



EIILM UNIVERSITY
S I K K I M

GENERAL PSYCHOLOGY

SYLLABUS

A definition of Psychology

Practical problems, Methods of Psychology, Work of Psychologists, Schools of psychology, Attention & Perception - Conscious clarity, determinants of Attention, Distraction, Sensory deprivation, Perceptual constancies, perception of fundamental physical dimensions, Illusions, Organizational factors of perception.

Principles of learning

Classical conditioning, Operant Conditioning, Principles of reinforcement, Cognitive Learning, Individualized learning, Learner & learning memory - kinds of memory, processes of memory, stages of memory, forgetting. Thinking and language - Thinking process, Concepts.

Intelligence & Motivation

Theories - Measurement of Intelligence; Determinants; Testing for special aptitudes, Motivation - Motives as inferences, Explanations and predictors, Biological motivation, Social motives, Motives to know and to be effective.

Emotions

Physiology of emotion, Expression of emotions, Theories of emotions; Frustration and conflict, Personality - Determinants of Personality, Theories of personality Psychodynamic, Trait, Type, Learning, Behavioural & Self: Measurement of personality

Suggested Readings:

1. Morgan, Clifford. T., King, Richard. A., Weisz, John.R., Schopler, John, Introduction to Psychology, TataMcGraw Hill.
2. Marx, Melvin H. Introduction to psychology - Problems, Procedures & Principles, MacMillan Publishing Co.
3. Rathus, Spencer A. Essentials of Psychology.
4. Kalat, James W. Introduction to psychology, 4th edition, Brooks / Cole Publishing Co.

A DEFINITION OF PSYCHOLOGY

STRUCTURE

- Learning objectives
- Psychology
- History
- Subfields
- Methods of psychology
- Criticism
- Work of psychologists
- Schools of psychology
- Attention and perception—conscious clarity
- Determinants of attention
- Distraction sensory deprivation
- Perceptual development
- Characteristics of perceptual developments
- Theories of perceptual development
- Perceptual constancies
- Perception of fundamental physical dimensions
- Organizational factors of perception
- Review questions

LEARNING OBJECTIVES

- Understand the meaning of psychology;
- Explain the subfields of Psychology;
- Explain the methods of psychology;
- Understand the attention and perception;
- Understand the perceptual development;
- Understand the theories of perceptual development; and
- Understand the organizational factors of perception.

PSYCHOLOGY

Psychology is an academic and applied discipline that involves the scientific study of mental functions and behaviors. Psychology has the immediate goal of understanding individuals and groups through both

establishing general principles and researching specific cases, and through several accounts it ultimately aims to benefit society. In this field, a professional practitioner or researcher is described a psychologist and can be classified as a social, behavioral, or cognitive scientist.

Psychologists explore concepts such as perception, cognition, attention, emotion, phenomenology, motivation, brain functioning, personality, behavior, and interpersonal relationships. Psychologists of diverse stripes also consider the unconscious mind. Psychologists employ empirical methods to infer causal and correlational relationships flanked by psychosocial variables. In addition, or in opposition, to employing empirical and deductive methods, some—especially clinical and counseling psychologists—at times rely upon symbolic interpretation and other inductive techniques. Psychology has been described as a "hub science", with psychological findings linking to research and perspectives from the social sciences, natural sciences, medicine, and the humanities, such as philosophy.

While psychological knowledge is often applied to the assessment and treatment of mental health problems, it is also directed towards understanding and solving problems in several different spheres of human activity. The majority of psychologists are involved in some kind of therapeutic role, practicing in clinical, counseling, or school settings. Several do scientific research on a wide range of topics related to mental processes and behavior, and typically work in university psychology departments or teach in other academic settings (e.g., medical schools, hospitals). Some are employed in industrial and organizational settings, or in other areas such as human development and aging, sports, health, and the media, as well as in forensic investigation and other characteristics of law.

HISTORY

The study of psychology in a philosophical context dates back to the ancient civilizations of Egypt, Greece, China, India, and Persia. As early as the 4th century BC, Greek physician Hippocrates theorized that mental disorders were of a physical, rather than divine, nature.

Structuralism

German physician Wilhelm Wundt is credited with introducing psychological detection into a laboratory setting. Recognized as the "father of experimental psychology", he founded the first psychological laboratory, at Leipzig University, in 1879. Wundt focused on breaking down mental processes into the most basic components, motivated in part through an analogy to recent advances in chemistry, and its successful investigation of the elements and structure of material. Although Wundt, himself, was not a structuralist, his student Edward Titchener, a major figure in early American

psychology, was a structuralist thinker opposed to functionalist approaches.

Functionalism

Functionalism formed as a reaction to the theories of the structuralist school of thought and was heavily influenced through the work of the American philosopher, scientist, and psychologist William James. James felt that psychology should have practical value, and that psychologists should find out how the mind can function to a person's benefit. In his book, *Principles of Psychology*, published in 1890, he laid the foundations for several of the questions that psychologists would explore for years to come. Other major functionalist thinkers incorporated John Dewey and Harvey Carr.

Other 19th-century contributors to the field contain the German psychologist Hermann Ebbinghaus, a pioneer in the experimental study of memory, who urbanized quantitative models of learning and forgetting at the University of Berlin, and the Russian-Soviet physiologist Ivan Pavlov, who exposed in dogs a learning process that was later termed "classical conditioning" and applied to human beings.

Starting in the 1950s, the experimental techniques urbanized through Wundt, James, Ebbinghaus, and others re-appeared as experimental psychology became increasingly cognitivist—concerned with information and its processing—and, eventually, constituted a part of the wider cognitive science. In its early years, this development was seen as a "revolution," as cognitive science both responded to and reacted against then-popular theories, including psychoanalytic and behaviorist theories.

Psychoanalysis

From the 1890s until his death in 1939, the Austrian physician Sigmund Freud urbanized psychoanalysis, which comprised a method of investigating the mind and interpreting experience; a systematized set of theories in relation to the human behavior; and a form of psychotherapy to treat psychological or emotional distress, especially unconscious conflict. Freud's psychoanalytic theory was largely based on interpretive methods, introspection, and clinical observations. It became very well recognized, largely because it tackled subjects such as sexuality, repression, and the unconscious mind as general characteristics of psychological development. These were largely measured taboo subjects at the time, and Freud provided a catalyst for them to be openly discussed in polite society. Clinically, Freud helped to pioneer the method of free association and a therapeutic interest in dream interpretation. Freud had an important influence on Swiss psychiatrist Carl Jung, whose analytical psychology became an alternative form of depth psychology. Other well-recognized psychoanalytic scholars of the mid-20th century incorporated psychoanalysts, psychologists, psychiatrists, and philosophers. Among these

thinkers were Erik Erikson, Melanie Klein, D.W. Winnicott, Karen Horney, Erich Fromm, John Bowlby, and Sigmund Freud's daughter, Anna Freud. Throughout the 20th century, psychoanalysis evolved into diverse schools of thought, most of which may be classed as Neo-Freudian.

Psychoanalytic theory and therapy were criticized through psychologists such as Hans Eysenck, and through philosophers including Karl Popper. Popper, a philosopher of science, argued that psychoanalysis had been misrepresented as a scientific discipline, whereas Eysenck said that psychoanalytic tenets had been contradicted through experimental data. Meanwhile, though, researchers in the emerging field of neuro-psychoanalysis defended some of Freud's ideas on scientific grounds, while scholars of the humanities maintained that Freud was not a "scientist at all, but ... an interpreter."

Behaviorism

In the United States, behaviorism became the dominant school of thought throughout the 1950s. Behaviorism is a discipline that was established in the early 20th century through John B. Watson, and embraced and extended through Edward Thorndike, Clark L. Hull, Edward C. Tolman, and later B.F. Skinner. Theories of learning accentuated the methods in which people might be predisposed, or conditioned, through their environments to behave in certain methods.

Classical conditioning was an early behaviorist model. It posited that behavioral tendencies are determined through immediate associations flanked by several environmental stimuli and the degree of pleasure or pain that follows. Behavioral patterns, then, were understood to consist of organisms' conditioned responses to the stimuli in their environment. The stimuli were held to exert influence in proportion to their prior repetition or to the previous intensity of their associated pain or pleasure. Much research consisted of laboratory-based animal experimentation, which was increasing in popularity as physiology grew more sophisticated.

Skinner's behaviorism shared with its precursors a philosophical inclination toward positivism and determinism. He whispered that the contents of the mind were not open to scientific scrutiny and that scientific psychology should emphasize the study of observable behavior. He focused on behavior–environment relations and analyzed overt and covert (i.e., private) behavior as a function of the organism interacting with its environment. Behaviorists usually rejected or deemphasized dualistic explanations such as "mind" or "consciousness"; and, in lieu of probing an "unconscious mind" that underlies unawareness, they spoke of the "contingency-shaped behaviors" in which unawareness becomes outwardly manifest.

Notable incidents in the history of behaviorism are John B. Watson's Little Albert experiment which applied classical conditioning to the developing

human child, and the clarification of the difference flanked by classical conditioning and operant (or instrumental) conditioning, first through Miller and Kanorski and then through Skinner. Skinner's version of behaviorism accentuated operant conditioning, through which behaviors are strengthened or weakened through their consequences.

Linguist Noam Chomsky's critique of the behaviorist model of language acquisition is widely regarded as a key factor in the decline of behaviorism's prominence. Martin Seligman and colleagues exposed that the conditioning of dogs led to outcomes ("learned helplessness") that opposed the predictions of behaviorism. But Skinner's behaviorism did not die, perhaps in part because it generated successful practical applications. The fall of behaviorism as an overarching model in psychology, though, gave method to a new dominant paradigm: cognitive approaches.

Humanistic

Humanistic psychology was urbanized in the 1950s in reaction to both behaviorism and psychoanalysis. Through using phenomenology, intersubjectivity and first-person categories, the humanistic approach sought to glimpse the whole person—not just the fragmented parts of the personality or cognitive functioning. Humanism focused on fundamentally and uniquely human issues, such as individual free will, personal growth, self-actualization, self-identity, death, aloneness, freedom, and meaning. The humanistic approach was distinguished through its emphasis on subjective meaning, rejection of determinism, and concern for positive growth rather than pathology. Some of the founders of the humanistic school of thought were American psychologists Abraham Maslow, who formulated a hierarchy of human needs, and Carl Rogers, who created and urbanized client-centered therapy. Later, positive psychology opened up humanistic themes to scientific manners of exploration.

Gestalt

Wolfgang Kohler, Max Wertheimer and Kurt Koffka co-founded the school of Gestalt psychology. This approach is based upon the thought that individuals experience things as unified wholes. This approach to psychology began in Germany and Austria throughout the late 19th century in response to the molecular approach of structuralism. Rather than breaking down thoughts and behavior to their smallest element, the Gestalt position maintains that the whole of experience is significant, and the whole is different than the sum of its parts. Gestalt psychology should not be confused with the Gestalt therapy of Fritz Perls, which is only peripherally connected to Gestalt psychology.

Existentialism

In the 1950s and 1960s, largely influenced through the work of German philosopher Martin Heidegger and Danish philosopher Søren Kierkegaard, psychoanalytically trained American psychologist Rollo May pioneered an existential branch of psychology, which incorporated existential psychotherapy, a method of therapy that operates on the belief that inner conflict within a person is due to that individual's confrontation with the givens of subsistence.

Existential psychologists differed from others often classified as humanistic in their comparatively neutral view of human nature and in their relatively positive assessment of anxiety. Existential psychologists accentuated the humanistic themes of death, free will, and meaning, suggesting that meaning can be shaped through myths, or narrative patterns, and that it can be encouraged through an acceptance of the free will requisite to an authentic, albeit often anxious, regard for death and other future prospects.

Austrian existential psychiatrist and Holocaust survivor Viktor Frankl drew proof of meaning's therapeutic power from reflections garnered from his own internment, and he created a difference of existential psychotherapy described logotherapy, a type of existentialist analysis that focuses on a *will to meaning* (in one's life), as opposed to Adler's Nietzschean doctrine of *will to power* or Freud's *will to pleasure*.

In addition to May and Frankl, Swiss psychoanalyst Ludwig Binswanger and American psychologist George Kelly may be said to belong to the existential school.

Cognitivism

Cognitive psychology is the branch of psychology that studies mental processes including problem solving, perception, memory, and learning. As part of the superior field of cognitive science, this branch of psychology is related to other disciplines including neuroscience, philosophy, and linguistics.

Noam Chomsky helped to launch a "cognitive revolution" in psychology when he criticized the behaviorists' notions of "incentive", "response", and "reinforcement". Chomsky argued that such ideas—which Skinner had borrowed from animal experiments in the laboratory—could be applied to intricate human behavior, most notably language acquisition, in only a superficial and vague manner. The postulation that humans are born with the instinct or "innate facility" for acquiring language posed a challenge to the behaviorist position that all behavior, including language, is contingent upon learning and reinforcement. Social learning theorists, such as Albert Bandura, argued that the child's environment could create contributions of its own to the behaviors of an observant subject.

Meanwhile, accumulating technology helped to renew interest and belief

in the mental states and representations—i.e., the cognition—that had fallen out of favor with behaviorists. English neuroscientist Charles Sherrington and Canadian psychologist Donald O. Hebb used experimental methods to link psychological phenomena with the structure and function of the brain. With the rise of computer science and artificial intelligence, analogies were drawn flanked by the processing of information through humans and information processing through machines. Research in cognition had proven practical since World War II, when it aided in the understanding of weapons operation. Through the late 20th century, though, cognitivism had become the dominant paradigm of psychology, and cognitive psychology appeared as a popular branch.

Assuming both that the covert mind should be studied, and that the scientific method should be used to study it, cognitive psychologists set such concepts as *subliminal processing* and *implicit memory* in place of the psychoanalytic *unconscious mind* or the behavioristic *contingency-shaped behaviors*. Elements of behaviorism and cognitive psychology were synthesized to form the basis of cognitive behavioral therapy, a form of psychotherapy customized from techniques urbanized through American psychologist Albert Ellis and American psychiatrist Aaron T. Beck. Cognitive psychology was subsumed beside with other disciplines, such as philosophy of mind, computer science, and neuroscience, under the cover discipline of cognitive science.

SUBFIELDS

Psychology encompasses a vast domain and comprises several different approaches to the study of mental processes and behavior.

Biological

Biological psychology or behavioral neuroscience is the study of the biological substrates of behavior and mental processes. There are different specialties within behavioral neuroscience. For instance, physiological psychologists use animal models, typically rats, to study the neural, genetic, and cellular mechanisms that underlie specific behaviors such as learning and memory and fear responses. Cognitive neuroscientists investigate the neural correlates of psychological processes in humans using neural imaging tools, and neuro-psychologists conduct psychological assessments to determine, for instance, specific characteristics and extent of cognitive deficit caused through brain damage or disease.

Clinical

Clinical psychology comprises the study and application of psychology for

the purpose of understanding, preventing, and relieving psychologically based distress or dysfunction and to promote subjective well-being and personal development. Central to its practice are psychological assessment and psychotherapy, although clinical psychologists may also engage in research, teaching, consultation, forensic testimony, and program development and administration. Some clinical psychologists may focus on the clinical management of patients with brain injury—this area is recognized as clinical neuro-psychology. In several countries, clinical psychology is a regulated mental health profession.

The work performed through clinical psychologists tends to be influenced through several therapeutic approaches, all of which involve a formal relationship flanked by professional and client (usually an individual, couple, family, or small group). The several therapeutic approaches and practices are associated with different theoretical perspectives and employ different procedures planned to form a therapeutic alliance, explore the nature of psychological problems, and encourage new methods of thinking, feeling, or behaving. Four major theoretical perspectives are psychodynamic, cognitive behavioral, existential–humanistic, and systems or family therapy. There has been a rising movement to integrate the several therapeutic approaches, especially with an increased understanding of issues concerning culture, gender, spirituality, and sexual orientation. With the advent of more robust research findings concerning psychotherapy, there is proof that most of the major therapies are in relation to equal effectiveness, with the key common element being a strong therapeutic alliance. Because of this, more training programs and psychologists are now adopting an eclectic therapeutic orientation.

Cognitive

Cognitive psychology studies cognition, the mental processes underlying mental activity. Perception, attention, reasoning, thinking, problem solving, memory, learning, language, and emotion are areas of research. Classical cognitive psychology is associated with a school of thought recognized as cognitivism, whose adherents argue for an information processing model of mental function, informed through functionalism and experimental psychology.

On a broader level, cognitive science is an interdisciplinary enterprise of cognitive psychologists, cognitive neuroscientists, researchers in artificial intelligence, linguists, human–computer interaction, computational neuroscience, logicians and social scientists. Computational models are sometimes used to simulate phenomena of interest. Computational models give a tool for studying the functional organization of the mind whereas neuroscience gives measures of brain activity.

Comparative

Comparative psychology refers to the scientific study of the behavior and mental processes of non-human animals, especially as these relate to the phylogenetic history, adaptive significance, and development of behavior. Research in this area addresses several different issues, uses several different methods, and explores the behavior of several different species, from insects to primates. It is closely related to other disciplines that study animal behavior such as ethology. Research in comparative psychology sometimes appears to shed light on human behavior, but some attempts to connect the two have been quite controversial, for instance the Sociobiology of E. O. Wilson. Animal models are often used to study neural processes related to human behavior, e.g. in cognitive neuroscience.

Developmental

Mainly focusing on the development of the human mind through the life span, developmental psychology seeks to understand how people come to perceive, understand, and act within the world and how these processes change as they age. This may focus on cognitive, affective, moral, social, or neural development. Researchers who study children use a number of unique research methods to create observations in natural settings or to engage them in experimental tasks. Such tasks often resemble specially intended games and activities that are both enjoyable for the child and scientifically useful, and researchers have even devised clever methods to study the mental processes of infants. In addition to studying children, developmental psychologists also study aging and processes throughout the life span, especially at other times of rapid change (such as adolescence and old age). Developmental psychologists draw on the full range of psychological theories to inform their research.

Educational and school

Educational psychology is the study of how humans learn in educational settings, the effectiveness of educational interventions, the psychology of teaching, and the social psychology of schools as organizations. The work of child psychologists such as Lev Vygotsky, Jean Piaget, Bernard Luskin, and Jerome Bruner has been influential in creating teaching methods and educational practices. Educational psychology is often incorporated in teacher education programs in places such as North America, Australia, and New Zealand.

School psychology combines principles from educational psychology and clinical psychology to understand and treat students with learning disabilities; to foster the intellectual growth of gifted students; to facilitate prosocial

behaviors in adolescents; and otherwise to promote safe, supportive, and effective learning environments. School psychologists are trained in educational and behavioral assessment, intervention, prevention, and consultation, and several have extensive training in research.

Evolutionary

Evolutionary psychology examines psychological traits—such as memory, perception, or language—from a modern evolutionary perspective. It seeks to identify which human psychological traits are evolved adaptations, that is, the functional products of natural selection or sexual selection. Evolutionary psychologists suggest that psychological adaptations evolved to solve recurrent problems in human ancestral environments. Through focusing on the evolution of psychological traits and their adaptive functions, it offers complementary explanations for the mostly proximate or developmental explanations urbanized through other areas of psychology (that is, it focuses mostly on ultimate or "why?" questions, rather than proximate or "how?" questions).

Industrial–organizational

Industrial and organizational psychology (I–O) applies psychological concepts and methods to optimize human potential in the workplace. Personnel psychology, a subfield of I–O psychology, applies the methods and principles of psychology in selecting and evaluating workers. I–O psychology's other subfield, organizational psychology, examines the effects of work environments and management styles on worker motivation, job satisfaction, and productivity.

Personality

Personality psychology is concerned with enduring patterns of behavior, thought, and emotion—commonly referred to as personality—in individuals. Theories of personality vary crossways different psychological schools and orientations. They carry different assumptions in relation to the issues as the role of the unconscious and the importance of childhood experience. According to Freud, personality is based on the dynamic interactions of the id, ego, and super-ego. The number of proposed traits has varied widely. An early model, proposed through Hans Eysenck, suggested that there are three traits which comprise human personality: extraversion–introversion, neuroticism, and psychoticism. Raymond Cattell proposed a theory of 16 personality factors. Dimensional models of personality are getting increasing support, and some version of dimensional assessment will be incorporated in the

forthcoming DSM-V.

Social

Social psychology is the study of how humans think in relation to the each other and how they relate to each other. Social psychologists study such topics as the influence of others on an individual's behavior (e.g. conventionality, persuasion), and the formation of beliefs, attitudes, and stereotypes in relation to the other people. Social cognition fuses elements of social and cognitive psychology in order to understand how people process, keeps in mind, or distort social information. The study of group dynamics reveals information in relation to the nature and potential optimization of leadership, communication, and other phenomena that emerge at least at the micro social level. In recent years, several social psychologists have become increasingly interested in implicit measures, mediational models, and the interaction of both person and social variables in accounting for behavior. The study of human society is so a potentially valuable source of information in relation to the causes of psychiatric disorder. Some of the sociological concepts applied to psychiatric disorders are the social role, sick role, social class, life event, culture, migration, social, and total institution.

Positive

Positive psychology derives from Maslow's humanistic psychology. Positive psychology is a discipline that utilizes proof -based scientific methods to study factors that contribute to human happiness and strength. Different from clinical psychology, positive psychology is concerned with improving the mental well-being of healthy clients. Positive psychological interventions now have received tentative support for their beneficial effects on clients. In 2010 *Clinical Psychological Review* published a special issue devoted to positive psychological interventions, such as gratitude journaling and the physical expression of gratitude. There is, though, a need for further research on the effects of interventions. Positive psychological interventions have been limited in scope, but their effects are thought to be superior to that of placebos, especially with regard to helping people with body image problems.

METHODS OF PSYCHOLOGY

Psychology tends to be eclectic, drawing on knowledge from other fields to help explain and understand psychological phenomena. Additionally, psychologists create extensive use of the three manners of inference that were recognized through C. S. Peirce: deduction, induction, and abduction (hypothesis generation). While often employing deductive–nomological reasoning, they also rely on inductive reasoning to generate explanations.

Psychologists may conduct basic research aiming for further understanding

in a scrupulous area of interest in psychology, or conduct applied research to solve problems in the clinic, workplace or other areas. Masters level clinical programs aim to train students in both research methods and proof -based practice. Professional associations have established guidelines for ethics, training, research methodology and professional practice. In addition, depending on the country, state or region, psychological services and the title "psychologist" may be governed through statute and psychologists who offer services to the public are usually required to be licensed.

Qualitative and quantitative research

Research in most areas of psychology is mannered in accord with the standards of the scientific method. Psychological researchers seek the emergence of theoretically motivating categories and hypotheses from data, using qualitative or quantitative methods (or both).

Qualitative psychological research methods contain interviews, first-hand observation, and participant observation. Creswell (2003) identifies five main possibilities for qualitative research, including narrative, phenomenology, ethnography, case study, and grounded theory. Qualitative researchers sometimes aim to enrich interpretations or critiques of symbols, subjective experiences, or social structures. Similar hermeneutic and critical aims have also been served through "quantitative methods", as in Erich Fromm's study of Nazi voting or Stanley Milgram's studies of obedience to authority.

Quantitative psychological research lends itself to the statistical testing of hypotheses. Quantitatively oriented research designs contain the experiment, quasi-experiment, cross-sectional study, case-control study, and longitudinal study. The measurement and operationalization of significant constructs is an essential part of these research designs. Statistical methods contain the Pearson product-moment correlation coefficient, the analysis of variance, multiple linear regression, logistic regression, structural equation modeling, and hierarchical linear modeling.

Controlled experiments

Experimental psychological research is mannered in a laboratory under controlled circumstances. This method of research relies on the application of the scientific method to understand behavior. Experimenters use many types of measurements, including rate of response, reaction time, and several psychometric measurements. Experiments are intended to test specific hypotheses (deductive approach) or evaluate functional relationships (inductive approach). A true experiment with random allocation of subjects to circumstances allows researchers to infer causal relationships flanked by different characteristics of behavior and the environment. In an experiment, one or more variables of interest are controlled through the experimenter

(independent variable) and another variable is measured in response to different circumstances (dependent variable). Experiments are one of the primary research methods in several areas of psychology, particularly cognitive/psychonomics, mathematical psychology, psychophysiology and biological psychology/cognitive neuroscience.

Experiments on humans have been put under some controls, namely informed and voluntary consent. After World War II, the Nuremberg Code was established because of Nazi abuses of experimental subjects. Later, most countries (and scientific journals) adopted the Declaration of Helsinki. In the U.S., the National Institutes of Health established the Institutional Review Board in 1966 and in 1974 adopted the National Research Act (HR 7724). All of these measures encouraged researchers to obtain informed consent from human participants in experimental studies. A number of influential studies led to the establishment of this rule; such studies incorporated the MIT and Fernald School radioisotope studies, the Thalidomide tragedy, the Willowbrook hepatitis study, and Stanley Milgram's studies of obedience to authority.

Survey questionnaires

Statistical surveys are used in psychology for measuring attitudes and traits, monitoring changes in mood, checking the validity of experimental manipulations, and for a wide diversity of other psychological topics. Most commonly, psychologists use paper-and-pencil surveys. Though, surveys are also administered over the phone or through e-mail. Increasingly, web-based surveys are being used in research for its convenience and also to get a wide range of participants. Similar methodology is also used in applied settings, such as clinical assessment and personnel assessment.

Longitudinal studies

Longitudinal studies are often used in psychology to study developmental trends crossways the life span, and in sociology to study life events throughout lifetimes or generations. The cause for this is that unlike cross-sectional studies, longitudinal studies track the same people, and so the differences observed in those people are less likely to be the result of cultural differences crossways generations. Because of this benefit, longitudinal studies create observing changes more accurate and they are applied in several other fields.

Because most longitudinal studies are observational, in the sense that they observe the state of the world without manipulating it, it has been argued that they may have less power to detect causal relationships than do experiments. They also suffer methodological limitations such as from selective attrition because people with similar characteristics may be more likely to drop out of the study making it hard to analyze.

Some longitudinal studies are experiments, described repeated-measures experiments. Psychologists often use the crossover design to reduce the influence of confounding covariates and to reduce the number of subjects.

Observation in natural settings

Just as Jane Goodall studied chimpanzee social and family life through careful observation of chimpanzee behavior in the field, psychologists conduct observational studies of ongoing human social, professional, and family life. Sometimes the participants are aware they are being observed, and other times the participants do not know they are being observed. Strict ethical guidelines necessity is followed when covert observation is being accepted out.

Qualitative and descriptive research

Research intended to answer questions in relation to the current state of affairs such as the thoughts, feelings, and behaviors of individuals is recognized as *descriptive research*. Descriptive research can be qualitative or quantitative in orientation. *Qualitative research* is descriptive research that is focused on observing and describing events as they occur, with the goal of capturing all of the richness of everyday behavior and with the hope of discovering and understanding phenomena that might have been missed if only more cursory examinations have been made.

Neuropsychological methods

Neuropsychological research methods are employed in studies that examine the relation of mental activity and behavior to the structure and function of the brain. These methods contain testing (e.g., the several Wechsler scales, Wisconsin Card Sorting Test), functional neuroimaging, and transcranial magnetic stimulation.

Computational modeling

Computational modeling is a tool often used in mathematical psychology and cognitive psychology to simulate a scrupulous behavior using a computer. This method has many advantages. Since modern computers process information very quickly, several simulations can be run in a short time, allowing for a great deal of statistical power. Modeling also allows psychologists to visualize hypotheses in relation to the functional organization of mental events that couldn't be directly observed in a human.

Many different types of modeling are used to study behavior. Connectionism uses neural networks to simulate the brain. Another method is

symbolic modeling, which represents several different mental objects using variables and rules. Other types of modeling contain dynamic systems and stochastic modeling.

Animal studies

In the 1890s, Russian physiologist Ivan Pavlov famously used dogs to demonstrate classical conditioning. Non-human primates, cats, dogs, pigeons, rats, and other rodents are often used in psychological experiments. Ideally, controlled experiments introduce only one independent variable at a time, in order to ascertain its unique effects upon dependent variables. These circumstances are approximated best in laboratory settings. In contrast, human environments and genetic backgrounds vary so widely, and depend upon so several factors, that it is hard to control significant variables for human subjects. Of course, there are pitfalls in generalizing findings from animal studies to humans through animal models.

CRITICISM

Theory

Criticisms of psychological research often come from perceptions that it is a "soft" science. Philosopher of science Thomas Kuhn's 1962 critique implied psychology overall was in a pre-paradigm state, lacking the agreement on overarching theory found in mature sciences such as chemistry and physics.

