to the emergence of psychology as an independent, scientific discipline.

Box 2.2: Gustav Theodor Fechner

In about 1840, Gustav Theodor Fechner suffered a nervous breakdown. He became a recluse and developed severe depression. This resulted in Fechner's interest to change from physics to philosophy. He became highly interested in studying the mind-body problem. His interest in the mind-body problem got him interested in studying the quantitative relationship between physical stimuli and the sensations and perceptions they produce. He thus, came to be known as the pioneer of psychophysics – the scientific study of the relation between physical stimuli and the sensations and perceptions that they evoke.

Even though, he strongly intended to, Fechner did not really resolve the mind-body problem. However, he did demonstrate that it was possible to quantitatively measure mental events and associate them with physical events.

It is often suggested that, instead of Wundt, the beginning of experimental psychology should be credited to Fechner's book *Elements of Psychophysics*, published in 1860. Wundt, himself does not completely deny this claim. Titchener also has often referred to Fechner as the father of experimental psychology.

2.2.1 Psychophysics

Fechner is considered to be the major proponent of psychophysics. He wanted to understand the relationship between sensations and perceptions in a much better way. This movement named as psychophysics emerged from his book *Elemente der Psychophysik* (Elements of Psychophysics), which was published in 1860. Fechner wanted it to be an exact science of the functional relations between the mind and the body. Fechner's interest in the philosophical issue of the mind and body relationship developed from his idea of psychophysics. He was adamant in solving the mind-body problem in terms of a purely scientific manner, that is, in materialistic terms. Fechner felt that the mind and body are two aspects of the same fundamental reality, which is what **Spinoza** had suggested calling it *double aspectism*.

In this way, Fechner agreed with the double aspectism of Spinoza, and disagreed with Descartes's mind-body dualism. Fechner actually wanted to prove the idea of double aspectism instead of just of speculating about it.

Fechner came up with a way to prove it on one morning in 1850. He realized that if a person were asked to report changes in sensations as a physical stimulus was systematically varied, it could easily demonstrate that there is a systematic relationship bodily and mental experiences. Fechner felt that for mental sensations to change arithmetically, the physical stimulus would have to change geometrically. By testing these ideas, Fechner eventually created the field known as psychophysics — the scientific study of the relation between physical stimuli and the sensations and perceptions that they evoke.

Psychophysics emphasizes on the subjective experiences in the study of the relationship between physical stimuli and sensations. It examines sensations from many different perspectives. Psychophysics considers sensations with respect to the mind-body problem, and not entirely as a situation for anatomical and physical study. It is within the realms of physiology, physics, and natural philosophy.

Psychophysics played a significant role in the transition from studying physiological and physical components of sensation to the beginning of psychology as an independent discipline. It is, therefore, considered to be one the immediate precursors of modern psychology.

2.2.2 The JND (Just-Noticeable-Difference) as the Unit of Sensation

Fechner believed that as the magnitude of a stimulus increases from zero, it would eventually reach a point where the stimulus can get detected consciously. The lowest intensity at which a stimulus can be detected is referred to as the *absolute threshold*. Absolute threshold, thus, is the intensity of a stimulus at or above which a sensation is detected. Below the absolute threshold, no sensation can be detected. Fechner suggested that reactions do take place for intensity levels below the absolute threshold, but those reactions are unconscious.

Fechner felt that the absolute threshold is only one measure of sensations, and that its usage is very limited. Fechner actually wanted to have a continuous scale that indicated how sensations that are above the absolute threshold varied as a function of level of stimulation. This was done by using the *differential threshold*, which refers to how much a stimulus magnitude needs to be increased or decreased for an individual to detect a difference (just-noticeable difference or JND). Fechner, with respect to the differential threshold, found that intensities must change in geometric manner for sensation to change arithmetically. He, thus, assumed that when there would be geometric increase in the intensity of a stimulus, the sensations would increase in equal increments (JNDs). This assumption made it possible for Fechner to deduce how many JNDs above the absolute threshold a particular sensation was at any given level of intensity of the stimulus. Accordingly, it can be said, that Fechner's law assumed that when stimulus intensity increases in a geometric manner beyond the absolute threshold, sensation increases in equal units (JNDs). In using the idea of differential threshold, Fechner believed that he had found a relation of the physical and the psychical that is scientifically respectable.