Because some areas of psychology rely on research methods such as surveys and questionnaires, critics have asserted that psychology is not an objective science. Other concepts that psychologists are interested in, such as personality, thinking, and emotion, cannot be directly measured and are often inferred from subjective self-reports, which may be problematic.

Some critics view statistical hypothesis testing as misplaced. Research has documented that several psychologists confuse statistical significance with practical importance. Statistically important but practically unimportant results are common with large samples. Some psychologists have responded with an increased use of effect size statistics, rather than sole reliance on the Fisherian $p < .05$ significance criterion (whereby an observed difference is deemed "statistically important" if an effect of that size or superior would occur with 5% -or less- probability in independent replications, assuming the truth of the null-hypothesis of no difference flanked by the treatments). False positive conclusions, often resulting from the pressure to publish or the author's own confirmation bias, are an inherent hazard in the field, requiring a certain degree of skepticism on the part of readers.

Sometimes the debate comes from within psychology, for instance flanked

by laboratory-oriented researchers and practitioners such as clinicians. In recent years, and particularly in the U.S., there has been increasing debate in relation to the nature of therapeutic effectiveness and in relation to the relevance of empirically examining psychotherapeutic strategies.

Practice

Some observers perceive a gap flanked by scientific theory and its application—in scrupulous, the application of unsupported or unsound clinical practices. Critics say there has been an augment in the number of mental health training programs that do not instill scientific competence. One skeptic asserts that practices, such as "facilitated communication for infantile autism"; memory-recovery techniques including body work; and other therapies, such as rebirthing and reparenting, may be dubious or even dangerous, despite their popularity. In 1984, Allen Neuringer made a similar point concerning the experimental analysis of behavior.

Ethical standards

Current ethical standards of psychology would not permit some studies to be mannered today. These human studies would violate the Ethics Code of the American Psychological Association, the Canadian Code of Conduct for Research Involving Humans, and the Belmont Report. Current ethical guidelines state that using non-human animals for scientific purposes is only acceptable when the harm (physical or psychological) done to animals is outweighed through the benefits of the research. Keeping this in mind, psychologists can use on animals research techniques that could not be used on humans.

- An experiment through Stanley Milgram raised questions in relation to the ethics of scientific experimentation because of the extreme emotional stress suffered through the participants. It measured the willingness of study participants to obey an authority figure who instructed them to perform acts that conflicted with their personal conscience.
- Harry Harlow drew condemnation for his "pit of despair" experiments on rhesus macaque monkeys at the University of Wisconsin–Madison in the 1970s. The aim of the research was to produce an animal model of clinical depression. Harlow also devised what he described a "rape rack", to which the female isolates were tied in normal monkey mating posture. In 1974, American literary critic Wayne C. Booth wrote that, "Harry Harlow and his colleagues go on torturing their nonhuman primates decade after decade, invariably proving what we all knew in advance—that social creatures can be destroyed through destroying their social ties." He writes that Harlow made no mention of the criticism of the morality of his work.

University psychology departments have ethics committees dedicated to the rights and well-being of research subjects. Researchers in psychology necessity gain approval of their research projects before conducting any experiment to protect the interests of human participants and laboratory animals.

Systemic bias

In 1959 statistician Theodore Sterling examined the results of psychological studies and exposed that 97% of them supported their initial hypotheses, implying a possible publication bias. Similarly, Fanelli (2010) found that 91.5% of psychiatry/psychology studies confirmed the effects they were looking for, and concluded that the odds of this happening (a positive result) was approximately five times higher than in fields such as space- or geosciences. Fanelli argues that this is because researchers in "softer" sciences have fewer constraints to their conscious and unconscious biases.

In 2010, a group of researchers reported a systemic bias in psychology studies towards WEIRD ("western, educated, industrialized, rich and democratic") subjects. Although only 1/8 people worldwide fall into the WEIRD classification, the researchers claimed that 60–90% of psychology studies are performed on WEIRD subjects. The article gave examples of results that differ significantly flanked by WEIRD subjects and tribal cultures, including the Müller-Lyer illusion.

WORK OF PSYCHOLOGISTS

Psychologists have several skills and give several different types of services.

- Clinical Psychologists give counseling and psychotherapy. They work with people who have life adjustment problems, and also with those who have emotional disorders or mental illness. They give treatment for people of all ages and to families and to groups. Psychologists give treatment for depression, anxiety, phobias, panic disorders, eating disorders, stress related problems, relationship problems, and severe mental disorders.
- Clinical Psychologists give diagnostic assessment or "testing" services. Using interviews, questionnaires, and measurement tools, they can chart an individual's skills, personality features and personality style, emotional status and emotional style, or problems they may be having in adjusting to life. These measurements are often essential for clarifying the diagnosis of a mental illness or an addiction.
- Educational Psychologists, School Psychologists, and Clinical Psychologists give "psycho educational" testing. With the use of IQ tests and tests of academic aptitude and achievement, they can identify

academic strengths and weaknesses. Sometimes these tools are used to identify "gifted" students, and sometimes they are used to identify specific learning disorders or developmental learning problems. Evaluations relating to learning issues also regularly involve the assessment of Attention Deficit Disorder (ADD) or Attention Deficit, Hyperactivity Disorder (ADHD).

- Health Psychologists and Clinical Psychologists seek to understand the relationship flanked by medical complaints and psychological factors. They assist in preparing patients to cope with surgery and to adjust to medical problems. They work with patients who are having difficulty meeting the social and emotional demands of their medical treatment. They also give treatment to individuals whose medical problems are related to psychological and emotional factors, or who are suffering from chronic pain.
- Neuropsychologists diagnose mental and behavioral problems that are related to brain injuries. Using precise tests of mental functioning, they can determine how the brain is functioning and how and where it might have been injured as a result of trauma.
- Forensic psychologists give consultation to Courts and attorneys in all different types of legal proceedings. Several work as experts in the area of criminal law. Others give expertise in personal injury suits, sexual harassment cases, child custody matters, and workers compensation cases.
- Organizational Psychologists focus on the productivity of groups and individuals in the workplace. They work to improve the functioning of organizations, and to promote the health of individuals within the organization. They also conduct research on "human factors" or the interaction flanked by people and machines.
- Sports Psychologists give training to enhance the performance of teams and individual competitors.
- Psychologists work to understand and improve the functioning of human beings at home, at school, at work, at play, in their religious pursuits, and in society in general. Psychologists are involved in every aspect of human thought, feeling and behavior.

SCHOOLS OF PSYCHOLOGY

Early Schools of Psychology

Formal ideas in relation to behaviour and mind in western culture began with the classical Greek philosophers and have sustained to this day as part of the fabric philosophy. Psychology, as a separate area of study, split absent from philosophy a little over 130 years ago. The successes of the experimental

method in the physical sciences encouraged some philosophers to think that mind and behaviour could be studied with scientific methods. As we know, the first psychological laboratory was set up through Wundt in 1879, at the University of Leipzig, Germany.

In the United States, the first formal psychology laboratory was established at John Hopkins University in 1883. Within a few years, most major universities had psychology laboratories and departments. The well-known text book in psychology titled “The Principles of Psychology” was written through William James in 1890. Wundt, James, and the then other psychologists thought of psychology as the study of mind. They attempted to find the laws relating to events in the physical world to a person’s mental experience of those external events. For this, they did several experiments in the areas of imagery, memory, thinking, and emotion. Though, in the first decades of the twentieth century, psychologists hold quite different views concerning the nature of mind and the best methods to study mind. In relation to the same time, fundamental questions were raised in relation to what should be studied in psychology:

Should psychology be the study of mind, should it study behaviour, or should both mind and behaviour be incorporated? Different influential psychologists of the time held quite different views on the nature of mind and the proper subject matter for psychology. Schools of thought formed approximately these leaders, as their students adopted their ideas. These schools of thought are recognized as the schools of psychology; they set the direction for much of the research on mind and behaviour in the early years of twentieth century. Given below are the early schools of thought: Structuralism, Gestalt Psychology, Functionalism, Behaviorism, and Psychoanalysis.

Structuralism

This early school, the structural school of psychology grew up approximately the ideas of Wilhelm Wundt, in Germany and was established at Cornell University in the United States through one of Wundt’s students, Titchener. Structuralism emphasized that the subject matter of psychological research consists of images, thoughts, and feelings, which are the elements, forming the structure of consciousness. The goal of the structuralists was to find the units, or elements, which create up the mind. They thought that as in Chemistry, a first step in the study of the mind should be a description of the basic, or elementary, units of sensation, image, and emotion which compose it. For instance, the structuralists did experiments to find the elementary sensations—such as red, cold, sweet and fragrant, for instance—which give the basis of more intricate mental experiences. The main method used through the structuralists to discover these elementary units of mind was *introspection*. Participants were trained to report as objectively as possible, what they experienced in connection with a certain incentive, disregarding the meanings

they had come to associate with that incentive. A respondent might, for instance, be presented with a colored light, a tone, or an odor and asked to describe it as minutely as possible. These experiments have given us a great deal of information in relation to the kinds of sensations people have, but other psychologists of the time, challenged the thought that the mind could be understood through finding its elements and the rules for combining them. Still others turned absent from describing the structure of the mind to study how the mind functioned.

Gestalt Psychology

This school of Psychology was founded in Germany in relation to the 1912 through Max Wertheimer and his colleagues Kurt Koffka and Wolfgang Kohler. These pioneer psychologists felt that structuralists were wrong in thinking of the mind as being made up of elements. They maintained that the mind is not made up of a combination of simple elements. The German word Gestalt means “form” or “configuration” and the Gestalt psychologists maintained that the mind should be thought of as resulting from the whole pattern of sensory activity and the relationships and organisations within this pattern. For instance, we recognize a tune when it is transposed to another key; the elements have changed, but the pattern of relationships has stayed the same. Or, to take yet another instance, when you look at the dots in figure below, your mental experience is not just the dots, or elements, but of a square and a triangle sitting on a line.

It is the organisation of the dots and their relationships that determine the mental experience you have. Therefore, the point made through the Gestalt psychologists in their opposition to structuralism was, mental experience depends on the patterning and organisation of elements and is not due simply to the compounding of elements. In simpler words, according to the Gestalt psychologists, the mind are best understood in conditions of the methods elements are organized. Gestaltists were mainly concerned in relation to the element of form or organisation which unifies behaviour, particularly perceptual behaviour.

Functionalism

As the name implies, functionalists were interested in studying the functions of mind and behaviour rather than limiting themselves to the description and analysis of mind. They proposed that psychology should focus on “what mind and behaviour do” (function of mind) and not on the “structure” of mind. Their interest was to study behaviour, as a dynamic, integrated process. Influenced through Darwin’s ideas and theory of evolution, functionalists were, specifically, interested in the fact that mind and behaviour were *adaptive*, as they enable us to adjust to a changing environment. They

did experiments on the methods in which learning, memory, problem solving and motivation help people and animals adapt to their environments.

Behaviorism

This school of psychology was propounded through John B. Watson, who was at Johns Hopkins University for several years. Watson rejected the thought that mind should be the subject of psychology, and instead, emphasized that psychology be restricted to the study of *behaviour* – the observable (or potentially observable) activities of people and animals. There are four significant characteristics of behaviorism.

- First, its focus on behaviour, as the proper subject matter of psychology.
- Second, it emphasized on conditioned responses (learned responses) as the elements or building blocks, of behaviour. Watson whispered that intricate human and animal behaviour is approximately entirely made up of conditioned responses.
- A third closely related characteristic of behaviorism was its emphasis on learned rather than unlearned, behaviour. It denied the subsistence of any innate, or inborn, behavioral tendencies.
- Finally, the fourth characteristic of behaviorism was its focus on animal behaviour.

Watson argued that there are no essential differences flanked by human and animal behaviour. He also whispered that we can learn much in relation to our own behaviour from the study of what animals do.

Psychoanalysis

It was founded through the well-known psychiatrist Sigmund Freud, in Vienna, Austria. Psychoanalysis has had an important impact on the thinking and theorizing of several psychologists. So, several authors have incorporated psychoanalysis in the early schools of psychology, even if, strictly speaking, it is not a school of psychology. Freud urbanized a theory of behaviour and mind (the psychoanalytic theory), on the basis of his practice with neurotic patients, which held that much of what we think and do is due to our urges, drives, and desires, which seek expressions in our thought and behaviour. It is significant to note that, according to psychoanalytic theory, these urges and drives are unconscious, i.e., they are hidden from our awareness. What is seen in behaviour and thought of people is the expression of these unconscious drives, urges, wishes, and desires. Therefore, the concept of *unconscious motivation* is the key thought of psychoanalysis, which is still being utilized, as one of the explanations of behaviour. The above schools of thought are part of the history

of psychology. We will now look at the modern perspectives of psychology.

Modern Perspectives of Psychology

Though the early schools of psychology are more than 100 year old, two of them; *behaviorism* and *psychoanalysis*, are still surviving in customized forms, among the current psychological perspectives. Beside with these two, some new perspectives have come up in the last 130 years or so. In order to understand and describe behaviour, psychologists now have a rich diversity of viewpoints to choose from. The perspective taken depends on how the psychologist is observing and interpreting a scrupulous behaviour and also on what aspect of behaviour is being studied. Certain perspectives are more appropriate for some scrupulous behaviour than others. Moreover, a scrupulous behaviour may be described through one or more than one perspective.

Let us now look at the following two examples and effort to understand how the current perspectives deal with these behavioral observations: Some relatives have come to Pappu's (a 5-year-old boy) house, throughout the vacation. Pappu, his little sister Munni and their cousins were playing in the courtyard. Pappu snatched absent the toy car from his sister. Mr. Kumar, a 59-year-old man, realizes that he is forgetting the recent events and significant meetings.

The Behavioural Perspective

The behaviour which is followed through reward or punishment is likely to augment or decrease, respectively. A psychologist with behavioral perspective might explain Pappu's behaviour that, he has learned to behave in this manner, because such behaviour (snatching toys from younger children) paid off in the past. Another form of learning is observational learning, which is an intricate process far more intricate than mere imitation-and plays a significant role in several characteristics of behaviour. A large body of research designates that aggression may indeed be learned through observation. Given the fact that several children spend more time watching television, playing violent video games, and, more recently, surfing the Web than they do in any other single activity, the potential influence of such experience on behaviour seems worthy of careful attention. Studies show conclusively that if large groups of children watch a great deal of televised violence, they will be more prone to behave aggressively.

As distant as Mr. Kumar's problem is concerned, this perspective would focus on an exact description of the changes in his behaviour. A psychologist with behavioral perspective might also effort to teach behavioral skills to this person, so that he might learn to deal with the problems caused through his

forgetfulness.

The Evolutionary and Biological Perspective

Psychologists are interested in the roles of evolution and heredity in behaviour and mental processes such as psychological disorders, criminal behaviour, and thinking. Usually speaking, our heredity gives a broad range of behavioral and mental possibilities. Modern *evolutionary* psychologists focus on the evolution of behaviour and mental processes. Charles Darwin argued that in the age-old thrash about for subsistence, only the “fittest” (most adaptive) organisms manage to reach maturity and reproduce. Environmental factors interact with inherited factors to determine specific behaviour and mental processes. From this perspective, Pappu is behaving in a manner that proves that he is strong and “fit”; he can take any thing he likes to, irrespective of whose belonging it is. Mr.Kumar’s behaviour could also be explained from this perspective. Because memory is very crucial for survival, it is a matter of concern for him.

The Biological Perspective suggests that there are some biological factors— particularly, the functions of nervous and glandular systems that influence human behaviour. Studies show that males are usually more aggressive than females; this may be related to male-female hormonal differences. Though, the research on this, in humans, gives mixed results. So, it cannot be conclusively said that Pappu, being a male, is behaving aggressively. A psychologist with biological perspective would try to understand Mr. Kumar’s problem through linking this to brain problem. Due to the ageing process much wear and tear takes place in the organs of the body, including brain. May be, Mr. Kumar is in the early stages of Alzheimer’s disease and the chemistry of the brain is at fault. Alzheimer’s disease is a kind of primary degenerative dementia in which there is a cluster of specific degenerative brain changes due to unknown causes.

The Cognitive Perspective

Explains how behaviour is determined through the method we keep in mind, think, perceive, create decisions, solve problems and comprehend our social environment etc. Cognition means perception of the world approximately us. It also refers to the processing of information which we receive through our senses. Our experience or mind is based on such processing of information. A psychologist with this perspective would effort to explain Pappu’s behaviour in conditions of his perception of Munni, as a weak little girl, who cannot fight back. Another possible explanation could come from the social learning theory. He might have seen other little boys getting absent with such aggression and may be modeling his behaviour on

their instance. Also, he perceives the situation and thinks; it is safe to behave the method he did, as no adult was likely to be present in the courtyard. Memory is the most significant focus of this perspective. So, Mr. Kumar's problem could be dealt with properly, through finding what exactly was forgotten and what was remembered, how the information processing had changed. A psychologist with this perspective would also effort to help Mr. Kumar through giving him new methods of processing incoming information for storing in his memory and later, retrieving from his memory store.

The Socio-cultural Perspective

The profession of psychology focuses mainly on the individual and is committed to the dignity of the individual. Though, several psychologists today consider we cannot understand people's behaviour and mental processes without reference to their diversity. Studying perspectives other than their own helps Psychologists understand the role of a culture's beliefs, values, and attitudes in behaviour and mental processes. It helps them perceive why people from diverse cultures behave and think in different methods, and how the science of psychology is enriched through addressing those differences. This perspective addresses several of the methods in which people differ from one another. It studies the influences of ethnicity, gender, culture, and socio-economic status on behaviour and mental processes. This perspective has not much scope to explain Pappu's behaviour. Mr.Kumar's forgetfulness is a matter of concern, as this is not accepted in any culture, particularly, if a person is in active service.

The Social Perspective

If a criminal gets recognition, position or respect in a society or community, he/she is likely to be perceived as a role model through some individuals. Pappu might have behaved in this manner to show off and get recognition. Mr. Kumar's position in society and in his community is at stake, because of his memory problem. The source of proof for social learning of aggression is found in studies that reveal differences in violence, as a function of cultural and social variables. There is, for instance, considerable proof of systematic difference in the occurrence of violent acts crossways different national cultures. Residents of some countries also show a more pervasive tendency to think of violence as means of solving problems than persons living in other countries.

Developmental Perspective

According to this perspective, behaviour is determined through the

physical growth and maturity. Certain characteristic changes occur in people (i.e. the method they think), due to the process of maturation. Sometimes, young children commit crimes but not deliberately. This may be because of their cognitive *egocentrism*, which means that children have limited skill to think in relation to the how things look or feel to others. They do not have any intention to commit crimes in a planned method. Therefore, Pappu being a 5-year-old boy, he might not have realized how his behaviour might have hurt/had hurt his sister. Even law also considers age as to whether a person will be convicted or not. In the context of legal and social definitions of crime and the criminal, Taft (1956) states that legally, a crime is an act made punishable through law. A criminal is one who has committed such a legally forbidden act. Yet there are other criteria which determine whether a person may be dealt with as a criminal. He has pointed out 5 such criteria as competent age, voluntary criminal act, criminal intent, degrees of intent, and injury to the state. Concerning Mr. Kumar's memory problem, as we have already explained in the biological perspective, it might be due to aging process.

The Humanistic Perspective

A criminal's behaviour might be seen as a part of his/her search for personal competence, achievement, and self-esteem. People who commit violent crimes may perceive that through committing such acts, they are going to achieve some thing important, such as doing justice to the society or for the cause of national security etc. In the case of Pappu, his behaviour has a little scope to be explained from this perspective. Mr. Kumar's self-esteem is though, at stake, because he might be feeling embarrassed for his forgetfulness.

The Psychoanalytic Perspective

According to Sigmund Freud, who propounded the psychoanalytic theory of personality, behaviour of human beings is largely guided through their feelings, emotions, instincts and desires which are unconscious. They are born with an aggressive drive. This innate motive gets expressed in action or fantasy, in destructiveness, war and sadism. According to this viewpoint, any impulse which is unacceptable, creates a person anxious, and then he/she uses what is described 'protection mechanism', to reduce anxiety. For instance, when a person is angry at some higher authority or someone who is very powerful, the person cannot express one's anger openly and so, may displace that anger to someone, who is weaker. This is recognized as 'displacement', which is one of the protection mechanisms. Pappu might be angry with his parents or teachers, for some reasons, and his anger is almost certainly displaced towards his sister (displacement). Mr. Kumar might also be forgetting his appointment to someone, whom he dislikes (motivated

forgetting). Any one or more than one of the above psychological perspectives, may be used to explain behaviour

ATTENTION AND PERCEPTION—CONSCIOUS CLARITY

Definition of attention

Attention is a selective mental process through which the individual brings the selected incentive in his/her focus of consciousness.

Ordinarily we speak of giving attention to objects, of concentrating attention some object or shifting attention from one object to another. This may provide the impression that attention is some faculty or power that we can use at will. But it is better to speak of attending, the act, process or function of attending rather than any power.

Psychology studies mental processes and activities but it is hard to do this without attending to them. Attending to an object is to bring that object to consciousness. To perceive an object is to bring that object to consciousness. To perceive an object, to think in relation to it, to solve some problem in relation to it, to keep in mind it and the like is not possible without attending to it. Through attending to any thing we bring it within the realm of consciousness. Attention is the heart of the conscious process and is basic to all mental activity and behavior. Attention in a method precedes all mental activity.

The field of attention is narrower than the filed of consciousness or awareness. It is concentrated awareness of a selected aspect of our environment. We are said to be attending to an object when our sense-activity is focused on any scrupulous incentive. Such stimuli stand out more prominently from the rest of the environment and are more clearly perceived.

Attention is not always fixed. Shifting is the nature of attention. Attention is always fluctuating and shifting, our interest and needs are changing and they affect the process of attending, and then some outside objects through their force and intensity compel attention.

Attention is not just looking on. It is an active process, involving provide-and-take with the environment. When we attend to anything we are inclined to do something in relation to it is it simply to keep it before our mind or to remove it from consciousness.

Attention is a process of adjustment. Through attending the individual adjust himself inner needs or to outer stimuli.

Importance of attention

It is often of great importance to the individual whether he attends to an object cautiously or not. Accidents are the result of the failure or lack of careful attention to small detail.

Through attending sensory discrimination is improved. We are exposed to a large number of stimuli but attention separates its object from the rest and enables us to observe it cautiously. This focused attention create fine distinctions in perceive things which otherwise would have passed unnoticed. Attention creates things clearer and more separate.

Attention also directs our energies. We respond to some and ignore others. To be attentive is to concentrate one's efforts in a certain direction so that things and ideas we attend to are relevant to our needs and purposes.

Attention increases efficiency. It helps us to get ready to meet any situation. Attention is a preparatory adjustment and inattentive people are seldom efficient and successful.

Lastly, attention helps us to keep in mind experiences more accurately and fully. Those things to which we attend very cautiously are recalled with vividness and in detail.

Bodily adjustment in attention

It is already mentioned that attention is an active process. It is selective, purposeful, fluctuating. Within a span of attention we concentrate our attention. The attended object is clearer than other objects. In the process of attention we create certain bodily movements through method of adjustment. While attending we prepare our body suitably for action. The changed body posture enables the sense-organs to function best. It also helps to concentrate. There is also some tension in the body muscles if the body is poised for action. The mind is also very active to attend and respond to the attended object.

Characteristics of attention

- mental process
- selective process

- motivational process
- always shifting
- increases the clearness of the stimuli (figure and background)
- Attention goes before perception and reaction
- Purposive
- Dynamic
- Exploratory
- Adjective in nature (for body and tension reduction)

Factors that affect attention

Laws of attention

Why people attend some objects and ignore others? To answer this psychologists have laid down some laws or circumstances which decides what to attend and what not to. Broadly, there are (1) internal circumstances, and (2) external circumstances which determine what object will attract or compel attention. Some psychologists call them as determinants of attention and classify them as 'subjective' (internal) and 'objective' (external).

Subjective determinants of attention

It is a common experience that some person attends and other ignores to any object. This is because of subjective or personal factor. In several situations, individual determines what object to attend and not attend. The subjective determinants in attention contain the following:

- Aim/ goal
- Attitudes
- Basic needs (food deprivation)
- Curiosity
- Education and training
- Emotion
- Habit or practice
- Individual's internal desire and needs
- Interest
- Meaning and understanding (traditional doctors and treatment)
- Mental set
- Mood
- Past experiences
- Purpose and goal, etc.
- Social motives
- Temperament (religious, musical, cool nature, etc.)

- Training (cloth makers, army,)

DETERMINANTS OF ATTENTION

Objective determinants of attention are concerned with the environmental factors which contain the objects and its qualities and intensities.

- One of the significant external or objective circumstances or determinants of attention is change. Other things being equal, we are approximately always more likely to notice a changing incentive than an unchanging one. The suddenness of the change attracts our attention.
- Another factor of advantage in holding and securing attention is the intensity of the incentive. A strong or intense incentive will attract attention more readily than a weak one. A loud noise, bright color or light draws attention. A bright color or light will draw attention while a more subdued one would not.
- The size of the incentive is more likely to get noticed than other stimuli.
- Repetition is another such condition that draws attention. Objects presented again and again are sure to secure attention.

Newness or novelty and contrast also attract attention. Objects different from the type we are accustomed to see are readily noticed. We do not pay any attention to common or familiar objects in the context. Any newness or contrast in the environment can draw our attention. Other external determinants

- Nature of incentive: all related to the sense organs
- Intensity of the incentive: highly intense incentive is more attentive than others
- Size of the incentive: More than average is more attentive -- Advertisement.
- Position of the incentive: Figure and background, etc.
- Isolation of the incentive:
- Duration of the incentive: the longer the attendance the longer the influence to the sense organs – advertisement.
- Repetition of the incentive: advertisement – jeevan lal
- Change of the incentive: sudden change in the incentive, no sound etc.
- Novelty of the incentive: in the environment attracts attention
- Contrast of the incentive: female among the male,
- Movement of the incentive
- Rareness of the incentive
- Strangeness or secrecy of the incentive

Kinds of attention

Types:

- All attentions are not conscious and selective
- Some attention is due to the nature of the incentive
- Some attention is due to habitual reaction

According to Stout:

- Voluntary attention
 - interest, wishes, needs, purposes are related with voluntary attention.
 - controlled attention
 - selective
 - preparedness

Voluntary attention is on intentional nature. Whenever we intentionally or deliberately look or listen, the process of attention is voluntary. For instance, if some one says O look here, listen what is being said, and if we respond to these commands accordingly, we are attending voluntarily.

- Involuntary attention:
 - Sudden change in the environment – big sound, intensity of light, unique situation etc.
 - less concern with motives, interest, and needs
 - incentive is more significant than functional factors
 - person is not prepared for the attention
 - Not under the control of the individual

Sometimes, certain incentive force becomes so potential that our attention is drawn towards that without any conscious effort or intention. For such attentions, we are usually not mentally set but our attention is abruptly drawn towards these stimuli. For instance, a pistol shot, an intense flash of light, alarming siren sound, sudden cry of a child etc. have a force in them, to draw our attention without any deliberate effort.

- Habitual attention if attended due to nature, habit, practice, education, and attitude it is described habitual attention.
- Depends upon the nature and need, habit, attitude of the individual e.g., shoemaker and the shoes

Most often we attend to those objects more readily for which we have a mental set of habitual nature. For instance, a young boy's readiness to notice a beautiful girl and a girl's readiness to notice a handsome boy our readiness to

perceive good in the actions of our friends and evils in the actions of enemies, showing recurring interest in scrupulous food and drink, etc. are the instance of habitual sort of readiness, under the influence of which our attention is automatically drawn. A chain smoker is seen suddenly drawn towards an advertisement of cigarette. All these instances of our everyday life are the examples of habitual attention.

Voluntary attention

Voluntary attention is that which is willingly directed to an object. An analysis reveals elements of desire and interest, aim and social adjustment in voluntary attention. In the foregoing instance the student directs his attention because of some scrupulous aim like the passing of an examination, acquiring knowledge or one of a number of other goals. He takes interest in studying. Like other activities attention is just another form of adjustment. The difference flanked by voluntary and involuntary attention is that while the former is secured by the motivational elements in the individual, the motivating elements exist outside in the latter case.