2.2.3 Psychophysical Methods

Fechner developed a number of methods to further explore the relationship between mind and body. One of such methods is the *method of limits*. The method of limits is also called the method of just-noticeable differences. In this method, initially the variable stimulus can be kept equal to the standard, and then varied. It can also be much stronger or weaker than the standard. The subject has to determine the range of stimuli that he or she may consider to be equal to the standard. Another method developed by Fechner is the *method of constant stimuli*. This is also called the method of right and wrong cases. In this, the subject is given a pair of stimuli. One of the pairs of the stimuli is the standard and remains constant. The other one, in the pair, varies in magnitude from one presentation to another. The subject has to report if the variable stimulus is greater than, less than, or equal to the standard. Fechner also developed the *method of adjustment*. This is also called the method of average error. In this method, the subject is given control over the variable stimulus. The subject is given instructions to make adjustments in the magnitude of the stimulus in order to make it equal to the standard stimulus. After these adjustments are done, the average difference between the variable stimulus and the standard stimulus is measured.

These methods developed by Fechner are still used today in experimental psychology. They are considered to be some of the greatest legacies of Fechner that have been provided to the discipline of psychology.

Check Your Progress 1

- 1) Describe the role of past experiences in perception, according to Helmholtz.
.....
.....
.....
- 2) Discuss how Fechner used psychophysics in explaining the mind-body relationship, in a scientific manner.
.....
.....
.....

2.3 WILHELM WUNDT

With their significant contributions, Helmholtz and Fechner provided a platform to Wilhelm Wundt to work towards developing psychology into a separate, independent discipline. Wundt was highly influenced by Helmholtz and Fechner, which was clearly reflected in his work.

The psychology of Wundt has its roots in the natural science as it is the domain of psychology that adopts the methodology and analytic goals common to physics, chemistry, and biology. The approach emphasizes that psychology should be studied by defining psychological events in terms of variables and then utilizing analytic scrutiny of the experimental method

to interpret these variables. Psychology within this system makes use of the method of *introspection*, in order to analytically study the generalized adult human mind. This system is sometimes also referred to as *content psychology*, as its aim was to study the content of the mind. Additionally, Titchener, the student of Wundt, emphasized the *mental structures* and named this system *structural psychology* in his writings in 1898.

Irrespective of the name given to this system, its major goal was to carefully apply the experimental method of introspection, for the purpose of analysing human mind, which was carried out by the trained scientists. By analogy, this system intended to develop the *chemistry of consciousness*.

Contributions To Early Modern Psychology: Helmholtz, Fechner, Wundt, and James

Box 2.3: Wilhelm Wundt

Wilhelm Wundt was considered to be someone who had a broad knowledge of physiology and philosophy. He was seen as someone who could integrate these two disciplines in an effective manner. It is said that it could have only been a knowledgeable person like Wundt who could have gone on to establish psychology as an independent scientific discipline.

For Wundt to establish the new psychology that he intended to, he had to reject all non-scientific ideas of the past. Wundt completely rejected non-scientific concepts like the “immortal soul” suggesting in an emphatic manner that psychology does not deal with such ideas. It was this assertion by Wundt that helped a great deal in the founding of the new, scientific psychology, and establishing the first experimental laboratory.

The founding of modern psychology required a lot of effort, dedication, and courage to fulfil such a movement. Wundt’s efforts resulted in an achievement that is considered to be of overwhelming importance. The establishment of a new, scientific, academic psychology gives Wundt a unique stature among all the psychologists of modern times.

Wundt was a prolific writer. An analysis of his productivity, shows that, from 1853 till his death in 1920, Wundt wrote a staggering 54000 pages, making it 2.2 pages on average per day, constantly for more than 60 years.

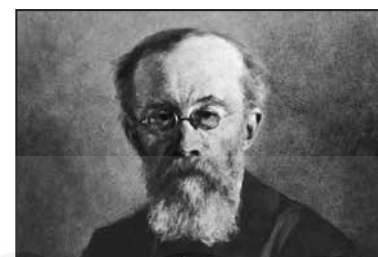


Figure 2.3: Wilhelm Wundt

Source: www.verywellmind.com

2.3.1 Consciousness

Consciousness was the subject matter of Wundt’s psychology, which according to him, consisted of several different components and could be examined by the method of analysis or reduction. Wundt suggested that the first step in the investigation of a fact must be a description of the individual elements of which it consists. According to Wundt, consciousness actively organized its own content. Therefore, merely studying the constituent components of consciousness would only provide a starting point in gaining an understanding of psychological processes.

2.3.2 Voluntarism

Wundt emphasized on the capacity of the mind to organize itself and called his system *voluntarism*. He derived this term from the word *volition*, which is defined as the faculty or power of using one’s will. Voluntarism is the ability of the will to organize the mind’s contents into higher-level cognitive processes. Wundt believed that much behaviour and selective attention are undertaken for a purpose; that is, such activities are motivated. It was due

to this that Wundt named his approach to psychology was voluntarism. According to him, its emphasis on will, choice, and purpose.