Involuntary attention

As has been explained above, involuntary attention is not only directed through the individual's desire or motivation, it may even be against it. It usually hinders the process of goal seeking. If, for instance, your attention is attracted through a song while you are studying, your studies will suffer. Social adjustment is similarly obstructed through involuntary attention. The proper adjustment of a student can be the outcome, only of an undisturbed attention to his studies. On account of the fact that one can pay attention to only one thing at a time, the student will not be able to attend to his studies if his attention continually wanders in other directions. Obviously, a person forgets his goal owing to involuntary attention and cannot effect his adjustment.

Habitual attention

Besides the two types mentioned above, there is third type, the habitual or non-voluntary attention. The difference flanked by non-voluntary and involuntary attention is that the former type is the result of some habit or practice and the motivation is in the individual but the cause for the attention

in the latter type is in the object. Habitual attention is different from voluntary attention because habitual attention has no need for a will as the latter does. But sustained application of voluntary attention converts it into habitual attention. For instance, a student pays voluntary attention to study in the beginning but it is slowly transformed into habitual attention towards reading and writing. Therefore the position of habitual attention is in flanked by voluntary and involuntary types of attention.

Actually the above distinctions in attention are not very clear. The difference flanked by voluntary and involuntary attention is often only just discernible. No attention can be said to belong to any one of the three types exclusively. A scholar has to exercise his will in spite of his involuntary attention in reading. There is an unconscious desire to pay attention to an object which involuntarily draws your attention. In this method the difference in the types of attention is small though it is of great importance form the psychological viewpoint.

The nature of attention permits of its concentration in only one direction at one time. Direction of attention to two or more objects means either their acceptance as one or such an oscillation of attention flanked by all of them as provides the impression of simultaneous attention.

Division of attention

Sometimes we claim doing two things simultaneously. For instance, one may copy from a page and also listen to radio. Whether under such situations, there is division of attention? Studies done on this aspect have revealed that if one of the two tasks is of autonomic nature, it is possible to attend both the task simultaneously with approximately equal efficiency. Autonomic tasks usually require no conscious effort of attending. Only one of the tasks usually requires conscious effort to attend. For instance, a student can simultaneously read and listen radio; a typist can work on type machine and also listen to a story. In such cases one of the tasks becomes so autonomic that they require attention only in intervals and so all attention can be directed to another task. Though, when both tasks require conscious efforts to attend, attention is divided flanked by them and the tasks cannot be performed as efficiently as those which are given attention separately. Therefore, attention has the attribute of being divided when two stimuli simultaneously require focus.

Attention span

Of all the incentive approximately us, we attend to only a few. Attention

divides our field of conscious experience into focus and margin. The objects, things or events that exist in the focus stand out as separate and clear. Rest are in the margin and we are either unaware of them or if at all, provide a very dim, and ambiguous apprehension.

What number or amount of objects can simultaneously exist in the focus? This question has been subjected to experimental investigation. The general opinion is that in a single act of attention, one can attend to only one object. Though, this statement needs to be further analyzed. Objects may be simple or intricate. For instance, you observe a house as a single unit or object. But this house is a composite of many objects—windows, doors, number of floors, etc. each one is a unit in itself. So, the singleness of the object varies according to purpose in hand.

Experiments show that number of objects one can hold in his focus of attention is usually limited. This is referred to span of attention - that is the number of stimuli attended to in a single act of attention. Span of attention is the number of objects that stand out distinctively clear in one single moment of observation.

Fluctuation of attention

Fluctuation of attention is the length of time one can attend continuously to a single object. Attention is not steady or concentrated throughout. At one time the object comes in our focus, at another time, it goes out from focus. Closely related to fluctuation is shift of attention. In shift of attention our attention passes from one incentive to another or from one part of an intricate incentive to another part. The reversible figure is an instance where attention shifts from one figure to another.

Attention is a mobile or dynamic activity, and it is hard to attend to one a scrupulous object for any great length of time. When attention moves from one object to another, it is described as the shifting of attention. But even when the attention persists with one object, it grows more or less in degree. This is described as fluctuation of attention.

The cause of fluctuation in attention has been attributed to the temporary slackness in the mental activities and sense organs. Some psychologists found the fluctuation even when the muscles had been numbed. The fluctuation is then whispered to be due to the changes in adjustment or version. Though nothing can be said definitely in relation to this matter but still, the importance of the sense, mind, psychological state and environmental factors in fluctuation of attention is undeniable.

DISTRACTION SENSORY DEPRIVATION

Distraction means the dividing of attentions or some interference in attention. The object which causes the distraction is described the distracter. In fact, broken attention is not the absence of attention because the distractor is associated with the activity, often though not always, and it no longer interferes with the activity.

Therefore, the notion that distraction invariably hinders work is misleading. Experiments mannered through Morgan indicated that at first distraction caused a drop in the speed of typewriting but constant pursuit of the work in the disturbed condition increased this speed, and it again dropped when distraction was removed. But distraction, in some experiments through

Weber caused harm. Though it cannot be definitely said that distraction increases the speed of the work, it is possible, to say with some degree of confidence, that a decrease in speed due to distraction is not inevitable. Actually the effect of a distraction on some work depends in no small measure upon the capability, interest, practice, ability and mental set of the worker. If the distraction is favorable the speed will be increased but if it is unsuitable the speed will drop.

Distraction can be divided into two forms

- Continuous distraction a name suggests it is the continuous distraction of attention. Some examples of it are the sound of radio played continuously, the noise of the market place, etc. experiments have led to the conclusion that adjustment to continuous distraction takes place quickly.
- Discontinuous distraction this type is irregular, being interspersed with intervals e.g., hearing of somebody's voice every now and then. It interferes with work because of the impossibility of adjustment

CHARACTERISTICS OF PERCEPTUAL DEVELOPMENTS

Touch

Touch is the very basis of interaction flanked by parents and the child. Touching promotes early physical growth and also plays vital role in emotional development. So sensitivity to touch is present at the time of birth. Newborn babies react to touch particularly on palm, approximately mouth and

in the soles of feet. Infants are sensitive to sensation of pain though it has been found when sugar nipples are inserted in mouth discomfort and crying is quickly reduced in the young babies. When touch produces pleasure instead of pain it increases child's responsiveness to the environment. For instance, you might have noticed that when an infant is given soft soothing caresses he smiles and pays attention to caregiver. Infants explore and investigate the world approximately them. They run their hand on objects. When they develop the capability of reaching out to things, babies first place any object into their mouth and then have a good look at the object. This kind of exploration reaches its peak throughout the middle of first year and declines afterwards as babies create more use of hands to explore and investigate objects from different angles. For instance infants of one year or more would turn an object approximately, feel its surface, rub the surface to see what happens and then again pick it up to view it with both hands.

Taste and Smell

Reactions to taste and smell are crucial for survival. Infants are innately programmed for their taste preferences. Newborns are able to distinguish many basic tastes in the manner of an adult. For instance, they respond to sweetness through relaxing their facial muscles, and when the taste is sour they react through distorting their lips and so on. Taste for salty objects is not present at birth time. But through the time infant is four months old they prefer salty water to plain water, a change that readies him for solid foods later on. Like taste, certain smell preferences are innate. For instance young babies provide relaxed facial expressions when confronted with pleasant smell but express discomfort on smell of a rotten object, not only this they even express skill to recognize the source of discomforting smell through turning head in the other direction.

Hearing

Newborn babies can hear a diversity of sounds but they respond more to some than other sounds. It seems they are innately programmed to respond to auditory sensations. Throughout the first few days they are able to recognize the difference flanked by sound patterns. For instance, a series of tones, utterances of two three syllables etc. As the child grows up throughout the first year it organizes sounds into elaborate patterns. A baby of 4 to 7 months expresses a sense of musical and speech phrasing and through 12 months, the baby can differentiate flanked by two slightly differing tunes. A 4 month old baby can accurately turn its head in the direction of source of sound and this skill and responsiveness to sound shows marked improvement over the after

that six months and continues to develop further throughout the second year. Not only this, a 3 month old baby can fairly distinguish flanked by pleasant and sad voices of adults. Responsiveness to sound promotes infant's visual and tactile exploration of the environment. It also promotes attachment flanked by infant and the caregiver. As parents talk to the baby, development of language and emotions receive further impetus.

An infant's sensitivity to sound gives fundamental basis for perceptual and cognitive development. So any impairment and loss of hearing can detrimentally affect the child's development. Hearing loss can occur prior to language acquisition, or following language acquisition. Degrees of hearing loss are measured in decibels, the greater the decibel measure, the greater the degree of hearing loss. For instance, a person with a mild hearing loss, 15-40 DB (decibel) has difficulty hearing whispers at a close range in a quiet setting; a person with a moderate hearing loss 40-60 DB has difficulty hearing a normal voice at close range in a quiet setting; a person with a severe hearing loss cannot hear speech and can only hear loud noises such as those coming from machinery, power tools, vacuum cleaners, lawn mowers etc. A person with a profound hearing loss cannot hear speech and may only hear loud vibrating noises such as airplanes. Any type of hearing loss can present unique challenges and barriers in accessing environmental information.

Hearing loss influences children's preferences for gathering sensory information that support and shape cognitive linguistic development. Since varying degrees of auditory information are accessible for children with hearing loss, a need exists to maximize visual and kinesthetic intake of environmental information. Knowledge of these sensory modalities supports an understanding of an infant's or toddler's skill to interpret, integrate and respond to environmental information. Very often hearing loss results in delayed language progress, reduced task persistence, social isolation in early childhood and poor academic performance after school entry. Actually children with auditory difficulties are less attentive to the speech of others and less persistent at task and this difficulty may be due to repeated instances in which they could not create out what people approximately them were saying. When children have trouble paying attention they may reduce the quality of interaction with them.

THEORIES OF PERCEPTUAL DEVELOPMENT

The question is how to explain all these developments and inter relate them. Answer to this was provided through Eleanor and James Gibson; Gibsons put forward the theory of *Differentiation*.

This theory stated that infants actively search for invariant features of the environment i.e. they look for those features which are stable in a changing world. For instance, take the case of pattern perception, initially what babies perceive is a mass of stimulation but they are looking for characteristic that stand out to create contour or border of a incentive and begin to form some

image representing an object say face. After that they explore internal features and stable relationships among these features. This principle applies to the development of intermodal perception as well. Therefore we can assume that infants have a built in capability or tendency to look for order and stability in the environment that surrounds them and with age it gets fine-tuned.

Another concept given through Gibsons to explain perceptual development was *Affordances*. It means action possibilities that a situation offers an organism with certain motor capabilities. For instance, we know that we can squeeze, roll and bounce a ball that means we are of possible actions that we can perform with the ball. Awareness of affordances creates a child future oriented and determines success. Affordances are acquired in the process of exploration and investigation.

PERCEPTUAL CONSTANCIES

We see an object as we have image on our retina. When the object is closer we have full image of it on the retina. But when it moves distant, the image becomes different yet we see the object in the same shape, size, color and brightness. We see a white, bright, big and rectangular table in our front; we have an image of it on the retina. We move it further when only we can see just vague image of it. What happens then? Yet we perceive it as a table of the same size, shape, color and brightness. The tendency of the individual to perceive characteristics of the world as unchanging despite changes in the sensory input we receive from them is the phenomenon recognized as *perceptual constancy*.

Hastorf, Schneider and Polefka have given an instance. You are sitting in a chair in your living room. A man walks into your room, moves over to a table through the window, picks up a news paper, and then goes crossways the room to sit down and read. What are the successive patterns of visual stimulation that register on your retina as you watch this scene? Every time the man moves closer to you, the image on the retina gets superior. In fact, if the person moves from 20 feet distant to 10 feet distant, the height of the image on your retina doubles. The opposite occurs if the person moves distant from you. In addition, as the person moves nearer the window, lighter is accessible, and his image on your retina gets brighter. When the person moves distant from the window, the image gets darker. Retina senses this method but what you perceive? We see the person in the same method with no changes. This type of adjustment is due to perceptual constancy.

Perceptual Constancy is of four types – *size constancy*, *shape constancy*, *color constancy* and *brightness constancy*. Perceptual size of an object remains the same when the aloofness is varied, even though the size of the image it casts on the retina changes greatly. This is *size constancy*. Two factors appear to produce size constancy – *size aloofness invariance* and *relative size*. While estimating size of an object, we take into account both the

size of the image on the retina and the apparent aloofness of the object. This characteristic is recognized as size distance invariance. When we are estimating size of an unfamiliar object we take into account the relative size of the object compared to objects of recognized size and it is the characteristics of relative size. These two factors determine mainly our size constancy. You take a coin of circular shape and throw it in the air. Keep on looking at it and you will always see it circular although it casts different images on your retina. This is due to the perception of shape constancy.

Similarly we perceive objects as constant in brightness and color, even though they are viewed under different circumstances. Objects appear to be of same brightness no matter what the lighting circumstances. Object maintains its color no matter what the lightening or what other colors are close to. Perceptual constancies are highly useful in our life. Had it not been so, we would have been badly occupied in managing several sensations and their impact on perceptual adjustment... This method, the gap flanked by our sensations and the perception supervised through constancies is clearly beneficial.

PERCEPTION OF FUNDAMENTAL PHYSICAL DIMENSIONS

When perception is an active process, where individual plays a significant role in determining objects and reactions approximately environment, you may be interested in knowing the main processes involved in it. How a person is able to get one message, out of thousands of messages of different senses active at a point of time, sent to the brain? The process of getting a small portion of sensations in one's environment selected through the individual to be transmitted to the brain for meaning is recognized as *perceptual selectivity*. The first process to this effect is *attention* in which certain stimuli are selected to be transmitted to the brain and others are suppressed. Individual has the tendency to attend to certain sensations we expect to, while remaining unaware of things we do not expect. This phenomenon is described *perceptual set*. As early in 1935, Siipola demonstrated the phenomenon of perceptual set in responses to words. He had two groups of subjects. One group was told that they would be shown words that referred to animals. The other group was told that they would be shown words relating boats. The two groups had different responses as per their expectations. The letters forming words really did not mean anything but the first group perceived words relating to different animals and the second group pertaining to different characteristics of boat. Such a type of response was there as they had perceptual set. So the perceptual set is the tendency to perceive what one expect to. You may experience the phenomenon of perceptual set with the help of an instance cited through Leeper.



Fig. A:



Fig. B:



Fig. C:

You show picture A to your friend .Ask what the person sees? Then present picture C and ask what the person sees. Your friend may say that picture A is of an old woman and C is also the picture of the same women. Ask another friend to see picture B and picture C one through one. Most likely s/he may say that both the pictures are of young girl. They are all correct in their perception. They see as they want to see. Again ask them to see each picture cautiously. They may see changed face but the time taken to come over to recognize changed face would be different in different cases. Perception, in fact, is influenced through learning and experience. We perceive objects as per our needs and values. Psychological and physiological needs allow us to perceive things in our own method. A hungry person, for instance, may perceive other objects as food items. Mc Clelland and Atkinson (1948), for instance, have shown that persons who have not eaten for long periods display the ‘mirage effect” of identifying hazy objects as food or eating utensils. Further, our perception is determined through our values. People tend to perceive an object superior that they value more. Bruner and Goodman (1947), in a study, found that poor children estimated size of the coin superior than the rich children. The phenomenon of perceiving valued objects as superior or as more vivid than they actually are, is recognized as *perceptual accentuation*. It

will now be clear that how attention, perceptual set and perceptual accentuation determine our perception through perceptual selectivity.

ORGANIZATIONAL FACTORS OF PERCEPTION

In this world, for an organism there are three main perceptual questions and answers to these are key to its survival. What is it? Where is it? What is it doing? Gestalt Psychologists, first of all, studied perceptual organisation systematically and attempted to answer such questions. The process through which we structure the input from our sensory receptors is described *perceptual organisation*. Gestalt Psychologists advocated that we have tendency to perceive sensory patterns as well organized wholes rather than as separate isolated parts. Perceptual organisation is recognized as figure – background relationship. It means that we tend to divide the world approximately us into two parts: figure, which has a definite shape and location in space, and, ground, which has no shape, seems to continue behind the figure, and has no definite location. The segregation of figure and background can easily be seen in two dimensional pictures. You see the following picture in which the bright splotch appears as the figure and darker region is perceived as background. Figure is cohesive and articulated where as background is relatively formless and appears to extend behind the figure.



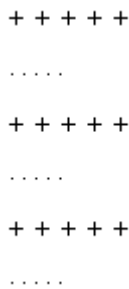
Fig. ground relationship

Figure: The figure – background relationship helps clarify the distinction flanked by sensation and perception. Gestalt psychologists described some of the principles on which we group items together perceptually. These principles are recognized as the *laws of groupings*. This shows as to how perception is organized in daily life. Wertheimer (1923) regarded these laws as the laws of perceptual organisations. Some of these are: *law of proximity, law of similarity, law of good continuation, law of closure, law of simplicity and law of common region*.



Law of Proximity: We have a tendency to perceive objects situated together as a group. The closer two figures are to each other (proximity) the more they will tend to be grouped together perceptually. a b c d e f. The low lines a, b, c, d, and e, f are perceived together as they are in proximity to each other.

Law of Similarity: We have a tendency to group figures according to their similarity.



Here, similar items as a group are perceived. This method, we organize different objects approximately us on the basis of similarity of physical or psychological properties.

Law of good continuation: The tendency to perceive stimuli as a part of continuous pattern is recognized as law of good continuation. Our visual system normally prefers contours that continue smoothly beside their original course. Good continuation is a powerful organizational factor which prevails even when pitted against prior experience. In military setting, camouflage is achieved through using this law.

Law of closure: We have the tendency to perceive objects as whole entities, even some parts may be missing or obstructed from view. See this figure:



You will say it is triangle although it is not complete and lines at some points are missing. This is due to the law of closure.

Law of simplicity: The tendency to perceive intricate patterns in conditions of similar shapes is recognized as the law of simplicity. Individuals have a tendency to perceive objects and situations in a similar method so as to get maximum meanings without strain out of them.

Law of common region: We have a tendency to organize materials approximately us in a group to create them more meaningful and clear. This tendency of perceiving objects approximately a group if they occupy the same place within a plane is recognized as the law of common region.

These laws or principles of perceptual organisation are not hard and fast rules. These simply explain as to how we perceive world approximately us. We see objects in different forms. Perceptually, a form is experienced as a Gestalt, a whole which is different from the sum of parts. To perceive a form, we perceive certain relations among the component parts which remain intact despite alterations of the parts of a figure. Perception of depth is mainly explained through binocular disparity. Our two eyes look out on the world from slightly different positions, providing somewhat different view of any solid object they converge on. This binocular disparity normally induces perception of depth. This explanation gives the answer to the question as to how perception of third dimension takes place when we have image on our retina in two dimensions only. Perceptual organisation also explains how a light is seen traveling from one point to the other, even there is no stimulation (let alone movement) in the intervening region. It happens where right time-interval is placed among them. This phenomenon, apparent movement, is produced through the sequence of optical events. For instance, light A flashes at time 1, followed through light B at time 2, then back to light A at time 3. If the time intervals are appropriately chosen, the perceptual experience will be of a light moving from left to right and back. This is how, perception of movement takes place.

REVIEW QUESTIONS

- What is psychology?
- Describe the methods of psychology
- Explain the perceptual development
- Write an essay on perceptual development and its characteristics.
- What is perceptual selectivity?
- Describe the process of sensation of taste. What is the importance of taste buds?

PRINCIPLES OF LEARNING

STRUCTURE

- Learning objectives
- Learning: definitions and characteristics
- Classical conditioning
- Operant conditioning
- Principles of reinforcement
- Cognitive learning
- Individualized learning
- Learner and learning memory
- Kinds of memory
- Processes of memory
- Stages of memory
- Forgetting
- Thinking and language—thinking process and concepts
- Review questions

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- Explain the Learning
- Explain the classical and operant conditioning
- Understand the cognitive learning;
- Understand the Forgetting; and
- Understand the thinking and language

LEARNING: DEFINITIONS AND CHARACTERISTICS

We develop different skills and adapt to changing circumstances of the world approximately us. Our experience help in shaping our behaviour appropriate to the needs. This experience we get through the process of learning. Since birth several new features are added to our behaviour which more or less forms the part of our life. This is approximately permanent in nature. The *learning* is defined as ‘any relatively permanent change in behaviour, or behavioral potential, produced through experience.’ This definition has the following characteristics:

- Learning does not apply to temporary change in behaviour
- The behavioral changes due to maturation process do not form part of learning.
- Learning can result from *vicarious* as well as from direct experience
- Learning’s are not always positive in nature. We learn bad habits as well in the process

Learning is the key factor in behavioral change of an organism. Through learning we create changes in our behaviour. These are several processes through which we get experience in life. Psychologists have found out such processes. All modifications of behaviours are not learned. Some modifications do take place due to physical maturity. In most of the cases the distinction flanked by learning and maturation is very clear but in some places this distinction is less obvious. You take an instance of infant's walking. Normally, infant does not walk before the age in relation to the 12-15 months. They walk when they are physically fit and ready, perhaps, without learning. So walking here does not have the role of learning. But in children recognition of color is the outcome of learning. This method, the impacts of learning and maturation on modification of behaviour are different. Learning plays a significant role virtually in every activity we perform.

Psychologists consider that learning takes place in many basic forms. This basic process is observations learning, classical conditioning and operant conditioning. *Observational learning* is a form of learning where organisms learn through observing behaviours and the consequences of behaviour of others approximately them. *Classical conditioning* is a form of learning in which two incentive events get associated in such a method that the occurrence of one event reliably predicts the occurrence of the other. Classical conditioning is a form of learning in which organisms learn association flanked by behaviours and stimuli that precede them (antecedents) or follow them (consequences) you will come to know in relation to the these basic procedures of learning in paragraphs to follow. The classical conditioning and the operant conditioning will form the portions of experimental learning as these two forms have the characteristics of experimentation.

Observational Learning

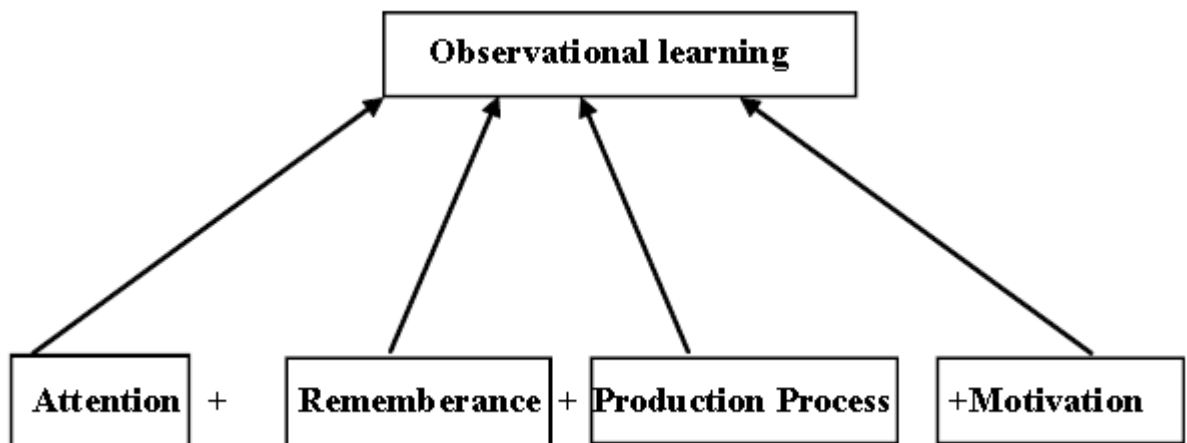
While watching television you necessity have witnessed several aggressive scenes. Several detective stories present as to how the murders and thefts are committed in a planned manner. Several serials of social importance you may have seen as well as television. There is a discussion that such serials or shows need not be shown on televisions as children get influenced through it and start behaving in the same manner. Several criminals, caught through police, confessed that they committed crime through viewing a scrupulous movie or a serial of the same type. Several researches are accessible in the literature which reveals that young people learn aggression through watching the actions of others.

Bandura et al; reported one study recognized as 'Bobo doll' study. One group of nursery-school children saw an adult occupied in aggressive actions against a large inflated Bobo doll. The adult who was serving as model

knocked the doll down, sat on it, insulted it verbally, repeatedly punched it in nose. Another group of children were exposed to another model who behaved in a quiet, non-aggressive manner. Afterwards, both the groups of children were put in a room where many toys including a Bodo doll were accessible. The behaviours of children were observed cautiously and found that those children, who had seen aggressive model, started behaving in the same method. They punched the toy, sat on it and uttered verbal abuse similar to those of the model. The control group children did not show any kind of aggression and played peacefully. The results of this observation clearly indicate that children do shape their behaviour through observing others in social situations approximately us.

No doubt, observational learning exists where one adheres to the behaviours of a model, the liked person. You may now be interested to know as how and to what extent we acquire behaviours, information or concepts from others. Bandura described the four circumstances which facilitate behaviour change through observation. The four circumstances are — *attention, retention, production process* and *motivation*. For learning through observation one necessarily pay attention to the persons performing activities which one likes, people attractive to them, the behaviours which are desirable in the eyes of the observer, suiting the needs and goals of the person observing the behaviours. In other words, the extent to which one focuses on others' behaviour is attention. Another factor is remembrances i.e. the extent to which one remembers what the other person has done or what did he say? More the remembrance, more quick is the adoption of actions.

Suppose, you try to copy the tune of a song. It will be easily ready if you correctly keep in mind the musical details of the song. The third factor is production processes. You may keep in mind the song and its musical details but if you can not perform due to voice disability or lack of knowledge of musical principles, you can not create a change in your behavioral pattern. Hence, observational learning does not take place. Production process, hence, depends on two main bases — the physical skill of the person getting learning and the capability to monitor the desired behaviour till perfection is achieved. The fourth factor, motivation, is very powerful in behavioral learning. If the action, information received through a model is not useful for the observer, then it will not be used and easily forgotten. Motivation keeps the observer in the state of readiness to accept the things they need. Only such behaviours are borrowed from others in the world in relation to the the observers feel it is a necessity for them. This motivation level results in increased efforts to achieve success through observing others in the society. In most of the cases, some people become role models due to this process:



Basic determinants

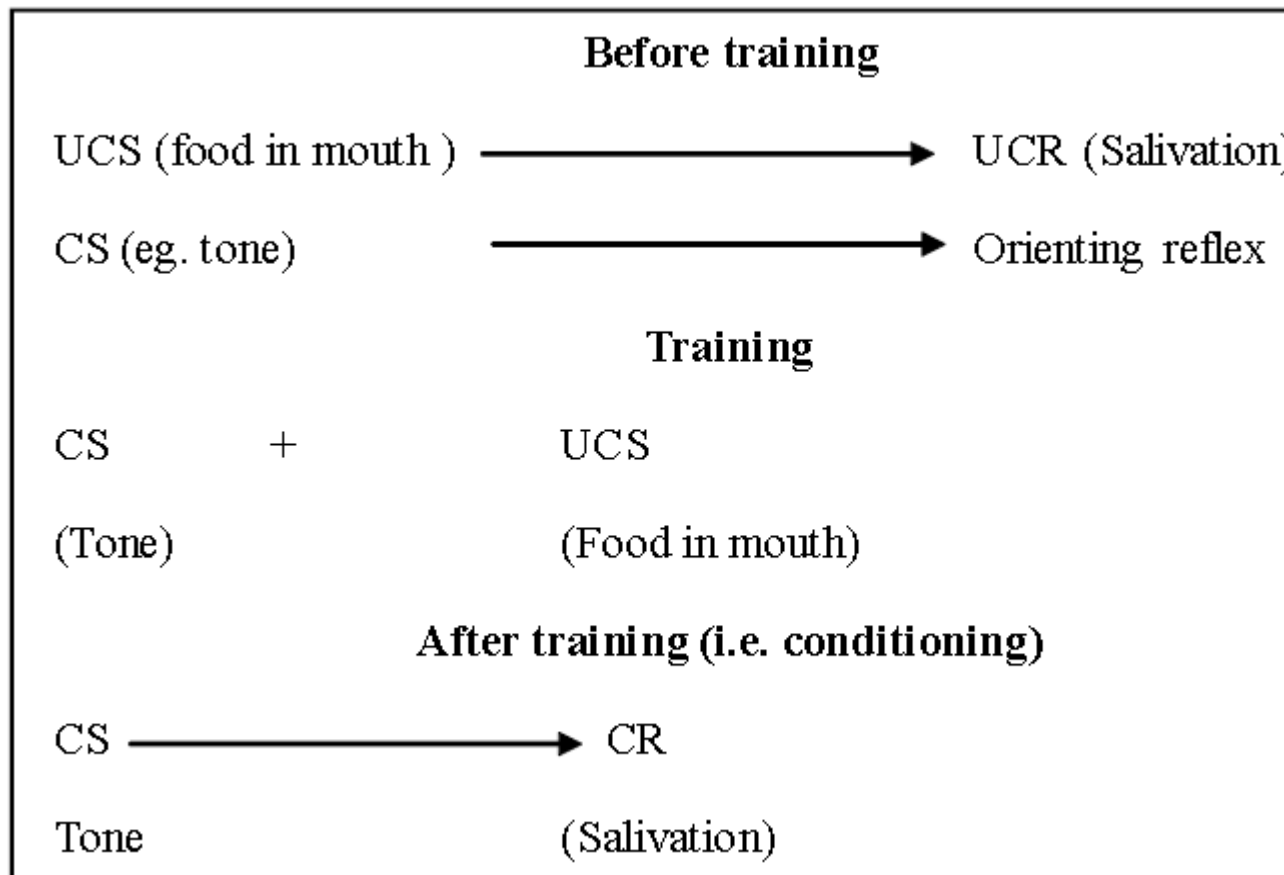
Both positive and negative behaviours are adapted through observational learning. People easily get influenced through other people approximately them. The social, moral and other values are mostly absorbed through behavioral learning model. This is why, the parents see that their children always play with good children, see only socially desirable behaviours. You may keep in mind in joint families old ladies mostly used to tell religious, moral, social stories so that in open environment children should try to follow the same pattern and be good children. Suppose, you visit some friend's house. You get a cup of tea. When the tea is over, you keep your cup yourself on the table. Children are keen observers. If some child observes your behaviour, on her visit to any other house, if sweet is given to her, she will try to keep the empty plate on the table herself. This method, observational learning takes place. Aggression, or normal behaviour, in higher degree is supposed to be a negative behaviour. Several studies have shown that when aggressive behaviour gets re-enforcement through observation in movie or television, it is accepted through children or even adults. Aggressive is added to their repertoire. Later when angry or frustrated they use such aggressive behaviours towards others.

Observational learning is an intricate process - more intricate than mere imitation. A child develops in a society which may have a different cultural-social values than a place where, in adulthood, gets a job. To adjust in a new situation is comparatively hard and sometimes gets a 'culture shock'. Such a person may be given cross-cultural training through experimental approach based on behavioral modeling. Here, trainees first watch films in which models exhibit the correct behaviours in a problem situation. They, then, take part in role-play exercises to test their knowledge. Finally, they receive constructive criticism concerning performance in role-play. Studies have

found it very effective in altering behaviours in the desirable direction. The concept of social learning is fully based on observational learning in which one observes determined through cognitive processes. While deciding the model, one considers the outcome from different angles. If cognitively one is satisfied then scrupulous behaviour of the model is accepted. Such accepted behaviour stays in the person for a long period. Observational learning, in a method, shapes our lives effectively.

CLASSICAL CONDITIONING

Whenever there is a lunch time you feel hungry, if you have a set-sleep time you feel a sleeping mood. How is it felt? These activities do take place when a scrupulous time is fixed and if the time-table for such purposes is flexible and irregular, then feelings may not be strong enough. This type of behaviour or similar one has been explained through the classical conditioning. Ivan Petrovich Pavlov (1849-1936), while conducting experiments on dogs in relation to the various digestive reflexes, found out that salivary reflex could be set off through stimuli which at first were totally neutral. The experiment he mannered was simple but controlled. The dog was put in a laboratory with a system where the saliva discharged can be measured through the dog each time. When hungry, saliva comes out in mouth if food is present. He paired a buzzer sound to food i.e. a buzzer sound was produced before the food was provided to the dog. After a few trials it was seen that when buzzer was produced without food the salivation took place in the dog. Repeated buzzer-food pairings led to salivation to the buzzer alone. This process was recognized as classical conditioning. In most of the reflexes this process explains the learning procedures. The whole experiment can be explained in the following manner:



Relationship between CS, UCS, CR and UCR in classical conditioning

The first step in the experiment was to attract attention to a neutral incentive such as buzzer. The dog had a reaction ‘what-is-it?’ type, what Pavlov described *orienting reflex*. The dog paid attention to it through turning head towards the incentive i.e. buzzer. The after that step was the repeated buzzer food pairing leading to salivation to the buzzer alone. In each trial the buzzer was produced and then food. After a few trials only buzzer was produced and no food. Yet salivation took place only with buzzer tone. Pavlov explained the whole process through making a distinction flanked by unconditioned and conditioned reflexes. Unconditioned reflexes, he held, to be essentially inborn which can be elicited unconditionally through the appropriate incentive, like salivating to food in the mouth. Conditioned reflexes were acquired based on organisms past experience. In this case, salivating to buzzer. *Unconditioned reflex* is based upon a connection flanked by unconditioned incentive (UCS) and unconditioned response (UCR), in this case, food-in-the mouth (UCS) and salivation (U.C.R.). *Conditioned reflex*, on the other hand, are condition incentive (CS) and conditioned response (CR), in

this case, buzzer(CS) and salivation (CR.) The CS is initially a neutral incentive (the buzzer) that is paired with UCS; the CR (salivation) is the response elicited through the CS after some pairings of CS and UCS. The pairing is said to *reinforce* the connection; trials on which UCS occurs and on which it is omitted are described *reinforced* and *unreinforced* trials respectively.

Classical conditioning in human's daily life is very common. You tend to feel hungry at meal-times and less so throughout the periods in flanked by, this is so even if you fast the whole day. It has a role in formation of several emotional reactions and fear is the best examples. Fear is urbanized in children through conditioning. Phobia, the intense fear, is the outcome of conditioning. Normally, all basic needs of human are conditioned in nature.

OPERANT CONDITIONING

The customized behaviour theory was urbanized through B.F. Skinner. Skinner underlines the distinction flanked by classical and instrumental conditioning. Animal's behaviour is elicited through CS is classical conditioning; the salivation appears to be set off from the outside, therefore justifying the reflex analogy to some extent. But in instrumental conditioning, the organism appears to be less at the mercy of external stimulation. It's reactions are *voluntary*, as it seems to come from within. Skinner defined such instrumental responses "operant;" they *operate* on the environment to bring in relation to the some change that leads to reward. He mannered experiments in a properly controlled and monitored box named after him "Skinner Box". Animals in the box got reinforced if they peck or press and in return got some food grain. In operant conditioning a given behaviour will occur on the consequences that follow it. Some consequences will be positive that strengthen the behaviour where as some negative which suppresses the behaviour.

Strengthening the behaviour is described *reinforcement* and suppressing the behaviour is described *punishment*. The operant conditioning is a process through which organisms learn to repeat behaviours that yield positive outcomes or permit them to avoid or escape from negative outcomes. Positive reinforcement increases the probability that the action will occur again in the future. Some positive reinforcers are related to basic biological needs and described primary reinforcers. We need food when hungry, need water when thirsty. Some other events acquire their capability to act as *positive reinforcers* through association with primary reinforcers and described conditioned reinforcers viz., money, status, grades, trophies and praise from others. Negative reinforcers are those that strengthen responses that permit an organism to avoid or escape from their attendance. Such negative reinforcers may be heat, extreme cold, electric shock. Positive reinforcers are incentive events that strengthen the responses that precede them, where as negative reinforcers are aversive (unpleasant) incentive events that strengthen responses

that lead to their termination or at least avoidance. The operant conditioning is based on these principles.

If you summarize the difference flanked by the two significant methods of conditioning through a rough description of what is learned in each; you will find a difference. In classical conditioning the organism necessarily learn in relation to the relations flanked by two stimuli, the CS and the UCS: Given CS and UCS will follow. In instrumental learning, the organism has to learn the relation flanked by a response and a reward: Given this response, there will be reinforcement. These two theories have accounted for all types of learning in our life. On the basis of these theories several therapeutic procedures have been urbanized where undesirable behaviours are eliminated and new desirable behaviours are urbanized in humans.

PRINCIPLES OF REINFORCEMENT

In behavioral psychology, reinforcement a consequence that will strengthen an organism's future behavior whenever that behavior is preceded through a specific antecedent incentive. This strengthening effect may be measured as a higher frequency of behavior (e.g., pulling a lever more regularly), longer duration (e.g., pulling a lever for longer periods of time), greater magnitude (e.g., pulling a lever with greater force), or shorter latency (e.g., pulling a lever more quickly following the antecedent incentive).

Although in several cases a reinforcing incentive is a rewarding incentive which is "valued" or "liked" through the individual (e.g., money received from a slot machine, the taste of the treat, the euphoria produced through an addictive drug), this is not a requirement. Indeed, reinforcement does not even require an individual to consciously perceive an effect elicited through the incentive. Furthermore, stimuli that are "rewarding" or "liked" are not always reinforcing: if an individual eats at McDonald's (response) and likes the taste of the food (incentive), but believes it is bad for their health, they may not eat it again and therefore it was not reinforcing in that condition. Therefore, reinforcement occurs only if there is an observable strengthening in behavior.

In most cases reinforcement refers to an enhancement of behavior but this term may also refer to an enhancement of memory. One instance of this effect is described post-training reinforcement where an incentive (e.g. food) given shortly after a training session enhances the learning. This incentive can also be an emotional one. A good instance is that several people can explain in detail where they were when they found out the World Trade Center was attacked.

Types of Operant Conditioning

The basic definition is that a positive reinforce *adds* a incentive to augment or maintain frequency of a behavior while a negative reinforce *removes* a incentive to augment or maintain the frequency of the behavior. As mentioned

above, positive and negative reinforcement are components of operant conditioning, beside with positive punishment and negative punishment, all explained below:

Reinforcement

Positive Reinforcement occurs when an incentive is presented as a result of operant behavior and that behavior increases.

- Instance: If a dog "sits" on command and this behavior is followed through the reward of a dog treat, then the dog treat serves to positively reinforce the behavior of "sitting."
- Instance: A father provides candy to his daughter when she picks up her toys. If the frequency of picking up the toys increases, the candy is a positive reinforce (to reinforce the behavior of cleaning up).

Negative Reinforcement occurs when an aversive (unpleasant) incentive is removed as a result of operant behavior and the rate of the behavior increases.

- Instance: A child cleans his or her room, and this behavior is followed through the parent stopping "nagging" or asking the child repeatedly to do so. Here, the nagging serves to negatively reinforce the behavior of cleaning because the child wants to remove that aversive incentive of nagging.
- Instance: A person puts ointment on a bug bite to soothe an itch. If the ointment works, the person will likely augment the usage of the ointment because it resulted in removing the itch, which is the negative reinforce.

Punishment

Positive punishment is the adding of an aversive (unpleasant) incentive to decrease a behavior or response.

- Instance: A mother yells at a child when he or she runs into the street. If the child stops running into the street, the yelling acts as positive punishment because the mother presents (adds) an unpleasant incentive in the form of yelling.

Negative punishment is the removal of a pleasant incentive to decrease a behavior or response.

- Instance: A teenager comes home after curfew and the parents take absent a privilege, such as cell phone usage. If the frequency of the child coming home late decreases, the removal of the phone is negative

punishment because the parents are taking absent a pleasant incentive (the phone) and motivating the child to return home earlier.

Simply put, reinforces serve to augment behaviors whereas punishments serve to decrease behaviors; therefore, positive reinforces are stimuli that the subject will work to attain, and negative reinforces are stimuli that the subject will work to be rid of or to end.

Further Ideas and Significant Concepts to Keep in mind:

- Distinguishing flanked by positive and negative can be hard and may not always be necessary; focusing on *what* is being removed or added and *how* it is being removed or added will determine the nature of the reinforcement.
- A negative reinforce is not a punishment. The two, as explained above, differ in the addition or removal of an incentive.
- The augment in behavior is independent of (i.e. not related to) whether or not the organism finds reinforce to be pleasant or aversive. Instance: A child is given detention for acting up in school, but the frequency of the bad behavior increases. Therefore, the detention is a positive reinforce even if the detention is not a pleasant stimuli, perhaps because the child now feels like a "rebel" or sees it as an opportunity to get out of class.
- Some reinforcement can be simultaneously positive and negative, such as a drug addict taking drugs for the added euphoria (a positive feeling) and eliminating withdrawal symptoms (which would be a negative feeling). Or, in a warm room, a current of external air serves as positive reinforcement because it is pleasantly cool and as negative reinforcement because it removes uncomfortable hot air.
- Both positive and negative reinforcement *augment* behavior. Most people, especially children, will learn to follow instruction through a mix of positive and negative reinforcement.

Primary reinforcers

A primary reinforce, sometimes described an *unconditioned reinforce*, is an incentive that does not require pairing to function as reinforce and most likely has obtained this function through the evolution and its role in species' survival. Examples of primary reinforcers contain sleep, food, air, water, and sex. Some primary reinforcers, such as certain drugs, may mimic the effects of other primary reinforcers. While these primary reinforcers are fairly stable through life and crossways individuals, the reinforcing value of different primary reinforcers varies due to multiple factors (e.g., genetics, experience). Therefore, one person may prefer one type of food while another abhors it. Or one person may eat lots of food while another eats very little. So even though food is a primary reinforce for both individuals, the value of food as reinforce

differs flanked by them.

Secondary reinforcers

A secondary reinforce, sometimes described a *conditioned reinforce*, is an incentive or situation that has acquired its function as reinforce after pairing with an incentive that functions as reinforce. This incentive may be a primary reinforce or another conditioned reinforce (such as money). An instance of a secondary reinforce would be the sound from a clicker, as used in clicker training. The sound of the clicker has been associated with praise or treats, and subsequently, the sound of the clicker may function as reinforce. As with primary reinforcers, an organism can experience satiation and deprivation with secondary reinforcers.

Other reinforcement conditions

- A generalized reinforce is a conditioned reinforcer that has obtained the reinforcing function through pairing with several other reinforcers (One instance of this is money because it is paired with several other reinforcers).
- In reinforcer sampling, a potentially reinforcing but unfamiliar incentive is presented to an organism without regard to any prior behavior.
- Socially-mediated reinforcement (direct reinforcement) involves the delivery of reinforcement that requires the behavior of another organism.
- The Premack principle is a special case of reinforcement elaborated through David Premack, which states that a highly-preferred activity can be used effectively as a reinforcer for a less-preferred activity.
- Reinforcement hierarchy is a list of actions, rank-ordering the most desirable to least desirable consequences that may serve as a reinforcer. A reinforcement hierarchy can be used to determine the relative frequency and desirability of different activities, and is often employed when applying the Premack principle.
- Contingent outcomes are more likely to reinforce behavior than non-contingent responses. Contingent outcomes are those directly connected to a causal behavior, such a light turning on being contingent on flipping a switch. Note that contingent outcomes are *not* necessary to demonstrate reinforcement, but perceived contingency may augment learning.
- Contiguous stimuli are stimuli closely associated through time and space with specific behaviors. They reduce the amount of time needed to learn a behavior while increasing its resistance to extinction. Giving a dog a piece of food immediately after sitting is more contiguous with

(and so more likely to reinforce) the behavior than a many minute delay in food delivery following the behavior.

- Noncontingent reinforcement refers to response-independent delivery of stimuli recognized as reinforcers for some behaviors of that organism. Though, this typically entails time-based delivery of stimuli recognized as maintaining aberrant behavior, which decreases the rate of the target behavior. As no measured behavior is recognized as being strengthened, there is controversy nearby the use of the term noncontingent "reinforcement".

Natural and artificial

In his 1967 paper, *Arbitrary and Natural Reinforcement*, Charles Ferster proposed classifying reinforcement into events that augment frequency of an operant as a natural consequence of the behavior itself, and events that are presumed to affect frequency through their requirement of human mediation, such as in a token economy where subjects are "rewarded" for certain behavior with an arbitrary token of a negotiable value. In 1970, Baer and Wolf created a name for the use of natural reinforcers described "behavior traps". A behavior trap requires only a simple response to enter the trap, yet once entered, the trap cannot be resisted in creating general behavior change. It is the use of a behavioral trap that increases a person's repertoire, through exposing them to the naturally occurring reinforcement of that behavior. Behavior traps have four characteristics:

- They are "baited" with virtually irresistible reinforcers that "lure" the student to the trap
- Only a low-effort response already in the repertoire is necessary to enter the trap
- Interrelated contingencies of reinforcement inside the trap motivate the person to acquire, extend, and maintain targeted academic/social skills
- They can remain effective for long periods of time because the person shows few, if any, satiation effects

As can be seen from the above, artificial reinforcement is in fact created to build or develop skills, and to generalize, it is significant that either a behavior trap is introduced to "capture" the ability and utilize naturally occurring reinforcement to maintain or augment it. This behavior trap may simply be a social situation that will usually result from a specific behavior once it has met a certain criterion (e.g., if you use edible reinforcers to train a person to say hello and smile at people when they meet them, after that ability has been built up, the natural reinforcer of other people smiling, and having more friendly interactions will naturally reinforce the ability and the edibles can be faded).

Intermittent reinforcements

Pigeons experimented on in a scientific study were more responsive to intermittent reinforcements, than positive reinforcements. In other words, pigeons were more prone to act when they only *sometimes could get what they wanted*. This effect was such that behavioral responses were maximized when the reward rate was at 50% (in other words, when the uncertainty was maximized), and would slowly decline toward values on either side of 50%. R.B Sparkman, a journalist specialized on what motivates human behavior, claims this is also true for humans, and may in part explain human tendencies such as gambling addiction.

Shaping

Shaping is reinforcement of successive approximations to a desired instrumental response. In training a rat to press a lever, for instance, simply turning toward the lever is reinforced at first. Then, only turning and stepping toward it is reinforced. The outcomes of one set of behaviours starts the shaping process for the after that set of behaviours, and the outcomes of that set prepares the shaping process for the after that set, and so on. As training progresses, the response reinforced becomes progressively more like the desired behavior; each behavior becomes a closer approximation of the final behaviour.

Chaining

Chaining involves linking discrete behaviors together in a series, such that each result of each behavior is both the reinforcement (or consequence) for the previous behavior, and the stimuli (or antecedent) for the after that behavior. There are several methods to teach chaining, such as forward chaining (starting from the first behavior in the chain), backwards chaining (starting from the last behavior) and total task chaining (in which the whole behavior is taught from beginning to end, rather than as a series of steps). An instance is opening a locked door. First the key is inserted, and then turned, and then the door opened.

Forward chaining would teach the subject first to insert the key. Once that task is mastered, they are told to insert the key, and taught to turn it. Once that task is mastered, they are told to perform the first two, and then taught to open the door. Backwards chaining would involve the teacher first inserting and turning the key, and the subject is taught to open the door. Once that is learned, the teacher inserts the key, and the subject is taught to turn it, then opens the door as the after that step. Finally, the subject is taught to insert the key, and they turn and open the door. Once the first step is mastered, the

whole task has been taught. Total task chaining would involve teaching the whole task as a single series, prompting through all steps. Prompts are faded (reduced) at each step as they are mastered.

Persuasive communication & the reinforcement theory

- **Persuasive communication:** Persuasion influences any person the method they think, act and feel. Persuasive ability tells in relation to the how people understand the concern, position and needs of the people. Persuasion can be classified into informal persuasion and formal persuasion.
- **Informal persuasion:** This tells in relation to the method in which a person interacts with his/her colleagues and customers. The informal persuasion can be used in team, memos as well as e-mails.
- **Formal persuasion:** This type of persuasion is used in writing customer letter, proposal and also for formal presentation to any customer or colleagues.
- **Process of persuasion:** Persuasion relates how you influence people with your skills, experience, knowledge, leadership, qualities and team capabilities. Persuasion is an interactive process while getting the work done through others. Here are examples for which you can use persuasion skills in real time. Interview: you can prove your best talents, skills and expertise. Clients: to guide your clients for the achievement of the goals or targets. Memos: to express your ideas and views to coworkers for the improvement in the operations. Resistance identification and positive attitude are the vital roles of persuasion.

Persuasion is a form of human interaction. It takes place when one individual expects some scrupulous response from one or more other individuals and deliberately sets out to secure the response through the use of communication. The communicator necessarily realizes that different groups have different values. In instrumental learning situations, which involve operant behavior, the persuasive communicator will present his message and then wait for the receiver to create a correct response. As soon as the receiver creates the response, the communicator wills effort to fix the response through some appropriate reward or reinforcement. In conditional learning situations, where there is respondent behavior, the communicator presents his message so as to elicit the response he wants from the receiver, and the incentive that originally served to elicit the response then becomes the reinforcing or rewarding element in conditioning.

COGNITIVE LEARNING

Cognitive learning is the study of mental processes such as "attention, language use, memory, perception, problem solving, and thinking." Much of the work derived from cognitive psychology has been integrated into several

other modern disciplines of psychological study including social psychology, personality psychology, abnormal psychology, developmental psychology, and educational psychology.

The mental processes

The main focus of cognitive psychologists is on the mental processes that affect behavior. Those processes contain, but are not limited to, the following:

Attention

The psychological definition of attention is "A state of focused awareness on a subset of the accessible perceptual information". The key function of attention is to discriminate flanked by irrelevant data and filter it out, enabling the desired data to be distributed to the other mental processes. The human brain may, at times, simultaneously receive inputs in the form of auditory, visual, olfactory, taste, and tactile information. Without the skill to filter out some or most of that simultaneous information and focus on one or typically two at most, the brain would become overloaded as a person attempted to process that information. One major focal point relating to attention within the field of cognitive psychology is the concept of divided attention. A number of early studies dealt with the skill of a person wearing headphones to discern meaningful conversation when presented with different messages into each ear. Key findings involved an increased understanding of the mind's skill to both focus on one message, while still being somewhat aware of information being taken in from the ear not being consciously attended to. E.g. participants (wearing earphones) may be told that they will be hearing separate messages in each ear and that they are expected to attend only to information related to basketball. When the experiment starts, the message in relation to the basketball will be presented to the left ear and non-relevant information will be presented to the right ear. At some point the message related to basketball will switch to the right ear and the non-relevant information to the left ear. When this happens, the listener is usually able to repeat the whole message at the end, having attended to the left or right ear only when it was appropriate.

Memory

Modern conceptions of memory typically break it down into three main sub-classes. These three classes are somewhat hierarchical in nature, in conditions of the level of conscious thought related to their use.

- Procedural memory is memory for the performance of scrupulous types of action. It is often activated on a subconscious level, or at most requires a minimal amount of conscious effort. Procedural memory comprises incentive-response type information which is activated

through association with scrupulous tasks, routines, etc. A person is using procedural knowledge when they seemingly "automatically" respond in a scrupulous manner, to a scrupulous situation or process.

- Semantic memory is the encyclopedic knowledge that a person possesses. Things like what the Eiffel Tower looks like, or the name of a friend from sixth grade would be semantic memory. Access of semantic memory ranges from slightly to very effortful, which depends on a number of variables including but not limited to: regency of encoding of the information, number of associations it has to other information, frequency of access, and levels of meaning (how deeply it was processed when it was encoded).
- Episodic memory is the memory of autobiographical events that can be explicitly stated. It contains all memories that are temporal in nature, such as when you last brushed your teeth, where you were when you heard in relation to a major news event, etc. Episodic memory typically requires the deepest level of conscious thought, as it often pulls together semantic memory and temporal information to formulate the whole memory.

Perception

Perception involves both the physical senses (sight, smell, hearing, taste, touch, and proprioception) as well as the cognitive processes involved in interpreting those senses. Essentially, it is how people come to understand the world approximately through interpretation of stimuli. Early psychologists like Edward B. Titchener, began to work with perception in their structuralist approach to psychology. Structuralism dealt heavily with trying to reduce human thought (or "consciousness," as Titchener would have described it) into its most basic elements through gaining understanding of how an individual perceives scrupulous stimuli. Current perspectives on perception within cognitive psychology tend to focus on scrupulous methods in which the human mind interprets stimuli from the senses and how these interpretations affect behavior. An instance of the method in which modern psychologists approach the study of perception would be the research being done at the Center for Ecological Study of Perception and Action at the University of Connecticut (CESPA). One study at CESPA concerns methods in which individuals perceive their physical environment and how that influences their navigation through that environment.

Language

Psychologists have had an interest in the cognitive processes involved with language that dates back to the 1870s, when Carl Wernicke proposed a model for the mental processing of language. Current work on language within the field of cognitive psychology varies widely. Cognitive psychologists may

study language acquisition, individual components of language formation (like phonemes), how language use is involved in mood, or numerous other related areas. Important work has been done recently with regard to understanding the timing of language acquisition and how it can be used to determine if a child has, or is at risk of, developing a learning disability. A study from 2012 showed that while this can be an effective strategy, it is significant that those making evaluations contain all relevant information when making their assessments. Factors such as individual variability, socioeconomic status, short term and long term memory capability, and others necessity be incorporated in order to create valid assessments.

Metacognition

Metacognition, in a broad sense, is the thoughts that a person has in relation to the own thoughts. More specifically, metacognition comprises things like:

- How effective a person is at monitoring their own performance on a given task (self-regulation).
- A person's understanding of their capabilities on scrupulous mental tasks.
- The skill to apply cognitive strategies.

Much of the current study concerning metacognition within the field of cognitive psychology deals with its application within the area of education. Being able to augment a student's metacognitive abilities has been shown to have an important impact on their learning and study habits. One key aspect of this concept is the improvement of students' skill to set goals and self-regulate effectively to meet those goals. As a part of this process, it is also significant to ensure that students are realistically evaluating their personal degree of knowledge and setting realistic goals (another metacognitive task).

Modern cognitive psychology

Modern perspectives on cognitive psychology usually address cognition as a dual process theory, introduced through Jonathan Haidt in 2006, and expounded upon through Daniel Kahneman in 2011. Kahneman differentiated the two styles of processing more, calling them intuition and reasoning. Intuition (or system 1), similar to associative reasoning, was determined to be fast and automatic, usually with strong emotional bonds incorporated in the reasoning process. Kahneman said that this kind of reasoning was based on formed habits and very hard to change or manipulate. Reasoning (or system 2) was slower and much more volatile, being subject to conscious judgments and attitudes.

Cognitive psychology vs. cognitive science

The line flanked by cognitive psychology and cognitive science can be a blurry one. The differentiation flanked by the two is best understood in conditions of cognitive psychology's relationship to applied psychology, and the understanding of psychological phenomena. Cognitive psychologists are often heavily involved in running psychological experiments involving human participants, with the goal of gathering information related to how the human mind takes in, processes, and acts upon inputs received from the outside world. The information gained in this area is then often used in the applied field of clinical psychology. One of the paradigms of cognitive psychology derived in this manner is that every individual develops schemata which motivate the person to think or act in a scrupulous method in the face of a scrupulous circumstance. E.g., most people have a schema for waiting in line. When approaching some type of service counter where people are waiting their turn, most people don't just walk to the front of the line and butt in. Their schema for that situation tells them to get in the back of the line. This then applies to the field of abnormal psychology as a result of individuals sometimes developing faulty schemata which lead them to uniformly react in a dysfunctional manner. If a person has a schema that says "I am no good at making friends", they may become so reluctant to pursue interpersonal relationships that they become prone to seclusion.

Cognitive science is better understood as predominantly concerned with gathering data through research. Cognitive science envelopes a much broader scope, which has links to philosophy, linguistics, anthropology, neuroscience, and particularly with artificial intelligence. It could be said that cognitive science gives the database of information that fuels the theory from which cognitive psychologists operate. Cognitive scientists' research mostly involves non-human subjects, allowing them to delve into areas which would come under ethical scrutiny if performed on human participants. I.e., they may do research implanting devices in the brains of rats to track the firing of neurons while the rat performs a scrupulous task. Cognitive science is highly involved in the area of artificial intelligence and its application to the understanding of mental processes.

Criticisms

In its early years, critics held that the empiricism of cognitive psychology was incompatible with its acceptance of internal mental states. Though, the sibling field of cognitive neuroscience has provided proof of physiological brain states that directly correlate with mental states - therefore providing support for the central assumption of cognitive psychology.

As cognitive psychology gained momentum as a movement, through the 1970s, the complexity of the processes involved in human thought, in the

opinion of several, fractured studies of cognition so greatly that the field lost cohesion. John C. Malone poses the assertion, in his book: *Psychology: Pythagoras to Present*, that "Examinations of late twentieth-century textbooks dealing with 'cognitive psychology', 'human cognition', 'cognitive science', and the like quickly reveals that there are several, several diversities of cognitive psychology and very little agreement in relation to the exactly what may be its domain". The information processing approach to cognitive functioning is currently being questioned through new approaches in psychology, such as dynamical systems, and the embodiment perspective.