Wundt did not emphasize the elements of consciousness, but rather the process involved in organization or synthesis of those elements. His goal was not only to understand consciousness as it is experienced but also to understand the mental laws that govern the dynamics of consciousness. For Wundt, *will* was the most important concept and suggested that *will* was the central concept in terms of which all of the major problems in psychology must be understood. Wundt believed that humans can decide what is attended to and thus what is perceived. Despite claiming that the conscious mind had the power to synthesize elements into higher-level thought processes, Wundt nevertheless acknowledged that the elements of consciousness were fundamental. It is because without the elements, mind would have nothing to organize or synthesize.

2.3.3 Mediate and Immediate Experience

Wundt asserted that immediate experience and not mediate experience should be the prime concern of the study of psychologists. *Mediate experience* provides with knowledge or additional information which is not contained in the elements of an experience. It is the common form in which experiences are used to gain knowledge about the world. For instance, if a person looks at a “flower” and calls it a “red rose”, the person is describing the object on the basis of past experiences or the knowledge that he or she may have regarding a red rose, that is, giving some interpretation. Interpreting an object in such a manner, according to Wundt, would be using mediate experience. On the other hand, however, the *immediate experience* is free from any personal interpretations that may distort the experience. In such a case, if a person looks at a “flower”, and he or she has the experience of looking at something that is “red”, and not the object itself. According to Wundt, when emphasis is given on the colour, shape, or texture (such as red colour), rather than interpreting what the object is, then it is called immediate experience.

As per Wundt, the different states of consciousness (or the mental elements) emerge from these basic human experiences, such as the experiences of redness or of discomfort, which are actively organized by our mind. Wundt’s aim was to analyse the mind through its elements and component parts, in the similar way as natural scientists, who were working to break down their subject matter, i.e., the physical universe.

2.3.4 Introspection

Wundt described his psychology as the science of conscious experience therefore, the method of a scientific psychology takes into account the observations of those conscious experiences. Since only the person going through such an experience can observe it, Wundt concluded that the method of observation must necessarily involve *introspection* — the examination of one’s own mental state and processes. Wundt also referred to this method as *internal perception*.

Wundt, however, was not the first person to use the method of introspection; its origin can be traced back to **Socrates**. Wundt only modified and refined

the method by experimentally controlling the conditions under which introspection was performed. Wundt had certain explicit rules and conditions for practicing introspection, or internal perception, in his laboratory at the University of Leipzig. These rules are as follows:

- Observers must be able to identify when the process is to be introduced.
- Observers must be in a state of strained attention or readiness.
- It must be possible to repeat the observation several times.
- It must be possible to vary the experimental conditions in terms of the controlled manipulation of the stimuli.

The last condition bolstered the claim that Wundt's introspection was indeed an experimental method — observing the changes in the subjects' reported experiences as a result of varying the conditions of the stimulus situation.

Wundt asserted that just as external perception provides data for natural sciences such as physics and astronomy, his form of introspection, that is, internal perception, would be able to provide all the necessary raw data for the problems of interest in the field of psychology. The focus of observation is outside of the observer in the case of external perception, for instance, a meteor, or the chemical reactions taking place in a test tube. In contrast, the focus is within the observer, that is, his or her conscious experience, in case of internal perception. Internal perception is practiced under strict and rigorous experimental conditions so as to produce the accurate observations that can be replicated, in the similar manner, as the external perception obtains observations for the natural sciences that can be repeated by different researchers independently.

In order to attain that objective, Wundt urged that his observers should be rigorously trained so as to examine the internal perceptions carefully. Observers were assessed to be adequately prepared to provide meaningful data for Wundt's laboratory research only after they had successfully completed close to 10,000 individual introspective observations. It was assumed that subjects would be able to make observations more or less mechanically through such stringent training and would also be able to attend to the conscious experience being observed.

Theoretically speaking, Wundt's trained observers were not required to pause, to think about or reflect on the process (and perhaps bring in some personal interpretation), but could report on their conscious experience almost instantly and automatically. As a result, there would be minimal time gap between the acts of observing and reporting the immediate experience. Rarely did Wundt accept the kind of qualitative introspection in which subjects merely described their inner experiences. He looked for the introspective reports that dealt, for the most part, with the subjects' conscious judgments about the *intensity*, *duration*, and *size* etc. of various physical stimuli; these are the kinds of quantitative judgments that dominated in psychophysical research.

Thus, most of Wundt's research involved objective measurements provided by use of sophisticated laboratory equipment to provide objective measurements, many of which were of reaction times recorded quantitatively. Laboratory studies that made use of reports that were subjective or qualitative

in nature, such as the quality of a sensation, the intensity of an image, or the pleasantness of a stimulus, were very less in numbers. Wundt drew inferences from the measurements about the components and processes of conscious experience once sufficient objective data had been gathered.