INDIVIDUALIZED LEARNING

Individual Learning is the skill of individuals to experience personal growth in their interactions with the world approximately them.

Individual Learning Plan

Individual Learning Plan or ILP is a user (student) specific program or strategy of education or learning that takes into consideration the student's strengths and weaknesses. While normal classroom or aloofness education is based on the premise that all should get equal attention (a democratic principle), be exposed to same curriculum and evaluated on the same pattern ('One size fits all'), ILP presumes that the needs of individual students are different, and therefore, necessity be differently addressed. Emphasis on the student's role in the learning experience has been shown in research to be crucial to a productive learning experience.

The Individual Learning Plan can also be used through an individual on their own or as part of a community of interest, a team or an organization to manage learning over the course of their life. This is explored further in the article "Learning Plan."

Adopted through several institutes as a teaching methodology, ILP for a student is generated after interaction flanked by the student and the teacher, and is based upon assessment made therein. Further, ILP:

- Incorporates long-term goals of the student
- Synthesizes with the superior educational framework
- Provides credence to the student's aspirations - cultural, artistic, social, or personal

LEARNER AND LEARNING MEMORY

In psychology, memory is the process in which information is encoded, stored, and retrieved. Encoding allows information that is from the outside world to reach our senses in the forms of chemical and physical stimuli. In this first stage we necessity change the information so that we may put the memory into the encoding process. Storage is the second memory stage or process. This entails that we maintain information over periods of time.

Finally the third process is the retrieval of information that we have stored. We necessarily locate it and return it to our consciousness. Some retrieval attempts may be effortless due to the type of information.

From information processing perspective there are three main stages in the formation and retrieval of memory:

- *Encoding* or registration: getting, processing and combining of received information
- *Storage*: creation of a permanent record of the encoded information
- *Retrieval, recall* or *recognition*: calling back the stored information in response to some cue for use in a process or activity

The loss of memory is described as forgetfulness, or as a medical disorder, amnesia.

Techniques used to study memory

Techniques used to assess infants' memory

Infants do not have the language skill to report on their memories, and so, verbal reports cannot be used to assess very young children's memory. Throughout the years, though, researchers have adapted and urbanized a number of measures for assessing both infants' recognition memory and their recall memory. Habituation and operant conditioning techniques have been used to assess infants' recognition memory and the deferred and elicited imitation techniques have been used to assess infants' recall memory.

Techniques used to assess infants' recognition memory contain the following:

- Visual paired comparison procedure (relies on habituation): infants are first presented with pairs of visual stimuli, such as two black-and-white photos of human faces, for a fixed amount of time; then, after being familiarized with the two photos, they are presented with the "familiar" photo and a new photo. The time spent looking at each photo is recorded. Looking longer at the new photo designates that they keep in mind the "familiar" one. Studies using this procedure have found that 5- to 6-month-olds can retain information for as long as fourteen days.
- Operant conditioning technique: infants are placed in a crib and a ribbon that is linked to a mobile overhead is tied to one of their feet. Infants notice that when they kick their foot the mobile moves – the rate of kicking increases dramatically within minutes. Studies using this technique have revealed that infants' memory considerably improves over the first 18-months. Whereas 2- to 3-month-olds can retain an operant response (such as activating the mobile through kicking their foot) for a week, 6-month-olds can retain it for two

weeks, and 18-month-olds can retain a similar operant response for as long as 13 weeks.

Techniques used to assess infants' recall memory contain the following:

- Deferred imitation technique: an experimenter shows infants a unique sequence of actions (such as using a stick to push a button on a box) and then, after a delay, asks the infants to imitate the actions. Studies using deferred imitation have shown that 14-month-olds' memories for the sequence of actions can last for as long as four months.
- Elicited imitation technique: is very similar to the deferred imitation technique; the difference is that infants are allowed to imitate the actions before the delay. Studies using the elicited imitation technique have shown that 20-month-olds can recall the action sequences twelve months later.

Techniques used to assess older children and adults' memory

Researchers use a diversity of tasks to assess older children and adults' memory. Some examples contain the following:

- Paired associate learning - when one learns to associate one specific word with another. For instance when given a word such as "safe" one necessarily learn to say another specific word, such as "green". This is incentive and response.
- Free recall - throughout this task a subject would be asked to study a list of words and then sometime later they will be asked to recall or write down as several words that they can keep in mind. Earlier items are affected through retroactive interference, or RI, which means the longer the list, the greater the interference, and the less likelihood that they are recalled. On the other hand, items that have been presented lastly suffer little RI, but suffers a great deal from proactive interference, or PI, which means the longer the delay in recall, the more likely that the items will be lost.
- Recognition - subjects are asked to keep in mind a list of words or pictures, after which point they are asked to identify the previously presented words or pictures from among a list of alternatives that were not presented in the original list.
- Discovery Paradigm - Individuals are shown a number of objects and color samples throughout a certain period of time. They are then tested on their visual skill to keep in mind as much as they can through looking at testers and pointing out whether the testers are similar to the sample, or if any change is present.

Memory failures

- Transience - memories degrade with the passing of time. This occurs in the storage stage of memory, after the information has been stored and before it is retrieved. This can happen in sensory, short-term, and long-term storage. It follows a general pattern where the information is rapidly forgotten throughout the first couple of days or years, followed through small losses in later days or years.
- Absentmindedness - Memory failure due to the lack of attention. Attention plays a key role in storing information into long-term memory; without proper attention, the information might not be stored, making it impossible to be retrieved later.

Cognitive neuroscience of memory

Cognitive neuroscientists consider memory as the retention, reactivation, and reconstruction of the experience-independent internal representation. The term of internal representation implies that such definition of memory contains two components: the expression of memory at the behavioral or conscious level, and the underpinning physical neural changes. The latter component is also described as engram or memory traces. Some neuroscientists and psychologists mistakenly equate the concept of engram and memory, broadly conceiving all persisting after-effects of experiences as memory; others argue against this notion that memory does not exist until it is revealed in behavior or thought.

One question that is crucial in cognitive neuroscience is how information and mental experiences are coded and represented in the brain. Scientists have gained much knowledge in relation to the neuronal codes from the studies of plasticity, but most of such research has been focused on simple learning in simple neuronal circuits; it is considerably less clear in relation to the neuronal changes involved in more intricate examples of memory, particularly declarative memory that requires the storage of facts and events.

- Encoding. Encoding of working memory involves the spiking of individual neurons induced through sensory input, which persists even after the sensory input disappears. Encoding of episodic memory involves persistent changes in molecular structures that alter synaptic transmission flanked by neurons. Examples of such structural changes contain long-term potentiation (LTP) or spike-timing-dependent plasticity (STDP). The persistent spiking in working memory can enhance the synaptic and cellular changes in the encoding of episodic memory.

- Working memory. Recent functional imaging studies detected working memory signals in both medial temporal lobe (MTL), a brain area strongly associated with long-term memory, and prefrontal cortex, suggesting a strong relationship flanked by working memory and long-term memory. Though, the considerably more working memory signals seen in the prefrontal lobe suggest that this area play a more significant role in working memory than MTL.
- Consolidation and reconsolidation. Short-term memory (STM) is temporary and subject to disruption, while long-term memory (LTM), once consolidated, is persistent and stable. Consolidation of STM into LTM at the molecular level presumably involves two processes: synaptic consolidation and system consolidation. The former involves a protein synthesis process in the medial temporal lobe (MTL), whereas the latter transforms the MTL-dependent memory into an MTL-independent memory over months to years. In recent years, such traditional consolidation dogma has been re-evaluated as a result of the studies on reconsolidation. These studies showed that prevention after retrieval affects subsequent retrieval of the memory. New studies have shown that post-retrieval treatment with protein synthesis inhibitors and several other compounds can lead to an amnesic state. These findings on reconsolidation fit with the behavioral proof that retrieved memory is not a carbon copy of the initial experiences, and memories are updated throughout retrieval.

Factors that influence memory

Influence of odors and emotions

In March 2007 German researchers found they could use odors to re-activate new memories in the brains of people while they slept and the volunteers remembered better later. Emotion can have a powerful impact on memory. Numerous studies have shown that the most vivid autobiographical memories tend to be of emotional events, which are likely to be recalled more often and with more clarity and detail than neutral events.

The part of the brain that is critical in creating the feeling of emotion is the amygdale, which allows for stress hormones to strengthen neuron communication. The chemicals cortisone and adrenaline are released in the brain when the amygdale is activated through positive or negative excitement. The most effective method to activate the amygdale is fear, because fear is an instinctive, protective mechanism which comes on strong making it memorable. Sometimes the feeling can be overwhelming. This is when a memory can be hazy yet vivid, or haunting with perfect clarity. This detection led to the development of a drug to help treat posttraumatic stress disorder (PTSD). When someone is in a heightened emotional state, the events causing

it become strong and ground in the memory, sometimes disrupting daily life for years.

An experiment done with rats helped make the drug for treating this issue. Dr. Kerry Ressler at Emory University, used tones and shocks to test an existing drug described dicyclomine used commonly for tuberculosis. Rats would hear a tone and receive a mild shock, training them to fear the tone. Then the drug was given to one set of rats, and the tests were done again. The rats that did not receive the drug froze in fear. When the tone was heard, the rats given the drug ignored the tone and sustained on. The drug can effectively allow for new receptor connections flanked by neurons and relaxing of the amygdale when it comes to fear, allowing patients to have a chance of recovery from PTSD.

Dr. Barbara Rothbaum at Emory University conducts experimental treatments for PTSD using the knowledge that exactly the same neurons are active when remembering an event as when it was created. Her administration of the drug dicyclomine is planned to help patient's foster new connections flanked by neurons, providing a window to lessen former traumatic connections. Rothbaum decided to use the drug in a therapy session that utilizes virtual reality to provide PTSD suffers a second chance. Once the events that have caused the PTSD are recognized, the process can begin. The surroundings of the events are recreated in a virtual reality helmet (for instance, in a combat vehicle in the desert). This would help to recall the target memories in a safe environment, and activate the neurons without activating the fear response from the amygdale. When the dicyclomine is in the patient's system and the same neurons are active that were active throughout the event, the patient can now have a chance to re-form neural connections, with less chemicals present from the amygdale. This does not erase the memory, but rather lessens the strength of it, giving some relief so that people suffering from PTSD can try to move on and live their lives.

Recall is connected with emotion. If pain, joy, excitement, or any other strong emotion is present throughout an event, the neurons active throughout this event produce strong connections with each other. When this event is remembered or recalled in the future, the neurons will more easily and speedily create the same connections. The strength and longevity of memories is directly related to the amount of emotion felt throughout the event of their creation. This understanding helps the future of healthy and effective solutions to memory problems like PTSD.

Interference from previous knowledge

At the Center for Cognitive Science at Ohio State University, researchers have found that memory accuracy of adults is hurt through the fact that they know more, and have more experience than children, and tend to apply all this knowledge when learning new information. The findings appeared in the August 2004 edition of the journal Psychological Science.

Interference can hamper memorization and retrieval. There is retroactive interference, when learning new information creates it harder to recall old information and proactive interference, where prior learning disrupts recall of new information. Although interference can lead to forgetting, it is significant to keep in mind that there are situations when old information can facilitate learning of new information. Knowing Latin, for instance, can help an individual learn a related language such as French – this phenomenon is recognized as positive transfer.

Improving memory

A UCLA research study published in the June 2006 issue of the American Journal of Geriatric Psychiatry found that people can improve cognitive function and brain efficiency through simple lifestyle changes such as incorporating memory exercises, healthy eating, physical fitness and stress reduction into their daily lives. This study examined 17 subjects, (average age 53) with normal memory performance. Eight subjects were asked to follow a "brain healthy" diet, relaxation, physical, and mental exercise (brain teasers and verbal memory training techniques). After 14 days, they showed greater word fluency (not memory) compared to their baseline performance. No long term follow up was mentioned; it is so unclear if this intervention has lasting effects on memory.

There are a loosely associated group of mnemonic principles and techniques that can be used to vastly improve memory recognized as the Art of memory.

The International Longevity Center released in 2001 a report which comprises in pages 14–16 recommendations for keeping the mind in good functionality until advanced age. Some of the recommendations are to stay intellectually active through learning, training or reading, to keep physically active so to promote blood circulation to the brain, to socialize, to reduce stress, to keep sleep time regular, to avoid depression or emotional instability and to observe good nutrition.

Levels of processing

Craik and Lockhart (1972) proposed that it is the method and depth of processing that affects how an experience is stored in memory, rather than rehearsal.

- Organization - Mandler (1967) gave participants a pack of word cards and asked them to sort them into any number of piles using any system of categorization they liked. When they were later asked to recall as several of the words as they could, those who used more categories remembered more words. This study suggested that the organization of memory is one of its central characteristics.

- Distinctiveness - Eysenck and Eysenck (1980) asked participants to say words in a distinctive method, e.g. spell the words out loud. Such participants recalled the words better than those who simply read them off a list.
- Effort - Tyler *et al.* (1979) had participants solve a series of anagrams, some easy (FAHTER) and some hard (HREFAT). The participants recalled the hard anagrams better, presumably because they put more effort into them.
- Elaboration - Palmere *et al.* (1983) gave participants descriptive paragraphs of a fictitious African nation. There were some short paragraphs and some with extra sentences elaborating the main thought. Recall was higher for the ideas in the elaborated paragraphs.

Methods to optimize memorization

Memorization is a method of learning that allows an individual to recall information verbatim. Rote learning is the method most often used. Methods of memorizing things have been the subject of much discussion over the years with some writers, such as Cosmos Rossellius using visual alphabets. The spacing effect shows that an individual is more likely to keep in mind a list of items when rehearsal is spaced over an extended period of time. In contrast to this is cramming which is rigorous memorization in a short period of time. Also relevant is the Zeigarnik effect which states that people keep in mind uncompleted or interrupted tasks better than completed ones. The so-described Method of loci uses spatial memory to memorize non-spatial information.

KINDS OF MEMORY

Researchers distinguish flanked by recognition and recall memory. Recognition memory tasks require individuals to indicate whether they have encountered an incentive (such as a picture or a word) before. Recall memory tasks require participants to retrieve previously learned information. For instance, individuals might be asked to produce a series of actions they have seen before or to say a list of words they have heard before.

Classification through information type

Topographic memory involves the skill to orient oneself in space, to recognize and follow an itinerary, or to recognize familiar places. Getting lost when traveling alone is an instance of the failure of topographic memory. This is often reported among elderly patients who are evaluated for dementia. The disorder could be caused through multiple impairments, including difficulties with perception, orientation, and memory.

Flashbulb memories are clear episodic memories of unique and highly emotional events. Remembering where you were or what you were doing when you first heard the news of President Kennedy's assassination or in

relation to the 9/11 are examples of flashbulb memories. Anderson (1976) divides long-term memory into *declarative (explicit)* and *procedural (implicit)* memories.

Declarative memory

Declarative memory requires conscious recall, in that some conscious process necessarily calls back the information. It is sometimes described *explicit memory*, since it consists of information that is explicitly stored and retrieved.

Declarative memory can be further sub-divided into semantic memory, which concerns facts taken independent of context; and episodic memory, which concerns information specific to a scrupulous context, such as a time and place. Semantic memory allows the encoding of abstract knowledge in relation to the world, such as "Paris is the capital of France". Episodic memory, on the other hand, is used for more personal memories, such as the sensations, emotions, and personal associations of a scrupulous place or time. Autobiographical memory - memory for scrupulous events within one's own life - is usually viewed as either equivalent to, or a subset of, episodic memory. Visual memory is part of memory preserving some characteristics of our senses pertaining to visual experience. One is able to place in memory information that resembles objects, places, animals or people in sort of a mental image. Visual memory can result in priming and it is assumed some kind of perceptual representational system underlies this phenomenon.

Procedural memory

In contrast, procedural memory (or *implicit memory*) is not based on the conscious recall of information, but on implicit learning. Procedural memory is primarily employed in learning motor skills and should be measured a subset of implicit memory. It is revealed when one does better in a given task due only to repetition - no new explicit memories have been formed, but one is unconsciously accessing characteristics of those previous experiences. Procedural memory involved in motor learning depends on the cerebellum and basal ganglia.

A characteristic of procedural memory is that the things that are remembered are automatically translated into actions, and therefore sometimes hard to describe. Some examples of procedural memory contain the skill to ride a bike or tie shoelaces.

Classification through temporal direction

A further major method to distinguish different memory functions is whether the content to be remembered is in the past, retrospective memory, or whether the content is to be remembered in the future, prospective memory. Therefore, retrospective memory as a category comprises semantic, episodic

and autobiographical memory. In contrast, prospective memory is memory for future intentions, or *remembering to keep in mind*. Prospective memory can be further broken down into event- and time-based prospective remembering. Time-based prospective memories are triggered through a time-cue, such as going to the doctor (action) at 4pm (cue). Event-based prospective memories are intentions triggered through cues, such as remembering to post a letter (action) after seeing a mailbox (cue). Cues do not need to be related to the action (as the mailbox/letter instance), and lists, sticky-notes, knotted handkerchiefs, or string approximately the finger all exemplify cues that people use as strategies to enhance prospective memory.

PROCESSES OF MEMORY

Memory is essentially the capability for storing and retrieving information. Three processes are involved in memory: encoding, storage, and retrieval. All three of these processes determine whether something is remembered or forgotten.

Encoding

Processing information into memory is described encoding. People automatically encode some types of information without being aware of it. For instance, most people almost certainly can recall where they ate lunch yesterday, even though they didn't try to keep in mind this information. Though, other types of information become encoded only if people pay attention to it. College students will almost certainly not keep in mind all the material in their textbooks unless they pay close attention while they're reading.

There are many different methods of encoding verbal information:

- Structural encoding focuses on what words look like. For instance, one might note whether words are long or short, in uppercase or lowercase, or handwritten or typed.
- Phonemic encoding focuses on how words sound.
- Semantic encoding focuses on the meaning of words. Semantic encoding requires a deeper level of processing than structural or phonemic encoding and usually results in better memory.

Storage

After information enters the brain, it has to be stored or maintained. To describe the process of storage, several psychologists use the three-stage model proposed through Richard Atkinson and Richard Shiffrin. According to this model, information is stored sequentially in three memory systems: sensory memory, short-term memory, and long-term memory.

Sensory Memory

Sensory memory stores incoming sensory information in detail but only for an instant. The capability of sensory memory is very large, but the information in it is unprocessed. If a flashlight moves quickly in a circle inside a dark room, people will see a circle of light rather than the individual points through which the flashlight moved. This happens because sensory memory holds the successive images of the moving flashlight long enough for the brain to see a circle. Visual sensory memory is described iconic memory; auditory sensory memory is described echoic memory.

Short-Term Memory

Some of the information in sensory memory transfers to short-term memory, which can hold information for almost twenty seconds. Rehearsing can help keep information in short-term memory longer. When people repeat a new phone number over and over to themselves, they are rehearsing it and keeping it in short-term memory.

Short-term memory has a limited capability: it can store in relation to the seven pieces of information, plus or minus two pieces. These pieces of information can be small, such as individual numbers or letters, or superior, such as familiar strings of numbers, words, or sentences. A method described chunking can help to augment the capability of short-term memory. Chunking combines small bits of information into bigger, familiar pieces.

Working Memory

Psychologists today consider short-term memory to be a working memory. Rather than being just a temporary information storage system, working memory is an active system. Information can be kept in working memory while people process or examine it. Working memory allows people to temporarily store and manipulate visual images, store information while trying to create decisions, and keep in mind a phone number long enough to write it down.

Long-Term Memory

Information can be transferred from short-term memory to long-term memory and from long-term memory back to short-term memory. Long-term memory has an approximately infinite capability, and information in long-term memory usually stays there for the duration of a person's life. Though, this doesn't mean that people will always be able to keep in mind what's in their long-term memory—they may not be able to *retrieve* information that's there.

Organization of Memories

Imagine what would happen if a psychology textbook weren't organized

through section, through chapter, or in any other method. Imagine if the textbook didn't have a table of contents or an index. If the textbook just contained lots of information in a random order, students would have difficulty finding a scrupulous concept, such as "encoding of memory." They'd know the information was in there somewhere, but they'd have trouble retrieving it.

Long-term memory stores much more information than a textbook, and people would never be able to retrieve the information from it if it weren't organized in some method. Psychologists consider one method the brain organizes information in long-term memory is through category. For instance, *papaya* may be organized within the semantic category *fruit*. Categories can also be based on how words sound or look. If someone is struggling to keep in mind the word *papaya*, she may keep in mind first that it's a three-syllable word that it begins with the letter *p* or that it ends with the letter *a*. Long-term memory organizes information not only through categories but also through the information's familiarity, relevance, or connection to other information.

Where Were You When...?

Flashbulb memories are vivid, detailed memories of significant events. Older people may have very clear memories of where they were and what they were doing when they heard President John F. Kennedy had been assassinated. Several people today may have a similar kind of memory of where they were when they heard the Pentagon and the World Trade Center had been attacked through terrorists.

Retrieval

Retrieval is the process of getting information out of memory. Retrieval cues are stimuli that help the process of retrieval. Retrieval cues contain associations, context, and mood.

Lost Memories

The fact that people can often recall lost memories when hypnotized suggests that information in long-term memory is usually not lost—it may just be hard to retrieve.

Associations

Because the brain stores information as networks of associated concepts, recalling a scrupulous word becomes easier if another, related word is recalled first. This process is described priming. Instance: If Tim shows his roommate a picture of sunbathers on a nude beach and then asks him to spell the word *bear*, the roommate may be more likely to spell *bare* because the picture primed him to recall that form of the word.

Context

People can often keep in mind an event through placing themselves in the same context they were in when the event happened. Instance: If a woman loses her car keys, she may be able to recall where she put them if she re-makes in her mind exactly what she did when she last came in from parking her car.

Mood

If people are in the same mood they were in throughout an event, they may have an easier time recalling the event.

STAGES OF MEMORY

Classically, memory can be thought of as a series of time based stages. Each succeeding stage contains fewer items than the preceding one. Also, movement of items from one stage to another is accomplished through separate memory processes.

The sensory store is the first stage. Basically, everything you perceive enters sensory memory but very little remains. Partial report experiments for visual stimuli have shown that items are retained for two seconds or less. Here, subjects can keep in mind any of 16 letters that were flashed in front of them for a fraction of a second if they are asked to report within two seconds. After two seconds they cannot keep in mind any of the letters.

Short term memory (STM) is the after that stage. Pure STM lasts approximately 20 seconds. Pure STM occurs when subjects are prevented from rehearsing. One method to prevent rehearsing is to have subjects count backwards from 100 through threes (e.g., 100, 97, 94,...) after you show them a word. In real contexts, rehearsal creates STM last longer. Think of the following instance. Your car breaks down in an unfamiliar place. You walk to a phone booth, look up Al's Garage, dial the number, it's busy. A minute later you want to call again, but you have to look up the number again. Why? Because you did not rehearse it. If you had said "555-4231" over and over to yourself for that minute, you would not have had to look it up. That is a form of rehearsal.

STM is limited in size. George Miller described it as 7 items + or - 2 items. That finding is now referred to as the "magic number 7" for STM. Most people can easily hold 7 items in STM. Notice that telephone numbers have seven places. Do you keep in mind ZIP + 4, the new ZIP code? It is nine numbers long. Most people refuse to use 9 digit ZIP codes. Do you know yours? Mine is 71752-6231, SAU's is 71753-5000. What do you think is going to happen when telephone numbers get longer? Have you heard of (500) telephone numbers? You get to keep those no matter where you move to.

Long-term memory (LTM) lasts from minutes to years. Consolidation is the name of the process that puts items into LTM. Little is recognized of the details of how consolidation works. LTM can also be broken down into parts.

Procedural memories are memories in relation to the how to perform activities, for instance, riding a bicycle. Semantic memories are basically the same as knowledge. For instance, $3 \times 7 = 21$, or knowing the capital of France. Semantic memories are not time tagged, meaning you cannot usually keep in mind when you learned those items. Finally, episodic memories are personal and are time tagged: the day a relative died, the time the dog bit you, where you met your spouse, for instance. Think of them as the episodes of your life.

Working memory is a newer concept proposed through Baddeley to better describe the workings of short term memory. According to Baddeley, working memory comprises: the rehearsal loop, the visuospatial sketchpad, and the executive control system. The rehearsal loop is essentially the same as the traditional view of STM. The visuospatial sketchpad component allows for the handling of images. The executive control system is in charge of making decisions based on the limited amounts of information that exist in STM.

FORGETTING

Forgetting (retention loss) refers to apparent loss of information already encoded and stored in an individual's long term memory. It is a spontaneous or gradual process in which old memories are unable to be recalled from memory storage. Problems with remembering, learning and retaining new information are a few of the most common complaints of older adults. Memory performance is usually related to the active functioning of three stages. These three stages are encoding, storage and retrieval. Several different factors influence the actual process of forgetting. An instance of one of these factors could be the amount of time the new information is stored in the memory. Events involved with forgetting can happen either before or after the actual memory process. The amount of time the information is stored in the memory, depending on the minute's hours or even days, can augment or decrease depending on how well the information is encoded. Studies show that retention improves the increased rehearsal. This improvement occurs because rehearsal helps to transfer information into long term memory. - practice creates perfect.

It is subject to delicately balanced optimization that ensures that relevant memories are recalled. Forgetting can be reduced through repetition and/or more elaborate cognitive processing of information. Emotional states are just one of the several factors that have been found to effect this process of forgetting. As a disorder or in more severe cases this may be described as amnesia.

Forgetting functions (amount remembered as a function of time since an event was first experienced) have been extensively analyzed. The most recent proof suggests that a power function gives the closest mathematical fit to the forgetting function.

types of forgetting

According to Paul Connerton, a sociologist and a scholar at the University of Cambridge, there are seven types of forgetting. He argues that 'forgetting' is not necessarily a failing, but it is a combination of actions that lead to one term - forgetting. The seven types of forgetting, in his view, are:

Repressive erasure

This is the type used through government or states to remove the image or an event from someone's mind through totally getting rid of every artifact that reminds anyone of the image or the event. It does not need to only be used through government or states, but can be used through anyone to remove all memories from people of a certain event.

Prescriptive forgetting

This type of forgetting is an act of state. It does not depend on one person's forgetting, but acts as a communal forgetting, where all members of a party decide on forgetting a specific memory in order to continue to function more efficiently. An instance of prescriptive forgetting is when the whole student body forgets an event of breaking and entering into the school to continue to have a sense of a safer atmosphere throughout school time.

Forgetting that is constitutive in the formation of a new identity

This type refers to the thought of forgetting the past identity in order to continue to live with a new one. For instance, if a person has exposed to be a homosexual, they can use this type of forgetting to their advantage in order to limit their confusion as they will have no recollection of their past heterosexual lifestyle. This type of forgetting can be used to discard memories of past identity that serve no real purpose within the context of new identity.

Structural amnesia

This type states that a person only remembers those people who are socially significant. This was exposed through John Barnes in his writings of genealogy.

Forgetting as annulment

This type of forgetting results from a surplus of information, where useless information is discarded.

Forgetting as planned obsolescence

This type of forgetting happens when a product or any type of good has a

limited functionality and is not meant to last long, and so, the product keeps being bought through customers who use planned obsolescence forgetfulness. For instance, buying a microwave that lasts only two months, and when it is not functioning anymore, going out to get the same microwave which lasts two months, forgetting its previous failure.

Forgetting as humiliated silence

Humiliated silence takes place when a mishap occurs, resulting in embarrassment that is favored to be forgotten.

Theories of forgetting

The four main theories of forgetting apparent in the study of psychology are as follows.

Cue-dependent forgetting

Cue-dependent forgetting (also, context-dependent forgetting) or retrieval failure, is the failure to recall a memory due to missing stimuli or cues that were present at the time the memory was encoded. Encoding is the first step in creating and remembering a memory. How well something has been encoded in the memory can be measured through completing specific tests of retrieval. Examples of these tests would be explicit ones like cued recall or implicit tests like word fragment completion. Cue-dependent forgetting is one of five cognitive psychology theories of forgetting. This theory states that a memory is sometimes temporarily forgotten purely because it cannot be retrieved, but the proper cue can bring it to mind. A good metaphor for this is searching for a book in a library without the reference number, title, author or even subject. The information still exists, but without these cues retrieval is unlikely. Furthermore, a good retrieval cue necessity is constant with the original encoding of the information. If the sound of the word is accentuated throughout the encoding process, the cue that should be used should also put emphasis on the phonetic quality of the word. Information is accessible though, just not readily accessible without these cues. Depending on the age of a person, retrieval cues and skills may not work as well. This is usually common in older adults but that is not always the case. When information is encoded into the memory and retrieved with a technique described spaced retrieval, this helps older adults retrieve the events stored in the memory better. There is also proof from different studies that show age related changes in memory. These specific studies have shown that episodic memory performance does in fact decline with age and have made recognized that older adults produce vivid rates of forgetting when two items are combined and not encoded.