2.3.5 Elements of Consciousness

According to Wundt, consciousness has two elements – sensations and feelings. Wundt suggested that *sensation* arises from the stimulation in a sense organ, and the resulting impulses reach the brain of an organism. Sensations can be categorized on the basis of their *intensity*, *duration*, and *sense modality*. Wundt did not recognize any fundamental difference between sensations and images as images are also linked to excitation of the cerebral cortex in the brain.

Feelings do not arise directly from a sense organ but are considered to be the subjective complements of sensations. Sensations are accompanied by some feeling qualities. In other words, a feeling quality will result when sensations combine to form a more complex state. Sensations and feelings can be thought of as the simultaneous aspects of immediate experience. Wundt, on the basis of his personal introspective observations, postulated a *tridimensional theory of feelings*. By making use of a *metronome* (a device that produces an audible click or other sounds at a regular interval that can be set by the user) and experiencing a series of clicks, he reported that some rhythmic patterns were felt to be more pleasant or agreeable than others. He reached to the conclusion that part of the experience of any rhythmic pattern of sound is a subjective feeling of *pleasure/displeasure*. Wundt then proposed that this feeling state could be placed on a continuum that ranges from highly agreeable to highly disagreeable.

He also noticed a second type of feeling as he continued with the experiment. He observed a slight tension while anticipating for each successive sound, which was followed by relief once the awaited click had occurred, as he listened to the clicks of the metronome. From this observation, Wundt concluded that feelings also had a *tension/relaxation* dimension, in addition to the pleasure/displeasure continuum. Moreover, he felt mild excitement as he increased the rate of clicks, and calmer, even somewhat depressed as he decreased the rate of clicks, resulting in a dimension that he referred to as *excitement/depression*. Therefore, as a result of varying the speed of the metronome, introspecting and reporting on his immediate conscious experiences, Wundt came up with three independent dimensions of feelings:

- 1) Pleasure/displeasure
- 2) Tension/relaxation
- 3) Excitement/depression

Wundt asserted that by determining the location of elementary feelings within this three-dimensional field, that is, by finding its position on each of the three dimensions, any of the elementary feelings could be efficiently described. Further, by precisely allocating these elementary feelings within the aforementioned three-dimensional framework, emotions could be reduced to the mental elements, as Wundt considered emotions to be the complex compounds of elementary feelings. Even though the tri-

dimensional theory of feelings spurred a great deal of research at Leipzig and other European laboratories present at that time, it has not been very successful in enduring the test of the time.

2.3.6 Organization of the Elements of Conscious Experience

Even though Wundt's focus was on the elements of conscious experience, he did recognize that perceptions have a unity in the real world. For instance, a tree is seen as a whole, and not as discrete sensations or conscious experiences of colour, shape, or brightness that trained observers in a laboratory tend to report as a result of their introspections.

This phenomenon of compounding unified conscious experience from the elementary parts was explained by Wundt through his doctrine of *apperception*. The process of organizing mental elements into a whole is *creative synthesis*, also called *the law of psychic resultants*, which creates new properties from the combination of the constituent elements. According to Wundt, every psychic compound has characteristics which cannot be said to be just the sum of the characteristics of the elements. This idea was promoted by the Gestalt psychologists as well. The concept of creative synthesis also has its counterpart in chemistry, as in chemistry too, combining different elements lead to the formation of new compounds which do not have any property of the constituent elements.

According to Wundt, *apperception* is an active process. It is because consciousness is not just acted on by the elementary feelings and sensations that are experienced. Instead, the mind also acts on these elements in a creative way to make up the unified whole. Therefore, Wundt did not consider the process of association as passive and mechanical, as it was considered by most of the British empiricists and associationists.

Box 2.4: Who is the founder of Modern Psychology?

There is always a valid argument, in the history of psychology, about who exactly should be considered to be the true founder of modern psychology. The obvious name that comes up is Wilhelm Wundt. Wundt established the first experimental psychology laboratory, which led psychology to become an independent, academic discipline. However, it is argued that it may not have been possible for Wundt to do this, had there not been significant contributions by Helmholtz and Fechner, before Wundt.

Wundt was directly influenced by both Helmholtz and Fechner. He assisted Helmholtz for thirteen years, at the University of Heidelberg. The work of Helmholtz became a basis for Wundt to develop his ideas. It has been suggested that had it not been for Helmholtz, Wundt would have not been able to go ahead with his ideas of having a new, scientific psychology. Keeping this in view, it should be Helmholtz, and not Wundt, to be the founder of modern psychology.

Apart from being influenced by Helmholtz, Wundt adopted many of the methods used by Fechner, in his experiments. In fact, Wundt himself had claimed that Fechner's book *Elements of Psychophysics* (1860), gave the initial thrust for introducing the experimental method in psychology. The student of Wundt, Titchener, considers Fechner to be the father of experimental psychology. Considering that it was the introduction of the

experimental method in psychology that made it an academic discipline, it should be Fechner as the founder of modern psychology.

The contributions of Helmholtz and Fechner in psychology are undeniable. However, they never intended to develop a new science or make psychology an independent discipline. On the other hand, it was Wundt, who had made great efforts in establishing a new psychology that was experimental in nature. Wundt made great strides in promoting and selling the idea of a scientific psychology, especially through his writings and lectures. In this regard, it is truly Wundt who is actually considered as the father of modern psychology.

Nevertheless, not ignoring the significant contributions of Helmholtz and Fechner, sometimes it is suggested that Helmholtz, Fechner, and Wundt be considered the joint founders of modern psychology.

2.4 WILLIAM JAMES



**Figure 2.4: Williams James
(1842-1910)**

Source: www.britannica.com

While Wilhelm Wundt was working diligently in Germany, to establish psychology as a scientific discipline, William James, known as the father of American Psychology, was propagating his ideas in America. James, one of the greatest psychologists ever, also wanted psychology to be a science, but his ideas were taking psychology into a completely different direction than what Wundt had thought of.

James had objected to what Wundt believed should be the goal of psychology, that is, the analysis of consciousness into elements. He also provided an alternative way of studying consciousness — an approach that was in line with the functional psychology movement. Although James did not establish a formal system of psychology or train any disciples under him, his contributions to the development of psychology, particularly the school of functionalism, are crucial and widely recognised. The ideas he presented in the sphere of functional psychology inspired later generations of psychologists and indirectly, thus, propelled the functionalist movement.

Box 2.5: William James

The work of William James is said to have brought about a shift from European psychology to American psychology. He never intended to develop a school of thought, but his ideas led to the development of the school of functionalism. James incorporated evolutionary theory into psychology. By emphasizing on the utility and practicality of ideas, he represented a major departure from the pure psychology that Wundt and Titchener had emphasized upon. According to James, it is usefulness that defines truth and value. This also made him one of the pioneers of applied psychology.

James expanded the research techniques in psychology. He accepted not just introspection as a method, but also suggested the use of any technique that provided useful information in understanding the mind and behaviour. He also emphasized on studying all aspects of human beings, which include behaviour, cognition, emotions, volition, etc. In doing so, James broadened the subject matter of psychology. The eclecticism of James is considered to be in accordance with the postmodernist movement.

In the later stage of his career, James lost interest in psychology, and dedicated the rest of his life to philosophy, which was his main area of interest before contributing to the field of psychology.

2.4.1 The Principles of Psychology

In his classic book, *The Principles of Psychology* (1860), James argued that psychology should move beyond the study of elements of experience and focus on studying how people adapt to their environment. This focus on utility of mental processes to help one adapt to their environment ultimately became the central tenet of functionalism. Further, James also recognised the non-rational side of human nature. He conceded that human beings and their behaviour are not just affected by thought and reason, but also by emotions and passion. He noted that not only these, but the human body's physical conditions also affect processes thought to be largely intellectual.

The classic book of James, *The Principles of Psychology* reflects the significant contributions that he made in psychology. The publication of this book is considered to be the major precursor to the beginning of the functionalist movement in psychology.

2.4.2 Consciousness

In his *The Principles of Psychology*, James suggested that psychology, both the phenomena and conditions, is the science of mental life. Thus, when looking at the subject matter of psychology, from the perspective of James, two words become important — phenomena and conditions. While the former points to immediate experiences being the subject matter of psychology, the latter highlights the role of the body, more specifically the brain, in mental life.

James opposed Wundt and his approach to the study of consciousness, arguing that it was too artificial and narrow. He did not agree with the notion that conscious experiences are made up of smaller elements. Rather, he was of the opinion that psychologists should study consciousness in its natural settings - the physical human being. This inclusion of the physical body (brain) and its role in conscious experiences, was a distinctive aspect of James's approach.

James further argued that discrete elements of consciousness discovered via introspective analyses do not exist outside of a trained observer. In other words, just because trained observers are able to analyse their conscious experiences in terms of smaller elements in a laboratory setting, it does mean that these elements are also present in the consciousness of any other individual also exposed to the same experience. This assumption that the same elements form the same conscious experience in all individuals is what James referred to as the *psychologists' fallacy*. Responding to Wundt's approach to psychology, James maintained that simple sensations do not exist in conscious experience. They, rather, exist as a result of processes like inference or abstraction.

James also differed from Wundt in how he viewed conscious experience itself. He was opposed to the analysis and reduction of conscious experiences to their smaller elements. Since he viewed consciousness as

a continuous flow (stream of consciousness), James believed that dividing it into temporally discrete elements will only distort it. He also argued that since consciousness is ever-varying, it is not possible for one to experience the same sensation or thought a second time. That is, even though one can think about a given stimulus more than once, as a result of new experiences between the two occasions, one's thoughts on these different occasions will also be different. Consciousness is, thus, better described as cumulative as opposed to recurrent.