Trace decay

Trace decay theory explains memories that are stored in both short term and long term memory system. According to this theory, short term memory (STM) can only retain information for a limited amount of time, approximately 15 to 30 seconds unless it is rehearsed. If it is not rehearsed, the information will start to slowly fade absent and decay. Donald Hebb proposed that incoming information causes a series of neurons to make a neurological memory trace in the brain which would result in change in the morphological and/or chemical changes in the brain and would fade with time. Repeated firing causes a structural change in the synapses. Rehearsal of repeated firing maintains the memory in STM until a structural change is made. So, forgetting happens as a result of automatic fading of the memory trace in brain. This theory states that the events flanked by learning and recall have no effects on recall; the significant factor that affects is the duration that the information has been retained. Hence, as longer time passes more of traces are subject to decay and as a result the information is forgotten. One major problem in relation to the this theory is that in real-life situation, the time flanked by encoding a piece of information and recalling it, is going to be filled with all different kinds of events that might happen to the individual. So, it is hard to conclude that forgetting is a result of only the time duration.

Organic causes

Forgetting that occurs through physiological damage or dilapidation to the brain is referred to as organic causes of forgetting. These theories encompass the loss of information already retained in long term memory or the inability to encode new information again. Examples contain Alzheimer's, Amnesia, Dementia, consolidation theory and the gradual slowing down of the central nervous system due to aging.

Interference theories

Interference theory refers to the thought that when the learning of something new causes forgetting of older material on the basis of competition flanked by the two. In nature, the interfering items are said to originate from an over stimulating environment. Interference theory exists in three branches: Proactive, Retroactive and Output. Retroactive and Proactive inhibition each referring in contrast to the other. Retroactive interference is when new information (memories) interferes with older information. On the other hand, proactive interference is when old information interferes with the retrieval of new information. Output Interference occurs when the initial act of recalling specific information interferes with the retrieval of the original information. This theory shows an astonishing contradiction: a very intelligent individual is expected to forget more hastily than one who has a slow mentality. For this cause, an intelligent individual has stored up more memory in his mind which

will cause interferences and impair their skill to recall specific information.

Decay theory

Decay theory states that when something new is learned, a neuro-chemical, physical "memory trace" is formed in the brain and over time this trace tends to disintegrate, unless it is occasionally used. Decay theory states the cause we eventually forget something or an event is because the memory of it fades with time. If we do not effort to look back at an event, the greater the interval time flanked by the time when the event from happening and the time when we try to keep in mind, the memory will start to fade. Time is the greatest impact in remembering an event.

THINKING AND LANGUAGE—THINKING PROCESS AND CONCEPTS

The nature of thinking

Thinking has been defined as the process involved in manipulating information, either composed through the senses or stored in memory from previous experience, so as to be able to respond to the immediate situation. In this section, we shall examine several models of thinking. These contain Freudian approaches, distinctions flanked by autistic and rational thinking, Piaget's view of thinking and that of the behaviorists and the Gestalt psychologists.

Autistic and rational thinking

McKellar (1972) draws a distinction flanked by autistic thinking and rational thinking. Autistic thinking has notational purpose. It is the brain's manipulation of the information accessible to it, from the senses or from stored material, without any scrupulous purpose. Daydreaming is an instance of autistic thinking. Rational thinking, on the other hand, is logical and rational and directed towards a purpose. When you are solving the clues in a crossword puzzle you are engaging in rational thinking.

A Freudian view of thinking

For Freud and the psychoanalysts, thinking is closely related to their view of basic human motives. For them, the basic human motive is the satisfaction of bodily needs. Where these needs are not fully satisfied, memory of them is brought into play. This memory is associated with the kind of excitation that actual food, warmth and get in touch with evoke. For instance, a hungry infant

hallucinates in relation to the food, but this hallucination is not in itself satisfying. Some of the energy released is devoted to solving the problem, to changing the environment so that the food, the warmth they get in touch with is obtained. This is essentially autistic thinking, driven through emotional rather than through rational processes. Freud creates a distinction flanked by primary and secondary thought processes. While secondary thought embraces rational conscious thought of which we are normally aware, primary thought processes are normally unconscious. There seem to be three separate levels of thinking:

- Preconscious thought, which comprises those thoughts and ideas which are not engaging our consciousness at the moment, to which we are currently not paying attention but which nevertheless exist for us.
- Conscious thought, to which we are currently paying attention and on which we are engaging our minds.
- Unconscious thought, which remains inaccessible to our consciousness but which nevertheless plays a part in determining our behaviour.

Piaget's view of thought

The building blocks of an individual's intelligence Piaget termed schemata. They are continually being customized or added to through getting in touch with the environment so that the individual's version of that environment becomes more complete. The process involved is one of equilibration. When something new manifests itself in an individual's environment his or her mind is thrown into a state of imbalance or disequilibrium. This is uncomfortable, so there is motivation to find a new balance. This new balance occurs through version, which takes the form either of assimilation or else of accommodation. With assimilation, an object or a thought is understood in conditions of the concepts or actions (schemata) which the child already possesses.

A Gestalt model of thinking

There is a classic account of a German psychologist Wolfgang Köhler, interned on the island of Tenerife throughout the First World War, who set problems for a chimpanzee named Sultan. Köhler saw the principle concerned here as one of isomorphism the notion that the mind always attempts to restructure the elements of a problem so that the brain fields adopt good form, or Prägnanz, as the Gestalt psychologists described it. There is an inborn tendency within the brain to seek order out of chaos.

A behaviorist model of thinking

Behaviorists found some difficulty in explaining thinking. It did not seem to accord well with their principle that all mental processes were essentially the forming of associations flanked by stimuli. Watson (1913) viewed thinking as sub vocal speech. The process of thinking inevitably involved inner language. This was a motor theory of thought. Some work was done with deaf mutes. It might be expected under Watson's theory that they would move their fingers more than a normal group of adults when they were thinking: they used their fingers for sign language, after all. There did seem to be a higher correlation flanked by motor activity in the fingers and thinking than in a hearing group of adults. Skinner later viewed thinking as private behaviour as opposed to overt behaviour, and whispered that it was similarly subject to incentive control and reinforcement. In his book *Verbal Behavior* (1957) he attempted to show that both overt behaviour and thinking were controlled through operant conditioning. In overt behaviour, there was an interaction with someone else, while, with thinking, individuals are their own listeners. There is in effect an interaction with themselves.

Cognitive approaches to thinking

Cognitive approaches to thinking have attempted to examine the mental processes which occur throughout thinking. Miller et al. (1960) recognized what they referred to as heuristic strategies. These were models which enabled them to simulate the method in which the mind solved problems. The complexities of a problem might be simplified through working out a series of rules of thumb. These could then be applied one at a time. Though this did not guarantee that a solution to the problem could be found, it reduced the problem to manageable proportions. A computer could then be programmed to deal with it. For instance, in programming a computer to play chess, a set of instructions had to be devised such as 'check that the king is safe' or 'create sure that the queen cannot be taken'. Newell and Simon (1972) attempted to mirror human problem solving and behaviour in a heuristic method. To validate the models set up, they relied on individuals' verbal reports of what was going on in their heads while they attempted to solve problems. In this method, computer models were constructed of how problems were solved. Within these models the program was analogous to the set of rules or instructions within which a person operated; the computer memory was analogous to the memory of the individual, and the input and output from the computer represented the problem posed and the solution found.

Though, because human brains are not computers and cannot be so rigidly controlled there were difficulties, including the following:

- It is not very useful to think of human beings as machines. Any analogy is bound to be partial only, as we do not fully understand the principles on which the human brain operates.
- Computers, while they are very accurate and efficient calculators and solvers of logical problems, are not capable of original and creative thinking.
- Computers are not susceptible to human emotions. They do not get tired, anxious, angry or afraid.

The structure of knowledge

There is also quite extensive work through cognitive psychologists into the structure of knowledge. Generalized knowledge can be encoded in what have been described schemata. Unlike Piaget's use of the term, schemata here represent similar items of knowledge. This is related to the use of the term in the context of social cognition. They give expectations in relation to should occur in relation to procedures, sequences of events and social situations and allow us to create predictions in relation to the new situations. These are also extensively referred to in Part 6 of this book. To take an instance used through Eysenck (1984), suppose you were in an unfamiliar house and needed to use the toilet. The schemata you possess in relation to the houses would lead you to rule out the living room as a place to look. Though, it is just possible you might be in error and the toilet might be after that to the living room.

Scripts are a scrupulous kind of schema. They are standard sequences of events which through repetition have become predictable. Someone might develop a script related to going to work in the morning. You kiss your family goodbye, pick up your briefcase and a neatly furled umbrella, go out of the door and create for the station. On the method you stop at the news agent and buy a copy of the Guardian before arriving at the station two minutes before the train is due to leave. This is a relatively strong script in that the order of events is rigidly programmed. Weak scripts do not necessarily prescribe a rigid order of events, yet the events are sufficiently stereotyped to give expectation that they will occur.

Concept formation

When individuals form concepts, they are abstracting the essential characteristics from something they perceive. They can then place it in a category alongside other items with similar characteristics, label it and respond appropriately. Walking alongside a river, I saw in the water an animal moving in relation to the occasionally a black head appeared. The appearance and characteristics of what I saw enabled me to place it in a category. It was clearly a mammal, not a fish, and furthermore its behaviour, size and

appearance makes us suppose it necessary have been an otter. Accordingly, my appropriate response was to tell my companions that there was an otter in the river. From descriptions, definitions and previous encounters I had formed the concept of an otter and this conceptualization had enabled me to respond in an appropriate method. Without concepts every encounter with everything in our environment would have to be on a trial and error basis. Concept formation can be seen as rational thinking. An assortment of information, either perceived through the senses or stored in memory from previous experience, is directed towards a clear goal (the attainment of the concept) according to preordained rules.

Language and thinking

This section is concerned with the relationship flanked by thought and language. There are essentially four views taken on this relationship:

- That language determines thought;
- The behaviorist view that thought is internal speech;
- That thinking determines linguistic development;
- That the two are independent of one another, but each has an influence upon intellectual development.

The first of these viewpoints is represented through the Whorf±Sapir linguistic relativity hypothesis, the behaviorist view is represented through Watson, the third is Piaget's viewpoint and the fourth represents Vygotsky's view. Additionally, this section will examine the theses of Bernstein and Labov which relate to language and social class in the first case and language and race in the second.

Linguistic relativity

The linguist Benjamin Lee Whorf and the anthropologist Edward Sapir suggested that the language people used determined their perception of the world and consequently their thought. As proof, they cited the language of the Hopi Indians in North America. Unlike most European languages the Hopi language has no grammatical forms, constructions or words for time. This suggests that the Hopi do not think in relation to the time in the method we do. They also have no separate words for insect, aeroplane or pilot. Is it feasible to suggest that they do not differentiate flanked by them? Eskimos have a great several different words for snow, differentiating snow appropriate for making igloos from snow appropriate for sledging, for instance. Whorf suggests that this is proof that their thinking in relation to the snow is more intricate than ours is.

Proof for linguistic relativity

Some support for linguistic relativity comes from a study of the Navajo Indians through Carroll and Casagrande (1958). They studied three groups of participants:

- Those who spoke only Navajo;
- Those who spoke Navajo and English;
- American children of European descent who spoke nothing but English.

The form of things is very significant to the Navajos and this is reflected in their language. Different verbs are used for handling long, flexible objects from those used for handling long rigid objects, for instance. American children develop object recognition in this order; size, then color and finally form or shape. If Whorf and Sapir is right, you would predict that Navajo-speaking children would develop recognition of objects through their format an earlier stage than American children. This is what Carroll and Casagrande found. The difficulty with linguistic relativity is a chicken and egg problem. There is no method of being sure which comes first, the environment or the language. Whorf and Sapir assumed that in the beginning there was language and it was language which determined the method in which people perceived and thought in relation to the things. But it could equally well have been the other method approximately. The hundreds of camel-related words in Arabic or the 92 words for rice used through the Hanuxoo people of the Philippines simply reflect the nature of the worlds they live in and the things that are significant to them. It is likely that language simply highlights differences in the environments of different people and gives labels to store these differences in memory.

There is also a problem which relates to the flexibility of language. It is not static, but new conditions, relating perhaps to new technology or perhaps to the use of jargon, are continually being introduced. This seems to indicate that thought is the parent of language rather than the other way around. If it were not so, but if thought always needed to reflect language there would be no means to introduce fresh thinking. Changes in language use would not through themselves suffice to bring in relation to the change. The spur, as in new technology, necessity be original thinking.

Restricted and elaborated codes of language

Hess and Shipman (1965) have proposed that there are differences in the methods in which language is used in low status and high status families. They suggested that in high status (middle class) family's language conveys meaning. It describes, explains and expresses feelings. In low status (working

class) families language tends to be used more to provide orders to the child, who is therefore deprived of the same access to meaning as higher status children. Bernstein (1961) claimed that working-class and middle-class children use different language codes:

- Restricted code of language, used through working-class children, is syntactically crude, has short, grammatically simple sentences, a restricted vocabulary and is context-bound (that is to say, meaning depends to a high degree upon the context in which it is used).
- Elaborated code of language, used through middleclass children, employs a superior vocabulary, more intricate and flexible grammar and syntax and allows abstract thought to be expressed more easily.

Aparent of children on a bus, who insist upon getting up and walking approximately, might simply say 'Sit down and keep quiet!' or, if they persisted, 'Sit down and keep quiet or I'll hit you!' but if using an elaborated code of language might say 'You had better sit down in your own seats or the bus might suddenly stop and you would be thrown violently on the floor and hurt yourselves'. This seems to point to there being a link flanked by the kind of language used through individuals and the thought processes and intellectual development of these individuals. Bernstein claimed that the lack of an elaborated code of language is a barrier to working-class children developing their full intellectual potential. Additionally, the pattern of learning in schools is based upon the use of an elaborated code. Teachers are, after all, usually middle-class and certainly equipped with elaborated codes of language. They may not communicate adequately with some of the working-class children in their charge.

It has been suggested that the conditions 'restricted' and 'elaborated' are value-laden and that middle-class language is in some method regarded as superior. This is perhaps misleading. It is likely that most people employ what Bernstein would regard as a restricted code for some of the time. There is certainly some upper-class language usage which is just as restricted. Educated people have access to an elaborated code which they can use when they need to. Some less well educated people do not. This places them at a disadvantage intellectually. In a similar method, researchers such as Labov (1970), Houston (1970) and Williams (1972) have studied the dialects used through black Americans. They have found them to be profoundly different from 'standard' English. Children often employ two separate manners of speech, one for home, one for school. The school mode is not well urbanized and thoughts are not so easily expressed. Consequently, it has been regularly asserted that the children are intellectually inferior. Though, Williams (1972) urbanized a Black Intelligence Test, written in a dialect in which black children were more skilled. They performed much better on this test, while Genshaft and Hirt (1974) found that white children performed poorly on it.

Thought as sub vocal speech

A more extreme view has been taken through behaviorists and in scrupulous by Watson (1913). His suggestion was that thinking was sub vocal speech. The assumption was made that when someone attempted to solve a problem it necessarily involved some kind of inner language. When individuals thrash about with a problem, especially in stressful circumstances, they regularly talk to themselves. If you enter an infant classroom, there will often be a buzz apparent, of children vocalizing their thoughts. But this is not the same as saying that it is necessary for them to vocalize in order to think. study accepted out through Smith et al. (1947) would seem to indicate that it is not. Smith was given an unusual derivative which paralyzed him totally. He was kept alive on an artificial respirator. Sub vocal speech was impossible. Thought should also (according to Watson's hypothesis) have been impossible. Nevertheless, he later reported that he was able to understand and think in relation to the people were saying while he was paralyzed.

The influence of thought upon language

Language as one of a number of functions

Piaget claimed that language was just one among a number of symbolic functions. Others incorporated symbolic play and imagery. He maintained that: 'Language and thought are connected in a genetic circle... in the last analysis, both depend upon intelligence itself, which antedates language and is independent of it'.

Piaget has taken an opposite view of the relationship flanked by thought and language to Whorf and Sapir. For him, intellectual development comes first, and without it language is little more than meaningless babble. As an illustration of this, Sinclair-de-Zwart (1969) studied children who had acquired the concept of conservation of volume (a level of intellectual development where children can appreciate that the volume of a liquid remains constant even when it is poured from a tall slender container to a short squat one). He found that they understood the meaning of words such as 'more', 'bigger', 'as much as'. Those children who had not reached the stage of conservation of volume found it hard to use such words correctly even when given specific linguistic training.

Language and thought as separate

For Bruner, language and thought are separate. He postulated three methods in which a child can retain and use information from the environment:

- Through enactive representation: that is to say, through means of physical manipulation of the environment.
- Through iconic representation: that is, picturing the environment mentally.
- Through symbolic representation, particularly through language.

Nonlinguistic thought comes first (what he conditions enactive or iconic representation of the world). After language has urbanized, thought is amplified and accelerated in symbolic representation.

Thought and language as independent

Vygotsky (1962) held that language had two separate characteristics:

- As a monitor and controller of a person's private thoughts (inner speech).
- As a means of communicating those thoughts to others (external speech).

He whispered that in infancy, thinking and language are independent. To begin with, a child's attempts to use language represent purely social speech, with no inner thought. Simultaneously, the child is developing primitive forms of thinking and reasoning, which do not involve language. Then, at in relation to the age of two the social speech and the primitive thinking begin to come together. Words begin to act as symbols for thoughts. Vygotsky would agree with Piaget that the earliest thought is independent of language but where they part company is that Vygotsky whispered that language plays an essential part in a child's intellectual development after in relation to the age of two. Later, after in relation to the age of seven, language and thought again separate, with language having two separate functions:

- Internal language for the child itself as an aid to thought (egocentric speech). But children under in relation to the four or five regularly express this egocentric speech aloud, as do older people in situations of stress.
- External language as a means of communicating thought to others.

REVIEW QUESTIONS

- Explain the meaning, definitions and characteristics of Learning.
- What is cognitive learning?
- What is individualized learning?
- Explain the Kinds of memory.
- Describe the memory processes.
- What is forgetting?

INTELLIGENCE AND MOTIVATION

STRUCTURE

- Learning objectives
- Intelligence
- Motivation
- Review questions

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- Understand the intelligence; and
- Understand the motivation.

INTELLIGENCE

Intelligence has been defined in several different methods including logic, abstract thought, understanding, self-awareness, communication, learning, having emotional knowledge, retaining, planning, and problem solving. Intelligence is most widely studied in humans, but has also been observed in other animals and in plants. Artificial intelligence is the simulation of intelligence in machines. Within the discipline of psychology, several approaches to human intelligence have been adopted. The psychometric approach is especially familiar to the general public, as well as being the most researched and through distant the most widely used in practical settings.

Definitions

The definition of intelligence is controversial. Some groups of psychologists have suggested the following definitions:

- From "Mainstream Science on Intelligence" (1994), an editorial statement through fifty-two researchers: A very general mental capability that, among other things, involves the skill to cause, plan, solve problems, think abstractly, comprehend intricate ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic ability, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings—"catching on," "making sense" of things, or "figuring out" what to do.
- From "Intelligence: Known's and Unknowns" (1995), a report published through the Board of Scientific Affairs of the American

Psychological Association: Individuals differ from one another in their skill to understand intricate ideas, to adapt effectively to the environment, to learn from experience, to engage in several forms of reasoning, to overcome obstacles through taking thought. Although these individual differences can be substantial, they are never entirely constant: a given person's intellectual performance will vary on different occasions, in different domains, as judged through different criteria. Concepts of "intelligence" are attempts to clarify and organize this intricate set of phenomena. Although considerable clarity has been achieved in some areas, no such conceptualization has yet answered all the significant questions, and none commands universal assent. Indeed, when two dozen prominent theorists were recently asked to describe intelligence, they gave two dozen, somewhat different, definitions.

Theories

Intelligence theorists fall into two categories. In one group are those who argue for a "general intelligence" that characterizes a person's actions and thinking in all areas. Their critics consider that intelligence is composed of several separate types of aptitudes and abilities, and that a person who excels in one area will not necessarily excel in all areas.

Early Theories: Spearman and Thurstone

Spearman whispered that intelligence is general: People who are bright in one area are bright in other areas as well. Thurstone disagreed: He whispered that intelligence encompasses seven mental abilities that are relatively independent of one another.

In contrast, Cattell divided mental abilities into two clusters. The first is crystallized intelligence, or abilities such as reasoning and the verbal and numerical skills that are stressed in school. The second is fluid intelligence, or skills such as spatial and visual imagery, the skill to notice visual details, and rote memory.

Contemporary Theories: Sternberg and Gardner

In the mid-1980s, Yale psychologist Robert Sternberg proposed a triarchic theory of intelligence that comprises a much broader range of skills and abilities. According to this theory, intelligence consists of three overarching characteristics: componential intelligence, the traditional mental processes or skills accentuated through earlier theories of intelligence, such as the skill to acquire new knowledge and perform tasks efficiently; experiential intelligence, characterized through insight and creative adaptability as well as efficient and quick processing of information without conscious thought; and

contextual intelligence, marked through responsiveness to the environment. Intelligent people, according to Sternberg, are adept at making the most of their strengths and compensating for their weaknesses. Howard Gardner has proposed his theory of multiple intelligences, which asserts that what we refer to as intelligence actually consists of several separate abilities, each of which is relatively independent of the others.

Formal theories of intelligence serve as the foundation for the design and administration of intelligence tests. And because experts do not view intelligence in exactly the same method that non-experts do, it is understandable that most tests of intelligence do not contain items that several non-experts think of as part of intelligence.

Measures of Intelligence

Alfred Binet and Theodore Simon, commissioned through the French government to devise a test that would differentiate flanked by children who could not learn because of low skill and those who would not learn because of poor motivation, created the first intelligence test in 1905. Binet did not really have a theory of mental skill, but he thought that intelligence could be best expressed in and assessed through intricate cognitive tasks. The first intelligence test consisted of items that assessed memory, knowledge, and reasoning skills arranged in a sequence of increasing difficulty and grouped into age levels, or when the “average” child could accomplish them. This first test has undergone numerous revisions and is now recognized as the Stanford-Binet Intelligence Scale, Fifth Edition.

Currently, the most widely-used intelligence tests are the Wechsler Scales. Intended through David Wechsler, a clinical psychologist who used the test to help identify cognitive strengths and weaknesses in his clients and assist in diagnoses, the tests were based on his definition of intelligence as “the aggregate or global capability of the individual to act purposefully, to think rationally, and to deal effectively with his environment”. Because the test seemed to be a valid measure of general intelligence, its use expanded to other populations. There are three separate Wechsler scales:

- Wechsler Preschool and Primary Scale of Intelligence, 3rd ed. (WPPSI-III)
- Wechsler Intelligence Scale for Children, 4th ed. (WISC-IV)
- Wechsler Adult Intelligence Scale, 3rd ed. (WAIS-III)

The WISC-IV is intended for use with children and adolescents ages 6 to 16 years 11 months and will be the focus of this section. Sample items from many of the 10 core subtests are presented below:

- Similarities. In what method are wool and cotton alike?
- Vocabulary. What does corrupt mean?

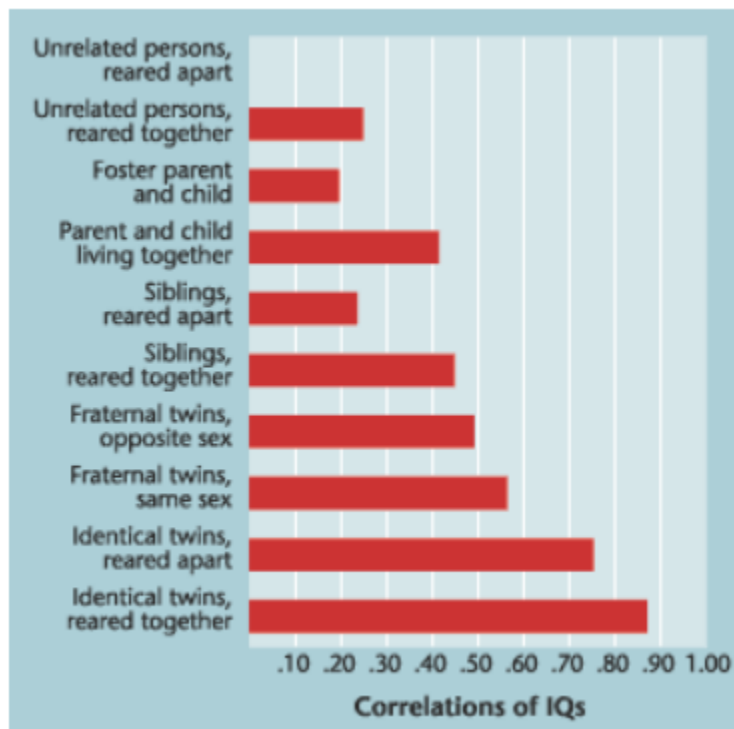
- Comprehension. Why do people buy fire insurance?
- Digit Span. I am going to say some numbers. Listen cautiously and when I am through, say the numbers right after me: 734186
- Coding. In the top row, each figure is shown with a number. Fill in the number that goes with each figure in the second row
- Matrix Reasoning. For each item the child looks at a partial matrix and selects the missing portion from five response options.
- Picture Concepts. The child identifies objects that share some common property.

Some of the items in this test require children and adolescents to arrange materials rather than talk with the test administrator. This procedure allows non-English-speaking children, as well as youth with speech or language disorders, to demonstrate their intellectual capabilities. Some professionals find the division flanked by verbal and performance items very useful for assessment purposes. The items create up four index scores—Verbal Comprehension, Perceptual Organization, Freedom from Distractability, and Processing Speed—that are combined to provide an overall skill score. When the four index scores are added together, they produce a total skill score, or intelligence quotient (IQ). On the Wechsler scales, the mean total IQ is set at 100 with a standard deviation of 15. Most other major intelligence tests have set the same mean so it is easy to compare the IQ score from one intelligence test to another.

Determines

Heredity

Historically, research on the determinants of intelligence has focused on identical twins—some reared together; others reared separately in separate households. The correlation flanked by the IQs of all identical twins is usually very high, indicating that their identical genetic inheritance is a more powerful determinant of intelligence than their experiences. But critics of this research create many strong points: (1) It is hard to find identical twins who have been separated at birth, so that there are only a few such studies; (2) identical twins tend to be placed in households similar in socioeconomic background to those of their biological parents; and (3) even twins separated at birth have had almost identical prenatal experiences.



Environment

Research on rats as well as on humans strengthens the case for environment as a factor in the development of superior intellectual skill. Therefore, even though certain mental abilities are inherited, without the necessary stimulation a child's intelligence will not develop. This finding is significant because lower-income families don't have access to the kinds of resources that other families do. Significantly, when they are placed in more stimulating environments, economically deprived children show an improvement in their level of intelligence. For instance, lower-income children raised in middle-class homes display important gains in IQ compared with their counterparts rising up in low-income households. Similarly, children who participate in intervention programs such as Head Start regularly exhibit improvements in cognitive abilities, although the long-term effects of such programs have yet to be confirmed.

The IQ Debate: A Continuing Controversy

Accounting for group differences in IQ poses a vexing problem in psychology. A milestone in this debate was the 1969 publication of an article through psychologist Arthur Jensen, claiming that overall differences in IQ scores flanked by the races are largely inherited. Jensen's article raised a storm of controversy, which swelled up again in 1994 with the publication of a book

on this topic through Richard Herrnstein and Charles Murray. Significantly, most participants in this debate agree that both heredity and environment affect IQ scores.

Testing for special Aptitudes

Aptitude

An aptitude is a component of a competency to do a certain kind of work at a certain level, which can also be measured "talent". Aptitudes may be physical or mental. Aptitude is not knowledge, understanding, learned or acquired abilities (skills) or attitude. The innate nature of aptitude is in contrast to achievement, which represents knowledge or skill that is gained.

Intelligence

Aptitude and intelligence quotient are related, and in some methods opposite views of human mental skill. Whereas intelligence quotient sees intelligence as being a single measurable characteristic affecting all mental skill, aptitude refers to one of several different characteristics which can be independent of each other, such as aptitude for military flight, air traffic control, or computer programming. This is more similar to the theory of multiple intelligences.