As with consciousness, the mind is also continuous. The flow of consciousness is continuous, not marked by any disturbances. Even when there are gaps in time (for instance, while being asleep), it is easy to connect with the continuing stream of consciousness upon waking up. Besides being continuous, the mind is also selective. Since it is cognitively possible for individuals to only attend to a small portion of all the things that are experienced at any given moment, the mind selectively chooses from all the stimuli that one is exposed to. It filters, combines, separates, selects, or rejects some experiences over others. The criteria for selecting certain experiences over others is *relevance*, that is, the mind selects stimuli that are relevant for consciousness to operate logically.

James, thus, placed greater emphasis on the function or purpose rather than structure of consciousness. He reasoned that since consciousness has survived over time, it must have some biological utility to living organisms. This utility, he believed, was its ability to help individuals adapt to their environment by allowing them to choose. Elaborating on this notion of choice, James differentiated between *conscious choice* and *habit*, out of which habit is involuntary and therefore, non-conscious. Upon encountering a new situation, however, it is conscious choice that becomes operative.

2.4.3 The Methods of Psychology

Because the subject matter of psychology is concerned with personal and immediate consciousness, *introspection* was regarded as one important method by William James. This was despite James's acknowledgement of introspection as a "less-than-perfect" method of observation, as well as the difficulties its usage entailed. Verification of findings by appropriate checks and comparisons with those of multiple observers was deemed important.

Apart from introspection, James, even though he did himself rely on it, emphasized on the *experimental method*, especially in the context of research in areas like psychophysics, space perception, and memory. Finally, the *comparative method* was proposed as a way of exploring significant disparities in mental life. This was done by studying the behaviours and/or mental processes of organisms from different populations like animals, infants, emotionally unstable individuals, among others. James's description of these methods in *The Principles of Psychology* highlighted a significant methodological difference between structuralism and functionalism. While the former was largely restricted to one method (introspection), functionalism was not limited to a single method. Rather, functionalism adopted an eclectic approach by applying a variety of other methods in addition to introspection. This proved to be helpful in expanding the scope of American psychology.

2.4.4 Pragmatism

The idea of pragmatism emphasises the practicality or utility of a principle or concept. Emphasizing pragmatism in psychology, James believed that the validity of any psychological idea or construct should be tested by its real-world consequences. The pragmatic approach is succinctly captured in the expression: “anything is true if it works”.

2.4.5 Emotions

It was originally believed that one’s experience of a particular emotion is preceded by their bodily reaction to the stimulus. For example, upon seeing a dangerous animal, one first experiences fear, and then runs away, that is, the physical reaction of running away from the dangerous animal, comes after experiencing the emotion of fear. James’s theory of emotions, first published in 1884, was in direct contrast to this viewpoint. James asserted that physical responses to a stimulus comes *before* the experience of emotion. This, he believed, was especially true in case of what he called “coarser” emotions (e.g., fear, rage, grief, love). According to James’s theory of emotions, thus, the aforementioned example would be restated as: upon seeing a dangerous animal, one runs in the opposite direction, and then experience fear. James supported his theory based on introspective observations that if physiological changes like increase in heart rate or muscle tension are not experienced, there would no emotional experience as well. Despite the controversy generated, James’s work on emotions fuelled significant research developments in the area.

2.4.6 The Three-Piece Self

In his work on self, James describes three components that make up an individual’s sense of self – material self, social self, and spiritual self. The *material self* refers to things that are uniquely one’s own, for example, one’s body, family, house, dressing style, etc. Among these, James believed that one’s choice of clothing was particularly important. The *social self* refers to the recognition individuals receive from people around them. James believed that since people present different sides of themselves to different people (e.g., people behave differently in the presence of parents, teachers, friends, and lovers), every individual has multiple social selves. Finally, James referred to the *spiritual self* as our subjective being.

2.4.7 Habit

James described all living organisms as *bundles of habit*. Because repetitive actions involve the nervous system and also increase its plasticity, upon repetition, there is reduction in the conscious effort required to engage in certain behaviours. Habits, thus, become easier to perform over time.

Check Your Progress 2

- 1) How did Wundt describe the organization of the elements of consciousness?

.....
.....
.....

2) How did the methods proposed by William James reflect a methodological difference between structuralism and functionalism?
.....
.....
.....

2.5 SUMMARY

Now that we have come to the end of this unit, let us recapitulate all the major points that we have learnt.

- In the nineteenth century, many significant investigations such as nervous system activity, sensations, and brain physiology took place, indicating the advantages of systematic, empirical research. This benefited the discipline of psychology to a great extent, as it allowed physiological explanations of mental operations.
- The principle of conservation of energy suggests that energy is never lost in a system, it only gets transformed from one form to another. Helmholtz used the materialist philosophy by the applying the principle of conservation of energy to living organisms.
- Helmholtz’s research for measuring nerve conduction was highly significant because it demonstrated that nerve impulses can actually be measured, and are also relatively slow than it was initially believed to be.
- Helmholtz made slight changes in the theory of Young and supported it with experimental evidence. The theory, then, came to be known as the Young-Helmholtz theory of colour vision. The theory is also called the trichromatic theory.
- Fechner’s interest in the philosophical issue of the mind and body relationship developed from his idea of psychophysics. Fechner developed psychophysical methods such as the method of limits, the method of constant stimuli, and the method of adjustment.
- Psychophysics emphasizes on the subjective experiences in the study of the relationship between physical stimuli and sensations. Psychophysics played a significant role in the transition from studying physiological and physical components of sensation to the beginning of psychology as an independent discipline.
- Consciousness was the subject matter of Wundt’s psychology, and could be examined by the method of analysis or reduction. Wundt emphasized on the capacity of the mind to organize itself and called his system voluntarism. He derived this term from the word volition, which is defined as the faculty or power of using one’s will.
- Wundt asserted that immediate experience and not mediate experience should be the prime concern of the study of psychologists. Mediate experience provides with knowledge or additional information which is not contained in the elements of an experience. On the other hand,

the immediate experience is free from any personal interpretations that may distort the experience.

- Wundt looked for the introspective reports that dealt, for the most part, with the subjects' conscious judgments about the intensity, duration, and size etc. of various physical stimuli.
- According to Wundt, consciousness has two elements – sensations and feelings. On the basis of his personal introspective observations, postulated a tridimensional theory of feelings. There are three independent dimensions of feelings — pleasure/displeasure, tension/relaxation, and excitement/depression.
- The phenomenon of compounding unified conscious experience from the elementary parts was explained by Wundt through his doctrine of apperception.
- The process of organizing mental elements into a whole is creative synthesis, also called the law of psychic resultants, which creates new properties from the combination of the constituent elements.
- William James had objected to what Wundt believed should be the goal of psychology, that is, the analysis of consciousness into elements. He also provided an alternative way of studying consciousness — an approach that was in line with the functional psychology movement.
- James emphasized on the experimental method, especially in the context of research in areas like psychophysics, space perception, and memory.
- James asserted that physical responses to a stimulus comes before the experience of emotion. In his work on self, James describes three components that make up an individual's sense of self – material self, social self, and spiritual self. James described all living organisms as bundles of habit.

2.6 KEY WORDS

Principle of Conservation of Energy: Energy is never lost in a system; it only gets transformed from one form to another.

Unconscious Inference: The transformation of sensation to perception (sensation given meaning), on the basis of past experiences.

Sympathetic Vibration: A wave of a specific frequency causes the appropriate fiber of the basilar membrane to vibrate, which leads to a sensation of sound that corresponds to that frequency.

Psychophysics: The scientific study of the relation between physical stimuli and the sensations and perceptions that they evoke.

Absolute Threshold: The lowest intensity at which a stimulus can be detected.

Differential Threshold: How much a stimulus magnitude needs to be increased or decreased for an individual to detect a difference (just-noticeable difference or JND).

Method of Limits: Also called the method of just-noticeable differences. In this method, initially the variable stimulus can be kept equal to the standard,

and then varied. It can also be much stronger or weaker than the standard. The subject has to determine the range of stimuli that he or she may consider to be equal to the standard.

Method of Constant Stimuli: Also called the method of right and wrong cases. In this, the subject is given a pair of stimuli. One of the pairs of the stimuli is the standard and remains constant. The other one, in the pair, varies in magnitude from one presentation to another. The subject has to report if the variable stimulus is greater than, less than, or equal to the standard.

Method of Adjustment: Also called the method of average error. In this method, the subject is given control over the variable stimulus. The subject is given instructions to make adjustments in the magnitude of the stimulus in order to make it equal to the standard stimulus. After these adjustments are done, the average difference between the variable stimulus and the standard stimulus is measured.

Voluntarism: The ability of the will to organize the contents of the mind into higher-level cognitive processes.

Mediate Experience: Knowledge or additional information which is not contained in the elements of an experience. It is the common form in which experiences are used to gain knowledge about the world.

Immediate Experience: Information that is free from any personal interpretations that may distort the experience.

Introspection: The examination of one's own mental state and processes.

Sensations Arise from the stimulation in a sense organ, and the resulting impulses reach the brain of an organism. Categorized on the basis of their intensity, duration, and sense modality.

Feelings: Subjective complements of sensations, but do not arise directly from a sense organ.

Tridimensional Theory of Feelings: Wundt's theory of feelings, suggesting that feelings have three dimensions – pleasure/displeasure, tension/relaxation, and excitement/depression.