Concerning a single measurable characteristic affecting all mental skill, analysis of any group of intelligence test scores will almost always show them to be highly correlated. The U.S. Department of Labor's General Learning Skill, for instance, is determined through combining Verbal, Numerical and Spatial aptitude subtests. In a given person some are low and others high. In the context of an aptitude test the "high" and "low" scores are usually not distant separately, because all skill test scores tend to be correlated. Aptitude is better applied intra-individually to determine what tasks a given individual is more skilled at performing. Inter-individual aptitude differences are typically not very important due to IQ differences. Of course this assumes individuals have not already been pre-screened for aptitude through some other process such as SAT scores, GRE scores, or finishing medical school.

Combined aptitude and knowledge tests

Tests that assess learned skills or knowledge are regularly described achievement tests. Though, certain tests can assess both types of constructs. An instance that leans both methods is the Armed Services Vocational Aptitude Battery (ASVAB), which is given to recruits entering the armed forces of the United States. Another is the SAT, which is intended as a test of aptitude for college in the United States, but has achievement elements. For

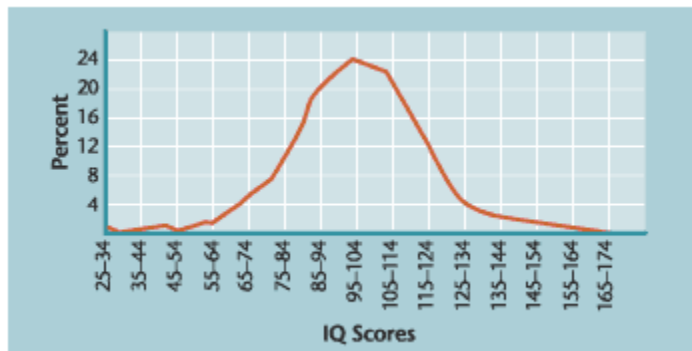
instance, it tests mathematical reasoning, which depends both on innate mathematical skill and education received in mathematics.

Aptitude tests can typically be grouped according to the type of cognitive skill they measure:

- Fluid intelligence: the skill to think and cause abstractly, effectively solve problems and think strategically. It's more commonly recognized as 'street smarts' or the skill to 'quickly think on your feet'. Examples of what employers can learn from your fluid intelligence in relation to the your suitability for the role for which you are applying
- Crystallized intelligence: the skill to learn from past experiences and relevant learning, and to apply this learning to work-related situation. Work situations that require crystallized intelligence contain producing and analyzing written reports, comprehending work instructions, using numbers as a tool to create effective decisions, etc

The Stanford-Binet Intelligence Scale

The Binet-Simon Scale, the first test of intelligence, was urbanized in France through Alfred Binet and Theodore Simon for testing children. Originally issued in 1908, it consisted of 30 tests arranged in order of increasing difficulty. From the average scores of children, Binet urbanized the concept of mental age.



The best-recognized Binet version, created through Stanford University's L. M. Terman in 1916, is the Stanford-Binet Intelligence Scale. Terman introduced the term intelligence quotient (IQ), which is a numerical value given to scores on an intelligence test (a score of 100 corresponds to average intelligence). The Stanford-Binet is intended to measure skills in four areas: verbal reasoning, abstract/visual reasoning, quantitative reasoning, and short-term memory.

The Wechsler Intelligence Scales

The Wechsler Adult Intelligence Scale-Third Edition (WAIS-III) was

urbanized through David Wechsler especially for adults. The test measures both verbal and performance abilities. Wechsler also created the Wechsler Intelligence Scale for Children-Third Edition (WISC-III), which is meant to be used with school-aged children. It measures verbal and performance abilities separately, though it also yields an overall IQ score.

Group Tests

Group tests are administered through one examiner to several people at one time. Group tests are most commonly used through schools. The California Test of Mental Maturity (CTMM) and the SAT are group tests. Group tests aim to overcome the problems of time and expense associated with individual tests and to eliminate bias on the part of the examiner. Though, in a group setting the examiner is less likely to notice whether an individual test taker is tired, ill, or confused through the directions. Emotionally disturbed children and people who have less experience taking tests usually do better on individual tests than on group tests.

Performance and Culture-Fair Tests

Some intelligence tests may discriminate against members of certain cultural or ethnic groups. Performance tests are intelligence tests that do not involve language, so they can be useful for testing people who lack a strong command of English. The Seguin Form Board, the Porteus Maze, and the Bayley Scale of Infant Development are performance tests. Culture-fair tests are intended to eliminate cultural bias through minimizing skills and values that vary from one culture to another. The Good enough-Harris Drawing Test and the Progressive Matrices are examples of culture-fair tests.

MOTIVATION

Motives as inference

There is some reference (be it conscious or unconscious) underlying our behavior as it is not random or purposeless. So, motivation plays a role of energizing behavior from inside. A motivated individual initiates and accomplishes several responses in the environment, and achieves his/her goals faster, more vigorously, and more persistently than does one who is less motivated. Motivation is noted to be long lasting. It accounts for performed behaviors and explains the why of behavior. We can so say that motivation has direct impact on behavior as it creates behavior much more goal and purpose oriented.

Through nature, most motives go cyclically. There is usually a start point, which ends to become itself after some time laps. (Here, note that there are few motives that do not go in cycles). In explaining the cycle of motives, let us

first describe motivation. “Motivation refers to states within a person or animal that drive behavior toward some goal.” In this definition, there are three points that need emphasis;

- Motivating state- (this state could also be described the ‘drive.’) It arouses the motivating behavior. The arousal could start to function mainly through three factors;
 - Internal bodily needs,
 - External sensory stimulation, and
 - Cognitive experiences
- The behavior that is aroused through the drive - this one is instrumental in satisfying our drive. This behavior is a means to an end. It is going to settle the unsettled feelings in us.
- The goal (end) - depending on the drive that activates (incites) the present motivating state, this is the reduction of the drive. This one is an end through itself hence it is the satisfaction of the need we experienced at the first stage.

Depending on the motivating state that is moving us at a certain point in time, goals could be positive or negative. We approach positive goals and try to satisfy them. On the other hand, we avoid or escape from negative goals that frustrate or endanger us. Both satisfy a certain motive though we approach the positive as pleasant and avoid the negative as unpleasant.

Theories Of Motivation

- Drive-reduction theory (‘push’ theory) – states that the reduction of biological drives, like hunger, thirst, oxygen, pain avoidance, ..., is pleasure producing. A drive is an internal states of tension that motivates (pushes) an organism to engage in activities that should reduce this tension. This theory is simple with several limitations since the source of pleasure is not always associated with biological drive reduction. But it has significance in explaining the fact that when we lack something that is significant for our survival, there is the ‘drive’ that motivates us to satisfy it.
- Incentive (‘pull’) theory – this is described ‘pull’ theory because the goal objects pull behavior toward them. In contrast from the drive theory, this theory says that the response to what is motivating us at a certain point in time is valued more than anything in the environment. This is so because people expect pleasure from the attainment of what are described positive incentives, and from avoidance of negative incentives. So, the response is acting as a goal (incentive) to our motivating behavior. Experiments on the proof of this theory show that organisms tend to like the goal they achieved when they really wanted it and when it is something they like more.

- Arousal Theory – this theory tells us in relation to the things arouse (excite) organisms to respond in a certain manner to their nearby. It says that both high and low arousal states do not create our performance effective. So, to become effective, it is good to be in an intermediate state of arousal.

There are four general sources of arousal;

- Physiological (internal) drives and incentives are arousing,
- Intensity of environmental stimuli affect our arousal,
- Surprising or new events arouse curiosity,
- Drugs arouse people to act in an excited manner.

Self-actualization theory (lh2)

A. Maslow put what drive human beings from the bottom to the higher in order of hierarchy. The most significant ones are found at the base.

- Human beings necessity first satisfies their needs for survival – named *physiological needs*. After being able to eat, to drink, to sleep, ... , (after securing survival), people continue to care in relation to their.
- *Safety needs* that are avoidance of accidents and painful sensations. They contain concern for long-term survival, job security, pension, buying insurance, saving money, and the like.
- *Love and belongingness* (social) needs continue through having someone to love and through affiliating with others as a contributing member in the society. Here, an individual is able to identify his/her personal being.
- *Esteem* (ego) needs are the fourth elements in the hierarchy that Maslow described human beings get motivated through. People want to report their success to get prestige. This is the feeling of self-worth through knowing that others are aware of one's competence and value.
- At the top of Maslow's hierarchy comes the last of the motivating states for human beings, i.e. *self-actualization*. Through this we explore and understand our potentialities to the full and influence the world. This is the state of self-fulfillment. Getting motivated through the self-actualization needs ultimately goes in making us actualize who we really are. At this stage, people feel satisfied of their current state of affairs. This fifth need is highly influenced through the society we live in. This is because a urbanized society helps one get facilitated through the materials (the infra-structure) one can use in the process of actualizing his/her own self (inner potentialities), while less urbanized societies are not conducive places to satisfy this need.

Of these five hierarchies, Maslow labels the last three as psychological states while the first two are basic physiological ones.

Biological Motives

Biological Motives to a large extent, rooted in the physique (body). Since they are innate and internal, their arousal is basically unlearned. Most of them necessarily be met for survival. They may show up in our behavior starting from birth, or they may come in relation to the maturation. The most significant primary motives contain hunger, pain avoidance, a need for oxygen, sleep, elimination of wastes, and regulation of body temperature. Several of these motives are triggered through departures from balanced state of equilibrium described homeostasis in their internal physiological processes. Homeostasis, body equilibrium, works automatically to maintain balance among internal physiological circumstances.

Social Motives

These are motives that are learned and satisfied in the context of others. As they are the wellsprings of several of human actions, they are intricate motive states. These human motives can be looked upon as general states that lead to different kinds of scrupulous behaviors. Not only do they help to determine much of what a person does, they persist, never fully satisfied, over the years. No sooner is one goal reached than the motive is directed to another one. These motives are significant components of personality. As they are learned, they also have different strengths from one person to another.

Motives to know and to be effective

Motives to know and to be effective just like the physiological drives, these ones are also innate or unlearned. They are persistent and seem to exist to one degree or another in everyone. But their root is not the physique. Drives under this category highly contribute to the normal behavioral development of human beings. In some instances, there could be some interconnection flanked by the physiological needs and the ones in this classification. These motives, though, are motives that drive a person to seek diversity in stimulation, to process information in relation to the nearby world, to explore, and to be effective in mastering challenges from the environment. So, they seek out sensory stimulation through continual interaction with the environment.

REVIEW QUESTIONS

- Explain the concepts of intelligence in psychology.
- Describe the theories and measurement of intelligence.

- What is aptitude?
- Explain the concepts of motivation in psychology
- Explain the biological motivation.

EMOTIONS AND PERSONALITY

STRUCTURE [MH]

- Learning Objectives
- Emotion
- Personality
- Review questions

LEARNING OBJECTIVES [MH]

After reading this chapter, you should be able to:

- Understand the emotions; and
- Understand the personality.

EMOTION [MH]

In psychology and philosophy, emotion is a subjective, conscious experience characterized primarily through psycho physiological expressions, biological reactions, and mental states. Emotion is often associated and measured reciprocally influential with mood, temperament, personality, disposition, and motivation, as well as influenced through hormones and neurotransmitters such as dopamine, noradrenaline, serotonin, oxytocin, cortisol and GABA. Emotion is often the driving force behind motivation, positive or negative. An alternative definition of emotion is a "positive or negative experience that is associated with a scrupulous pattern of physiological activity."

The physiology of emotion is closely connected to arousal of the nervous system with several states and strengths of arousal relating, apparently, to scrupulous emotions. Although those acting primarily on emotion may seem as if they are not thinking, cognition is a significant aspect of emotion, particularly the interpretation of events. For instance, the experience of fear usually occurs in response to a threat. The cognition of danger and subsequent arousal of the nervous system (e.g. rapid heartbeat and breathing, sweating, muscle tension) is an integral component to the subsequent interpretation and

labeling of that arousal as an emotional state. Emotion is also connected to behavioral tendency.

Research on emotion has increased significantly over the past two decades with several fields contributing including psychology, neuroscience, medicine, history, sociology, and even computer science. The numerous theories that effort to explain the origin, neurobiology, experience, and function of emotions has only fostered more intense research on this topic. The current research that is being mannered in relation to the concept of emotion involves the development of materials that stimulate and elicit emotion. In addition PET scans and MRI scans help study the affective processes in the brain.

Physiology and Emotions [h]

In the human brain, learning, memory and emotions are housed in the limbic system nearby the brainstem. Within the limbic system, emotional impulses originate in the amygdale, an almond-shaped structure that triggers the physiological reactions associated with emotions. The amygdale is also responsible for imprinting emotions onto memories through releasing some of the same neurochemicals when an event is recalled as when it occurred. A network of neural pathways connects the amygdale to the neocortex, the "thinking brain," allowing us to reflect on our feelings and to think before acting. In times of perceived crisis, though, those pathways are bypassed and impulse overrides cause. When the man succumbs to road rage and yells at his wife over an innocent remark, he is experiencing what Goleman dubbed "an emotional hijacking," in which the amygdala takes over the brain. Sometimes, emotions and their physiological effects can seem indistinguishable. Intuitive "gut feelings," or somatic markers, develop simultaneously in the limbic system and the body. These steer us toward one course of action or another, whether it be avoiding danger or seizing opportunity.

Each emotion sparks a distinctive physiological reaction, the body's program for dealing with the different situations that arise in our emotional lives. Happiness cues the brain to suppress worrisome or negative feelings and increases the body's energy level. Sadness does the opposite, slowing down its metabolism, and manifests itself most visibly in tears. Research has substantiated the age-old theory that crying releases harmful toxins through showing that tears of sadness have a different chemical composition than tears of joy or those caused through irritants. Cardiologists have also found that crying can reduce stress and the harmful physiological reactions associated with it. Anger floods the brain with catecholamines—hormones that prime the body for action—and stimulates the nervous system, putting it on a general state of alert. This explains why someone who is already in a foul mood will remain edgy and more easily aroused to anger than someone who is not.

Stress and anxiety set off the nervous system's "flight-or-fight" response, a chain of physiological events in which the blood pressure rises and muscles contract. In chronic cases, they can lead to headaches, cramps and insomnia, as well as to more serious ailments, such as heart disease, colitis and gastrointestinal disorders. According to the American Medical Association, stress contributes to 75 per cent of all cases of illness in the United States. People can also engage in certain behaviours to induce the release of neurotransmitters, causing them to have the sensation of an emotional experience without having to identify and process their feelings.

On the surface, this might seem like a good strategy for dealing with hard situations. But such behaviours can quickly become addictive and serve as false substitutes for true emotional wellness. Moreover, like most addictions, their potency slowly wears off as the body's tolerance level increases, forcing the people who resort to them to seek ever-greater levels of stimulation.

Ultimately, it is less the physiological effects of emotions than how we deal with them that affects our overall health. A decade-long study through Ohio State University researchers tracked both men and women who had been diagnosed with depression, but appeared free from cardiac problems. Over the course of the study, 46 per cent of the men eventually died from heart disease, compared to only 16 per cent of the women. The researchers theorized that the male tendency to bury feelings and avoid examining or expressing them might have led to the difference in mortality rates. So the man's wife is almost certainly right: it does help to talk.

Mood swings—rapid fluctuation from one emotion to another—can also wreak havoc on the body. A 1999 study conducted at Duke University Medical Center found that people prone to moodiness were four times more likely to develop ischemia, a condition that reduces the flow of blood to the heart, than those whose emotional highs and lows tended to stay stable.

Neurotransmitters [sh]

Neurotransmitters are chemicals that send messages within the brain to regulate our mental and bodily functions. Emotions or emotional behaviour can trigger their release. Among the most significant neurotransmitters are:

- Acetylcholine (ACTH): Significant for memory. It also lowers blood pressure and reduces cholesterol. Stress reduces the enzyme that converts choline to acetylcholine.
- Vitamin B5 is needed to convert choline to acetylcholine. Lecithin is also used to create choline. Food sources contain soybeans, fish, seaweed, oatmeal, brown rice, peas, lentils, cabbage and kale. Mothers' milk is high in acetylcholine.

- Dopamine: Provides us our sense of pleasure and motivation through regulating the release of endorphins. It improves mood, sex drive and memory. People with low levels of dopamine often try to compensate through caffeine, sugary foods, cigarettes, alcohol and other drugs, which also induce the release of endorphins, or activities like gambling, work or exercise.
- Without Vitamin B6 the body may not produce dopamine, endorphins, and serotonin, norepinephrine.
- Endorphins: Natural pain killers released through exercise. Many studies have shown that they can also be released when we listen to music with a strong beat.
- GABA: Needed for sleep and relaxation, as well as enabling us to withstand craving. People with low levels of GABA, including alcoholics and other addicts, can be tense, anxious and aroused to anger with little provocation.
- Glutamate: Facilitates long-term learning and retention. It also plays a role in our tolerance for pain. GABA balances glutamate's effects in the brain.
- Norepinephrine: A hormone that acts like a neurotransmitter and is released in response to low blood pressure. It enhances our memory, creates us more alert and provides us a sense of power and control. Noradrenaline is the commercial form of norepinephrine.
- Serotonin: The body's natural tranquilizer, it relaxes us, regulates body temperature and appetite, sets our internal clock for sleep, and creates us feel peaceful and contented. It also acts as a natural counterbalance to dopamine. People with low levels of serotonin tend to act rashly and aggressively and to become easily depressed.

Expression of Emotions [h]

Emotional expressions in psychology are observable verbal and nonverbal behaviors that communicate an internal emotional or affective state. Examples of emotional expression are facial movements such as smiling or scowling, or behaviors like crying or laughing. Emotional expressions can occur with or without self-awareness. Presumably, individuals have conscious control of their emotional expressions; though, they need not have conscious awareness of their emotional or affective state in order to express emotion. Over the last 200 years, researchers have proposed different and often competing models explaining emotion and emotional expression, going all the method back to Charles Darwin. Though, all theorists in emotion agree that all normal, functioning humans experience and express emotions with their voices, faces, and bodies. The expression of romantic feelings is shaped through cultural and social factors.

Models of emotion [sh]

There are several different theories in relation to the nature of emotion and the method that it is represented in the brain and body. Of the elements that distinguish flanked by the theories of emotion, perhaps the most salient is differing perspectives on emotional expression. Some theories in relation to the emotion consider emotions to be biologically basic and stable crossways people and cultures. These are often described "basic emotion" perspectives because they view emotion as biologically basic. From this perspective, an individual's emotional expressions are enough to determine a person's internal, emotional state. If a person is smiling, he or she is happy. If a person is crying, he or she is sad. Each emotion has a constant and specific pattern of expressions, and that pattern of responses is only expressed throughout that emotion and not throughout other emotions. Facial emotional expressions are particularly salient stimuli for transferring significant nonverbal signals to others. For that cause, emotional expressions are the best direct indicators of affective attitudes and dispositions. There is rising proof that brain regions usually occupied in the processing of emotional information are also activated throughout the processing of facial emotions

Some theories of emotion take the stance that emotional expression is more flexible, and that there is a cognitive component to emotion. These theories account for the malleability in emotion through proposing that humans appraise situations and, depending on the result of their appraisal, different emotions and the corresponding expressions of emotion are triggered. The tendency to appraise certain situations as one emotion or another can vary through person and culture; though, appraisal models still maintain that there are basic responses that are specific and constant to each emotion that humans feel.

Other theories of emotion propose that emotions are constructed based upon the person, situation, culture, and past experiences, and that there are no preset emotional responses that are constant and specific to one emotion or another.

Basic model [ssh]

The basic model of emotions finds its roots in Charles Darwin's *The Expression of Emotions in Man and Animals*. Darwin claimed that the expression of emotions involves several systems: facial expression, behavioral response, and physical responses, which contain physiological, postural, and vocal changes. Most importantly, Darwin claimed that emotional expression was constant with his theories on evolution and therefore, the expression of emotion is universal and should so be expressed similarly crossways race or culture. This is recognized as the universality hypothesis. Lastly, primates and

animals exhibit precursors of muscle actions of the facial expressions of humans.

Several researchers have expanded on Darwin's original theories on emotional expression. Paul Ekman, Carroll Izard and colleagues were the first to test Darwin's theory. These psychologists, through cross-cultural empirical tests found that there were a number of basic emotions that were universally recognized. Later studies suggested that facial expressions are unique to each emotion and are signals that convey information of one's internal state, and this information is used to coordinate social interactions. Overall, the basic emotion perspective assumes that emotions are unique events that occur as a result of special mechanisms, and each emotion has its own respective specific brain circuit. Moreover, the expression of each emotion has its own respective response, manifestation in face, voice, and body. The basic emotion view Ekman to make the Facial Action Coding System (FACS) and Facial Expression Awareness Compassion Emotions (F.A.C.E). FACS is a database of compiled facial expressions, wherein each facial movement is termed an action unit (AU). F.A.C.E explains how to become keen at observing emotion in the faces of others. It consists of the Micro Expression Training Tool (METT), which trains individuals to disambiguate flanked by emotional expressions through recognizing separate facial expressions that are unique to each emotion. The second part of this training program trains individuals to read micro-expressions; a face elicits an emotion very quickly and the individual is prompted to report which emotion was seen. The Subtle Expression Training Tool (SETT) trains individuals to be able to recognize the subtle changes in a person's facial expression due to slight changes in emotional experiences. These subtle expressions can occur at the onset of emotions, or when an individual is actively suppressing the emotion.

Appraisal model [ssh]

Appraisal models of emotion state that emotions are triggered through mental states that are truly unique in both form and function. Appraisal models are similar to the basic model of emotion in that both views consider that, once an emotion is triggered, emotional expressions are biologically predetermined and are displayed only in one emotion and every time that emotion is expressed. The main difference flanked by basic emotion models and appraisal models is that appraisal models assume that there is a cognitive antecedent that determines which emotion is triggered. Traditional appraisal theories consider appraisals to be universal and like a set of switches that can be turned on through biological and environmental triggers. When a person creates an appraisal, an individual will react with an appropriate, emotional response that can contain an external, emotional expression. More recent appraisal models account for difference in emotional expression through suggesting that

cognitive appraisals are more like themes that can be triggered through a number of different actions and situations. Emotional expressions arise from these appraisals, which essentially describe the context of the situation. One appraisal model has urbanized the law of situational meaning, which states that emotions tend to be evoked through certain kinds of events. For instance, grief is elicited through personal loss. In this case, personal loss would be the appraisal and one can express grief through emotional expressions.

Psychological construction model [ssh]

Another model of emotion, described psychological construction, describes emotion as a construction that results from more basic psychological processes. In a psychological construction model, basic psychological processes like affect (positive or negative feeling combined with some degree of physiological activation), previous experiences, language, and executive functioning combine to form a discrete emotion experience. While some discrete emotions tend to have typical responses (e.g. crying when sad, laughing when happy) a psychological construction model can account for the wide variability in emotional expression (e.g. crying when very happy; laughing when uncomfortable). Psychological construction models call into question the assumption that there are basic, discrete emotion expressions that are universally recognized. Several basic emotion studies use highly posed, stereotypical facial expressions as emotional signals such as a pout, which would indicate one is feeling sad. These facial expressions can be better understood as symbols of emotion rather than signals. While these symbols have undeniable emotional meaning and are uniformly observed throughout day-day emotional behavior they do not have a 1-to-1 relationship a person's internal mental or emotional state. For instance, not everyone furrows their brow when they are feeling angry. Moreover, these emotional symbols are not universal due to cultural differences. For instance, when Western individuals are asked to identify an emotional expression on a specific face, in an experimental task, they focus on the target's facial expression. Japanese individuals use the information of the nearby faces to determine the emotional state of the target face. This challenges experiments that solely use a presentation of an isolated emotional expression in experiments because it is reflecting just a Western notion of emotion.

Social construction model [ssh]

Social construction models usually say that there is no biological circuitry for emotions since emotions are solely based on experience and context. Some even suggest that certain emotions can only exist in the reciprocal exchanges of a social encounter. Since there are unique local languages and local moral orders, cultures can use the same emotion and expression in very different

methods. Therefore, emotional expressions are culturally-prescribed performances rather than internal mental events. Knowing a social script for a certain emotion allows one to enact the emotional behaviors that are appropriate for the cultural context. Emotional expressions serve a social function and are essentially a method of reaching out to the world.

Emotional regulation [sh]

Several researchers have highlighted the importance for an individual of being able to successfully regulate emotions. Methods of doing this contain cognitive reappraisal (interpreting a situation in positive conditions) and expressive suppression (masking signs of inner emotional states). Emotions are apparent through facial expressions. Humans can express their own emotions and understand others as well. Humans can quickly identify happy expressions whereas the disgust expression takes longer to identify.

Emotional intelligence [sh]

Theorists such as Gardner and Sternberg have each presented different definitions and categories of intelligence. Gunderman refers to emotional intelligence as a type of intelligence, in addition to the commonly used definition. He has defined it as "the skill to understand and respond to emotions in daily life". For instance, a person who does not face his or her emotions and tackle them may be constantly frustrated. This person will face troubles moving on with his or her life. Consequently, emotionally intelligent individuals are better at expressing and identifying their emotions and those of the people approximately them. Those who are adept at handling their emotions tend to live an easier life than those who are not. Since people with better emotional intelligence are sensitive to emotions, they are measured better team players and are family-oriented.

Some researchers argue that emotional intelligence is biological, while others say it is innate. Gunderman states that emotional intelligence is a learned and an instinctual ability. According to him, it can be cultivated through three means: learning more in relation to it, drawing attention to it for oneself and others, and reading the works of authors he considers to be emotionally intelligent, such as Jane Austen and Leo Tolstoy. Through engaging in emotional expressions and regulation, it is contemplated more than before and brings forth considerable changes in life and attitude. Sy and Cote mannered a study that proved emotionally intelligent is more competent and performs better. So, several companies are using "EI training programs" to augment matrix performance.

Theories of Emotions [h]

The major theories of motivation can be grouped into three main categories: physiological, neurological, and cognitive. Physiological theories suggest that responses within the body are responsible for emotions. Neurological theories propose that activity within the brain leads to emotional responses. Finally, cognitive theories argue that thoughts and other mental activity play an essential role in the formation of emotions.

The James-Lange Theory of Emotion [sh]

The James-Lange theory is one of the best-recognized examples of a physiological theory of emotion. Independently proposed through psychologist William James and physiologist Carl Lange, the James-Lange theory of emotion suggests that emotions occur as a result of physiological reactions to events.

According to this theory, you see an external incentive that leads to a physiological reaction. Your emotional reaction is dependent upon how you interpret those physical reactions. For instance, suppose you are walking in the woods and you see a grizzly bear. You begin to tremble and your heart begins to race. The James-Lange theory proposes that you will interpret your physical reactions and conclude that you are frightened ("I am trembling, so I am afraid").

The Cannon-Bard Theory of Emotion [sh]

Another well-know physiological theory is the Cannon-Bard theory of emotion. This theory states that we feel emotions and experience physiological reactions such as sweating, trembling and muscle tension simultaneously. More specifically, it is suggested that emotions result when the thalamus sends a message to the brain in response to an incentive, resulting in a physiological reaction.

Schechter-Singer Theory [sh]

Also recognized as the two-factor theory of emotion, the Schechter-Singer Theory is an instance of a cognitive theory of emotion. This theory suggests that the physiological arousal occurs first, and then the individual necessity identify the cause behind this arousal in order to experience and label it as an emotion.

Frustration and Conflict [h]

In psychology, frustration is a common emotional response to opposition. Related to anger and disappointment, it arises from the perceived resistance to the fulfillment of individual will. The greater the obstruction, and the greater the will, the more the frustration is likely to be. Causes of frustration may be internal or external. In people, internal frustration may arise from challenges in fulfilling personal goals and desires, instinctual drives and needs, or dealing with perceived deficiencies, such as a lack of confidence or fear of social situations. Conflict can also be an internal source of frustration; when one has competing goals that interfere with one another, it can make cognitive dissonance. External causes of frustration involve circumstances outside an individual, such as a blocked road or a hard task. While coping with frustration, some individuals may engage in passive-aggressive behavior, making it hard to identify the original cause(s) of their frustration, as the responses are indirect. A more direct, and common response, is a propensity towards aggression.