Apperception: The phenomenon of compounding unified conscious experience from the elementary parts.

Creative Synthesis: The process of creating new properties from the combination of the constituent elements.

Psychologist's Fallacy: The assumption that the same elements form the same conscious experience in all individuals.

Stream of Consciousness: Consciousness as a continuous flow.

Comparative Method: A way of exploring significant disparities in mental life. This was done by studying the behaviours and/or mental processes of organisms from different populations like animals, infants, emotionally unstable individuals, among others.

Pragmatism: The practicality or utility of a principle or concept.

Material Self: Things that are uniquely one's own, for example, one's body, family, house, dressing style, etc.

Social Self: The recognition that an individual receives from people around him or her.

Contributions To Early Modern Psychology: Helmholtz, Fechner, Wundt, and James

Habit: Repetitive actions involve the nervous system and also increase its plasticity. Upon repetition, there is reduction in the conscious effort required to engage in certain behaviours.

2.7 REVIEW QUESTIONS

- 1) Three psychophysical methods given by Fechner are,, and
- 2) The two elements of consciousness, according to Wundt are and
- 3) The three components of self, according to William James are,, and
- 4) How did Helmholtz apply the principle of conservation of energy to living organisms?
- 5) Describe how Helmholtz measured the rate of nerve conduction.
- 6) In what ways did Helmholtz empirically support his theory of perception?
- 7) How does the Young-Helmholtz Theory of Color Vision help in explaining colour-blindness?
- 8) How did Helmholtz explain auditory perception?
- 9) How is psychophysics important for the discipline of psychology?
- 10) What is the significance of differential threshold?
- 11) Discuss why Wundt called his system of psychology as voluntarism.
- 12) Differentiate between mediate and immediate experience.
- 13) Why did Wundt emphasize on the method of introspection?
- 14) Differentiate between James' and Wundt's views on consciousness.
- 15) How is James's theory of emotions different from the earlier perspectives on emotions?

2.8 REFERENCES AND FURTHER READING

Brennan, J. F. (2014). *History and Systems of Psychology*. Harlow: Pearson Education Ltd.

Chung, M. C. & Hyland, M. E. (2012). *History and Philosophy of Psychology*. Oxford: Wiley-Blackwell Publications

Glassman, W. E. & Hadad, M. (2009). *Approaches to Psychology*. London: McGraw-Hill Education

Hergenhahn, B. R. & Henley, T. B. (2009). *An Introduction to the History of Psychology*. Wadsworth: Cengage Learning

Leahy, T. H. (2014). *A History of Psychology: From Antiquity to Modernity*. Harlow: Pearson Education

Schultz D. P. & Schultz, S. E. (2008). *A History of Modern Psychology*. Wadsworth: Thomson Learning, Inc.

2.9 REFERENCES FOR FIGURES

Cherry, K. (2020). Introspection in Psychology, <https://www.verywellmind.com/what-is-introspection-2795252>

Kallen, H. M. (2021). William James, <https://www.britannica.com/biography/William-James>

Sengar, S., Cretu, A., Judge, M. S., Emin, G., Barr, E., & Little, C. (2018). Gustav Theodor Fechner, <https://history-of-psychology.readthedocs.io/en/latest/fechner.html>

Williams, L. P. (2020). Hermann von Helmholtz, <https://www.britannica.com/biography/Hermann-von-Helmholtz>

2.10 WEB RESOURCES

Beiser, F. C. (2020). Gustav Theodor Fechner, The Stanford Encyclopaedia of Philosophy. <https://plato.stanford.edu/entries/fechner/>

Farooqi, S. (2016). The Beginning of Modern Psychology: A Deeper Look into the History of Psychology, <http://www.historyofpsychology.net/2016/09/the-beginning-of-modern-psychology.html>

Farooqi, S. (2019). The Father of Psychology? <http://www.historyofpsychology.net/2019/08/the-father-of-psychology.html>

Farooqi, S. (2020). The Common Origins of Wundtian Psychology and Freudian Psychoanalysis, <http://www.historyofpsychology.net/2020/03/the-common-origins-of-wundtian.html>

Russel, G. (2017). William James, The Stanford Encyclopaedia of Philosophy. <https://plato.stanford.edu/entries/james/>

The Editors of Encyclopaedia Britannica (2020). Wilhelm Wundt, <https://www.britannica.com/biography/Wilhelm-Wundt>

Williams, L. P. (2020). Hermann von Helmholtz, <https://www.britannica.com/biography/Hermann-von-Helmholtz>

Answers to Review Questions (1-3)

(1) Method of Limits, Method of Constant Stimuli, and Method of Adjustment; (2) Sensations and Feelings; (3) Material Self, Social Self, and Spiritual Self