Causes [sh]

To the individual experiencing anger, the emotion is usually attributed to external factors that are beyond his or her control. Although mild frustration due to internal factors (e.g. laziness, lack of effort) is often a positive force (inspiring motivation), it is more often than not a perceived *uncontrolled* problem that instigates more severe, and perhaps pathological anger. An individual suffering from pathological anger will often feel powerless to change the situation they are in, leading to and, if left uncontrolled, further anger.

It can be a result of blocking motivated behavior. An individual may react in many different methods. He/she may respond with rational problem-solving methods to overcome the barrier. Failing in this, he/she may become frustrated and behave irrationally. An instance of blockage of motivational energy would be the case of a worker who wants time off to go fishing but is denied permission through his/her supervisor. Another instance would be the executive who wants a promotion but finds he/she lacks certain qualifications. If, in these cases, an appeal to cause does not succeed in reducing the barrier or in developing some reasonable alternative approach, the frustrated individual may resort to less adaptive methods of trying to reach the goal. He/she may, for instance, attack the barrier physically, verbally, or both.

Symptoms [sh]

Frustration can be measured a problem–response behavior, and can have a number of effects, depending on the mental health of the individual. In positive cases, this frustration will build until a level that is too great for the individual to contend with, and therefore produce action directed at solving the inherent problem. In negative cases, though, the individual may perceive the source of frustration to be outside of their control, and therefore the frustration will continue to build, leading eventually to further problematic behavior (e.g. violent reaction).

Stubborn refusal to respond to new circumstances affecting the goal, such as removal or modification of the barrier, sometimes occurs. As pointed out through J.A.C. Brown, severe punishment may cause individuals to continue nonadaptive behavior blindly: "Either it may have an effect opposite to that of reward and as such, discourage the repetition of the act, or, through functioning as a frustrating agent, it may lead to fixation and the other symptoms of frustration as well. It follows that punishment is a dangerous tool, since it often has effects which are entirely the opposite of those desired".

PERSONALITY [MH]

Personality is the scrupulous combination of emotional, attitudinal, and behavioral response patterns of an individual. Different personality theorists present their own definitions of the word based on their theoretical positions. Psychologists such as Freud, and Erik Erikson have attempted to come up with personality theories.

Personality psychology is a branch of psychology that studies personality and its difference flanked by individuals. Its areas of focus contain:

- Construction of a coherent picture of the individual and his or her major psychological processes
- Investigation of individual psychological differences
- Investigation of human nature and psychological similarities flanked by individuals

"Personality" is a dynamic and organized set of characteristics possessed through a person that uniquely influences his or her cognitions, emotions, motivations, and behaviors in several situations. The word "personality" originates from the Latin *persona*, which means mask. In the theatre of the ancient Latin-speaking world, the mask was not used as a plot device to

disguise the identity of a character, but instead was a convention employed to represent or *typify* that character.

Personality also refers to the pattern of thoughts, feelings, social adjustments, and behaviors uniformly exhibited over time that strongly influences one's expectations, self-perceptions, values, and attitudes. It also predicts human reactions to other people, problems, and stress. There is still no universal consensus on the definition of "personality" in psychology. Gordon Allport (1937) described two major methods to study personality: the nomothetic and the idiographic. *Nomothetic psychology* seeks general laws that can be applied to several different people, such as the principle of self-actualization or the trait of extraversion. *Idiographic psychology* is an effort to understand the unique characteristics of a scrupulous individual.

The study of personality has a broad and varied history in psychology with an abundance of theoretical traditions. The major theories contain dispositional (trait) perspective, psychodynamic, humanistic, biological, behaviorist, evolutionary and social learning perspective. Though, several researchers and psychologists do not explicitly identify themselves with a certain perspective and instead take an eclectic approach. Research in this area is empirically driven, such as dimensional models, based on multivariate statistics, such as factor analysis, or emphasizes theory development, such as that of the psychodynamic theory. There is also a substantial emphasis on the applied field of personality testing. In psychological education and training, the study of the nature of personality and its psychological development is usually reviewed as a prerequisite to courses in abnormal psychology or clinical psychology.

Determinants Of Out Personality [h]

Personality does not evolved through a single factor. It is a mixture of a lot of things. Some of those factors are psychological, some are physical, some are biological and some are even hereditary.

Brain [sh]

Brain is one of the most significant factors of personality determinant. It is usually whispered that the father and the child adopt approximately the same type of brain stimulation and the later differences are the result of the environment in which the child has been grown up. Electrical Stimulation of the Brain (ESB) and Split Brain Psychology (SBP) and the outcomes of genetic transmissions and are the tools that are used through the management of any organization to mould and amend the employee's behavior to a more positive and proper one.

Physical Factors [sh]

One of the most significant factors in determining personality is the 'Physical Characteristics' of an individual. It is whispered that this factor plays a vital role in determining one's behavior in any organization. Physical features may involve the height of a person (short or tall), his color (white or black), his health status (fat or skinny) and his beauty (handsome or ugly). These factors are involved when interacting with any other person and therefore contribute in the personality development in several methods.

Social Factors [sh]

Social factors also play a vital role in determining one's personality. The things that revolve and evolve approximately us on a regular basis determine our personality. The society that we live in, the cultural environment that we face daily, the community we get interacted to, all are incorporated in this factor. Relationships, co-ordination, co-operation, interaction, environment in the family, organizations, workplaces, communities, societies all contribute in method or another as personality determinants.

Cultural and Religious Factors [sh]

The culture in which one life in that may involve traditional practices, norms, customs, procedures, rules and regulations, precedents and values, all are significant determinants of personality. Moreover, the creed, religion and believes are also very significant factors of personality determinants.

Heredity Factor [sh]

Perhaps, the most surprising and astonishing factor (at least in my eyes) is the "Heredity Factor". When I first read in relation to the, I was quite stunned and really gave a bow to nature. The instance which I read was really motivating, and I am writing the same extract that I read.

Theories of personality [h]

Psychodynamic [sh]

Several psychologists have proposed theories that try to explain the origins of personality. One highly influential set of theories stems from the work of Austrian neurologist Sigmund Freud, who first proposed the theory of psychoanalysis. Collectively, these theories are recognized as psychodynamic

theories. Although several different psychodynamic theories exist, they all emphasize unconscious motives and desires, as well as the importance of childhood experiences in shaping personality.

Sigmund Freud's Theory of Psychoanalysis [ssh]

In the late 1800s and early 1900s, Freud urbanized a technique that he described psychoanalysis and used it to treat mental disorders. He formed his theory of psychoanalysis through observing his patients. According to psychoanalytic theory, personalities arise because of attempts to resolve conflicts flanked by unconscious sexual and aggressive impulses and societal demands to restrain these impulses.

The Conscious, the Preconscious, and the Unconscious [sssh]

Freud whispered that most mental processes are unconscious. He proposed that people have three levels of awareness:

- The conscious contains all the information that a person is paying attention to at any given time. Instance: The words Dan is reading, the objects in his field of vision, the sounds he can hear, and any thirst, hunger, or pain he is experiencing at the moment are all in his conscious.
- The preconscious contains all the information outside of a person's attention but readily accessible if needed. Instance: Linda's telephone number, create of her car, and several of her past experiences are in her preconscious.
- The unconscious contains thoughts, feelings, desires, and memories of which people have no awareness but that influence every aspect of their day-to-day lives. Instance: Stan's unconscious might contain angry feelings toward his mother or a traumatic incident he experienced at age four.

Freud whispered that information in the unconscious emerges in slips of the tongue, jokes, dreams, illness symptoms, and the associations people create flanked by ideas.

The Freudian Slip [ssh]

Cathy calls up her mother on Mother's Day and says, "You're the beast, Mom," when she consciously planned to say, "You're the best, Mom." According to psychoanalytic theory, this slip of the tongue, recognized as a Freudian slip, reveals her unconscious anger toward her mother.

The Id, the Ego, and the Superego [sssh]

Freud proposed that personalities have three components: the id, the ego, and the superego.

- **Id:** a reservoir of instinctual energy that contains biological urges such as impulses toward survival, sex, and aggression. The id is unconscious and operates according to the pleasure principle, the drive to achieve pleasure and avoid pain. The id is characterized through primary process thinking, which is illogical, irrational, and motivated through a desire for the immediate gratification of impulses.
- **Ego:** the component that manages the conflict flanked by the id and the constraints of the real world. Some parts of the ego are unconscious, while others are preconscious or conscious. The ego operates according to the reality principle, the awareness that gratification of impulses has to be delayed in order to accommodate the demands of the real world. The ego is characterized through secondary process thinking, which is logical and rational. The ego's role is to prevent the id from gratifying its impulses in socially inappropriate methods.
- **Superego:** the moral component of personality. It contains all the moral standards learned from parents and society. The superego forces the ego to conform not only to reality but also to its ideals of morality. Hence, the superego causes people to feel guilty when they go against society's rules. Like the ego, the superego operates at all three levels of awareness.

Conflict [sssh]

Freud whispered that the id, the ego, and the superego are in constant conflict. He focused mainly on conflicts concerning sexual and aggressive urges because these urges are most likely to violate societal rules.

Anxiety [sssh]

Internal conflicts can create a person feel anxious. In Freud's view, anxiety arises when the ego cannot adequately balance the demands of the id and the superego. The id demands gratification of its impulses, and the superego demands maintenance of its moral standards.

Protection Mechanisms [sssh]

To manage these internal conflicts, people use protection mechanisms. Protection mechanisms are behaviors that protect people from anxiety. There are several different kinds of protection mechanisms, several of which are automatic and unconscious:

- Repression: keeping unpleasant thoughts, memories, and feelings shut up in the unconscious. Instance: Nate witnessed his mother being beaten through a mugger when he was seven years old. As an adult, he does not keep in mind this incident.
- Reaction formation: behaving in a method that is opposite to behavior, feelings, or thoughts that are measured unacceptable. Instance: Lisa feels sexually attracted to her roommate's boyfriend but does not admit this to herself. Instead, she constantly creates very disparaging comments in relation to the boyfriend and feels disgusted through the method he acts.
- Projection: attributing one's own unacceptable thoughts or feelings to someone else. Instance: Mario feels angry toward his father but is not aware of it. Instead, he complains that he cannot be approximately his father because his father is such an angry man.
- Rationalization: using incorrect but self-serving explanations to justify unacceptable behavior, thoughts, or feelings. Instance: Sylvia runs a red light while driving. She justifies this through telling herself she was already in the intersection when the light changed to red.
- Displacement: transferring feelings in relation to a person or event onto someone or something else. Instance: Seth is angry at his professor for giving him a bad grade. He leaves class and shouts angrily at a passerby who accidentally bumps into him.
- Denial: refusing to acknowledge something that is obvious to others. Instance: Kate's use of alcohol starts to affect her academic performance, her job, and her relationships. Though, she insists that she drinks only to relieve stress and that she does not have an alcohol problem.
- Regression: reverting to a more immature state of psychological development. Instance: When six-year-old Jameel gets less attention from his parents because of a new baby brother, he suddenly starts to wet his bed at night.
- Sublimation: channeling unacceptable thoughts and feelings into socially acceptable behavior. Instance: Priya deals with her angry feelings toward her family through writing science-fiction stories in relation to the battles flanked by civilizations.

Psychosexual Stages of Development [ssh]

Freud whispered that personality solidifies throughout childhood, largely before age five. He proposed five stages of psychosexual development: the oral stage, the anal stage, the phallic stage, the latency stage, and the genital stage. He whispered that at each stage of development, children gain sexual gratification, or sensual pleasure, from a scrupulous part of their bodies. Each

stage has special conflicts, and children's methods of managing these conflicts influence their personalities.

If a child's needs in a scrupulous stage are gratified too much or frustrated too much, the child can become fixated at that stage of development. Fixation is an inability to progress normally from one stage into another. When the child becomes an adult, the fixation shows up as a tendency to focus on the needs that were over-gratified or over-frustrated.

Freud whispered that the crucially significant Oedipus intricate also urbanized throughout the phallic stage. The Oedipus intricate refers to a male child's sexual desire for his mother and hostility toward his father, whom he considers to be a rival for his mother's love. Freud thought that a male child who sees a naked girl for the first time believes that her penis has been cut off. The child fears that his own father will do the same to him for desiring his mother—a fear described castration anxiety. Because of this fear, the child represses his longing for his mother and begins to identify with his father. The child's acceptance of his father's authority results in the emergence of the superego.

Throughout his lifetime, Freud had several followers who praised his theory, but his ideas, particularly his emphasis on children's sexuality, also drew criticism. Some of Freud's followers broke absent from him because of theoretical disagreements and proposed their own theories. These theorists are described neo-Freudians. Some significant neo-Freudians were Carl Jung, Alfred Adler, and object-relations theorists.

Penis Envy and Womb Envy [ssh]

Freud whispered that the successful resolution of the Oedipus intricate played a crucial role in the formation of the superego and the personality. Though, he did not have a plausible account of how this developmental phase applied to girls. Freud whispered that because girls do not have a penis, they don't have the same motivation to develop a strong superego. Instead, they develop penis envy, or a sense of discontent and resentment resulting from their wish for a penis. This gender-biased thought has raised strong criticism from several psychologists, including the psychoanalyst Karen Horney. Horney proposed that it was more likely that men have womb envy because of their inability to bear children.

Carl Jung's Analytical Psychology [ssh]

Until the 1910s, Carl Jung was a follower and close friend of Freud's. Like Freud, Jung whispered that unconscious conflicts are significant in shaping personality. Though, he whispered the unconscious has two layers: the

personal unconscious, which resembled Freud's thought, and the communal unconscious, which contains universal memories of the common human past.

Jung described these common memories as archetypes. Archetypes are images or thoughts that have the same meaning for all human beings. Jung said that archetypes exist in dreams as well as in art, literature, and religion across cultures. Instance: The archetype of the "powerful father" can be seen in the Christian conception of God, the Zeus of Greek mythology, and popular movies such as *The Godfather*.

Alfred Adler's Individual Psychology [ssh]

Alfred Adler, another follower of Freud and a member of his inner circle, eventually broke away from Freud and urbanized his own school of thought, which he described as individual psychology. Adler whispered that the main motivations for human behavior are not sexual or aggressive urges but strivings for superiority. He pointed out that children naturally feel weak and inadequate in comparison to adults. This normal feeling of inferiority drives them to adapt, develop skills, and master challenges. Adler used the term compensation to refer to the effort to shed normal feelings of inferiority.

Though, some people suffer from an exaggerated sense of inferiority, or inferiority complex, which can be due either to being spoiled or neglected through parents. Such people overcompensate, which means that rather than try to master challenges, they try to cover up their sense of inferiority through focusing on outward signs of superiority such as status, wealth, and power.

Object-Relations Theories [ssh]

The object-relations school of psychoanalysis appeared in the 1950s, led through a group of psychoanalysts that incorporated D. W. Winnicott and Melanie Klein. The term object relations refers to the relationships that people have with others, who are represented mentally as objects with certain attributes. Object-relations theorists consider that people are motivated most through attachments to others rather than through sexual and aggressive impulses. According to these theorists, the conflict between autonomy and the need for other people plays a key role in shaping personality.

Criticisms of Psychodynamic Theories [ssh]

Freud's original ideas have little popularity today, but several psychologists do adhere to neo-Freudian ideas. Though, other psychologists criticize psychodynamic theories for several reasons:

- Some critics argue that psychodynamic theories are not falsifiable and so unscientific. In response to this criticism, proponents of psychodynamic theories point out that empirical proof does support some psychodynamic concepts. For instance, empirical research shows that there are unconscious mental processes, that people have mental representations of other people, and that people use unconscious protection mechanisms to protect themselves from unpleasant emotions such as anxiety.
- Other critics argue that psychodynamic theories are made through generalizing from a small number of patients to the whole human population. Relying only on case studies can lead to faulty conclusions.
- Still others argue that most psychodynamic theories are not based on studies that follow people from childhood to adulthood. Instead, psychodynamic theorists listen to descriptions of an adult patient's past and draw conclusions in relation to the relevance of childhood experiences. Though, as described on pages 172–174, memories are not always reliable.

Trait [sh]

According to the *Diagnostic and Statistical Manual* of the American Psychiatric Association, personality traits are "enduring patterns of perceiving, relating to, and thinking in relation to the environment and oneself that are exhibited in a wide range of social and personal contexts." Theorists usually assume that a) traits are relatively stable over time, b) traits differ among individuals, and c) traits influence behavior. They uniformly are used in order to help describe people as a whole. Traits are relatively constant; they do not usually change. Traits are also bipolar; they vary beside a continuum flanked by one extreme and the other (e.g. friendly vs. unfriendly).

The most common models of traits incorporate three to five broad dimensions or factors. All trait theories incorporate at least two dimensions, extraversion and neuroticism, which historically featured in Hippocrates' humeral theory.

- Gordon Allport delineated different kinds of traits, which he also described dispositions. *Central traits* are basic to an individual's personality, while *secondary traits* are more peripheral. *Common traits* are those recognized within a culture and therefore may vary from culture to culture. *Cardinal traits* are those through which an individual may be strongly recognized. In his book, *Personality: A Psychological Interpretation*, Gordon Allport (1937) both established personality psychology as a legitimate intellectual discipline and introduced the first of the modern trait theories.

- Raymond Cattell's research propagated a two-tiered personality structure with sixteen "primary factors" (16 Personality Factors) and five "secondary factors." In Cattell's lengthy career, he had written 50 books, 500 journals, and 30 different types of standardized tests. For Cattell, personality itself was defined in conditions of behavioral prediction. He defined personality as *that which permits a prediction of what a person will do in a given situation*.
- John Gittinger's theory and its applications (the Personality Assessment System (PAS)) use the Wechsler intelligence tests, which are well standardized and objective instruments rather than self-report tests. PAS factors out personality traits (primitivity) and two additional levels, Based and Surface, which are adaptations through environmentally induced pressures and learning. Gittinger's multivariate personality descriptions exceed 500 data-based outcome descriptions.
- Hans Eysenck whispered just three traits—extraversion, neuroticism and psychoticism—were enough to describe human personality. Differences flanked by Cattell and Eysenck appeared due to preferences for different forms of factor analysis, with Cattell using oblique, Eysenck orthogonal rotation to analyze the factors that appeared when personality questionnaires were subjected to statistical analysis. Today, the Big Five factors have the weight of a considerable amount of empirical research behind them, building on the work of Cattell and others. Eysenck, beside with another contemporary in trait psychology named J. P. Guilford (1959), whispered that the resultant trait factors obtained from factor analysis should be statistically independent of one another—that is, the factors should be arranged (rotated) so that they are uncorrelated or orthogonal (at right angles) to one another.
- Lewis Goldberg proposed a five-dimension personality model, nicknamed the "Big Five":
 - *Openness to Experience*: the tendency to be imaginative, independent, and interested in diversity vs. practical, conforming, and interested in routine.
 - *Conscientiousness*: the tendency to be organized, careful, and disciplined vs. disorganized, careless, and impulsive.
 - *Extraversion*: the tendency to be sociable, fun-loving, and affectionate vs. retiring, somber, and reserved.
 - *Agreeableness*: the tendency to be softhearted, trusting, and helpful vs. ruthless, suspicious, and uncooperative.
 - *Neuroticism*: the tendency to be calm, secure, and self-satisfied vs. anxious, insecure, and self-pitying

The Big Five contain significant dimensions of personality. Though, some personality researchers argue that this list of major traits is not exhaustive. Some support has been found for two additional factors: excellent/ordinary and evil/decent. Though, no definitive conclusions have been established.

- Michael Ashton and Kibeom Lee, in 2008, proposed a six dimensional HEXACO model of personality structure. The HEXACO personality traits/factors are: Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). The three dimensions - Extraversion, Conscientiousness and Openness to Experience are measured to be basically the same as their counterpart dimensions in the Big Five Model. Though, in the HEXACO model, Honesty-Humility, Emotionality and Agreeableness differ from the Neuroticism and Agreeableness factors of the Big Five Model. Ashton and Lee especially emphasize the Honesty-Humility (H) factor as differentiating the HEXACO model from other personality frameworks. Specifically, the H factor is described as sincere, honest, faithful/loyal, modest/unassuming, fair-minded, *VERSUS* sly, deceitful, greedy, pretentious, hypocritical, boastful and pompous. The H factor has been connected to criminal, materialistic, power-seeking and unethical tendencies.

Trait models have been criticized as being purely descriptive and offering little explanation of the underlying causes of personality. Eysenck's theory, though, proposes biological mechanisms as driving traits, and modern behavior genetics researchers have shown a clear genetic substrate to them. Another potential weakness of trait theories is that they may lead some people to accept oversimplified classifications—or worse, offer advice—based on a superficial analysis of personality. Finally, trait models often underestimate the effect of specific situations on people's behavior.

Traits are measured to be statistical generalizations that do not always correspond to an individual's behavior. The importance that genetic influences have on personality characteristics can change crossways a five-year period. Age differences make more variables even within a family, so the best comparisons are found using twins. Twins typically share a family environment described a shared environment because they may share other characteristics like teachers, school, and friends. A non-shared environment means totally different environment for both subjects. "Biologically related children who are separated after birth and raised in different families live in non-shared environments." Identical twins separated at birth and raised in different families constitute the best cases for heredity and personality because similarities flanked by the two are due only to genetic influences. Vulnerability was a factor in this study that was taken into consideration concerning the issue of genetic influences on vulnerability. The study concluded that the monozygotic co-twins would be more similar than dizygotic co-twins in change over time. The data concluded that there were no important differences for either variances flanked by the monozygotic and dizygotic co-twins.

Another current open question is whether genetic influences are significant for the likeliness of co-twins to change in the same method over a period of time. A link was found flanked by the personality trait of neuroticism and a polymorphism described 5-HTTLPR in the serotonin transporter gene, but this association was not replicated in superior studies. Other candidate gene studies have provided weak proof that some personality traits are related to *AVPR1A* ("ruthlessness gene") and *MAOA* ("Warrior gene"). Genotypes, or the genetic create up of an organism, influence but don't fully decide the physical traits of a person. Those are also influenced through the environment and behaviors they are bounded through. For instance, a person's height is affected through genetics, but if they are malnourished growth will be stunted no matter what their genetic coding says. Environment is also not totally responsible for an outcome in personality. An instance from *Psychobiology of Personality* through Marvin Zuckerman is alcoholism: Studies suggest that alcoholism is an inherited disease, but if a subject with a strong biological background of alcoholism in their family tree is never exposed to alcohol, they will not be so inclined regardless of their genome.

It is also a question open to debate whether there are genetic influences on the tendency of the co-twins to change, without keeping in mind the direction of the change. Another factor that can be addressed is biological versus adoptive relatives, and can be clearly seen in what is a real-life experiment, adoption. This makes two groups: genetic relatives (biological parents and siblings) and environmental relatives (adoptive parents and siblings). After studying hundreds of adoptive families, the detection was that people who grow up together, whether biologically related or not, do not much resemble one another in personality. In characteristics such as extroversion and agreeableness, adoptees are more like their biological parents than to their adoptive parents. Though, the minute shared-environment effects do not mean that adoptive parenting is ineffective. Even though genetics may limit the family environment's influence on personality, parents do influence their children's attitudes, values, faith, manners and politics. In adoptive homes, child neglect and abuse and even divorce flanked by the parents is uncommon. In accordance to that, it is not surprising, despite a somewhat greater risk of psychological disorder, most adopted children excel, especially when they're adopted as infants. In fact, seven out of eight have reported feeling a strong connection with one or even both of their adoptive parents.

Type [sh]

Personality type refers to the psychological classification of different types of people. Personality types are distinguished from personality traits, which come in different levels or degrees. For instance, according to type theories, there are two types of people, introverts and extroverts. According to trait theories,

introversion and extroversion are part of a continuous dimension, with several people in the middle. The thought of psychological types originated in the theoretical work of Carl Jung, specifically in his 1921 book *Psychologische Typen* (*Psychological Types*) and William Marston.

Building on the writings and observations of Jung throughout World War II, Isabel Briggs Myers and her mother, Katharine C. Briggs, delineated personality types through constructing the Myers-Briggs Type Indicator. This model was later used through David Keirsey with a different understanding from Jung, Briggs and Myers. In the former Soviet Union, Lithuanian Aušra Augustinavičiūtė independently derived a model of personality type from Jung's described Socionics.

The model is an older and more theoretical approach to personality, accepting extroversion and introversion as basic psychological orientations in connection with two pairs of psychological functions:

- *Perceiving functions*: sensing and intuition (trust in concrete, sensory-oriented facts vs. trust in abstract concepts and imagined possibilities)
- *Judging functions*: thinking and feeling (basing decisions primarily on logic vs. considering the effect on people).

Briggs and Myers also added another personality dimension to their type indicator to measure whether a person prefers to use a judging or perceiving function when interacting with the external world. So they incorporated questions intended to indicate whether someone wishes to come to conclusions (judgment) or to keep options open (perception).

This personality typology has some characteristics of a trait theory: it explains people's behaviour in conditions of opposite fixed characteristics. In these more traditional models, the sensing/intuition preference is measured the most basic, dividing people into "N" (intuitive) or "S" (sensing) personality types. An "N" is further assumed to be guided either through thinking or feeling, and divided into the "NT" (scientist, engineer) or "NF" (author, humanitarian) temperament. An "S", through contrast, is assumed to be guided more through the judgment/perception axis, and therefore divided into the "SJ" (guardian, traditionalist) or "SP" (performer, artisan) temperament. These four are measured basic, with the other two factors in each case (including always extraversion/introversion) less significant. Critics of this traditional view have observed that the types can be quite strongly stereotyped through professions (although neither Myers nor Keirsey occupied in such stereotyping in their type descriptions), and therefore may arise more from the need to categorize people for purposes of guiding their career choice. This among other objections led to the emergence of the five-factor view, which is less concerned with behavior under work circumstances and more concerned with

behavior in personal and emotional circumstances. (It should be noted, though, that the MBTI is not intended to measure the "work self", but rather what Myers and McCaulley described the "shoes-off self.") Some critics have argued for more or fewer dimensions while others have proposed entirely different theories (often assuming different definitions of "personality").

Type A and Type B personality theory: Throughout the 1950s, Meyer Friedman and his co-workers defined what they described Type A and Type B behavior patterns. They theorized that intense, hard-driving Type A personalities had a higher risk of coronary disease because they are "stress junkies." Type B people, on the other hand, tended to be relaxed, less competitive, and lower in risk. There was also a Type AB mixed profile.

John L. Holland's *RIASEC* vocational model, commonly referred to as the *Holland Codes*, stipulates that six personality types lead people to choose their career paths. In this circumplex model, the six types are represented as a hexagon, with adjacent types more closely related than those more distant. The model is widely used in vocational counseling.

Learning [sh]

In cognitive theory, behavior is explained as guided through cognitions (e.g. expectations) in relation to the world, especially those in relation to the other people. Cognitive theories are theories of personality that emphasize cognitive processes, such as thinking and judging.

Albert Bandura, a social learning theorist suggested the forces of memory and emotions worked in conjunction with environmental influences. Bandura was recognized mostly for his "Bobo Doll experiment". Throughout these experiments, Bandura video taped a college student kicking and verbally abusing a bobo doll. He then showed this video to a class of kindergarten children who were getting ready to go out to play. When they entered the play room, they saw bobo dolls, and some hammers. The people observing these children at play saw a group of children beating the doll. He described this study and his findings observational learning, or modeling.

Early examples of approaches to cognitive style are listed through Baron (1982). These contain Witkin's (1965) work on field dependency, Gardner's (1953) discovering people had constant preference for the number of categories they used to categories heterogeneous objects, and Block and Petersen's (1955) work on confidence in line discrimination judgments. Baron relates early development of cognitive approaches of personality to ego psychology. More central to this field have been:

- Attributional style theory dealing with different methods in which people explain events in their lives. This approach builds upon locus of control, but extends it through stating we also need to consider whether people attribute to stable causes or variable causes, and to global causes or specific causes.

Several scales have been urbanized to assess both attributional style and locus of control. Locus of control scales contain those used through Rotter and later through Duttweiler, the Nowicki and Strickland (1973) Locus of Control Scale for Children and several locus of control scales specifically in the health domain, most famously that of Kenneth Wallston and his colleagues, The Multidimensional Health Locus of Control Scale. Attributional style has been assessed through the Attributional Style Questionnaire, the Expanded Attributional Style Questionnaire, the Attributions Questionnaire, the Real Events Attributional Style Questionnaire and the Attributional Style Assessment Test.

- Achievement style theory focuses upon identification of an individual's Locus of Control tendency, such as through Rotter's evaluations, and was found through Cassandra Bolyard Whyte to give valuable information for improving academic performance of students. Individuals with internal control tendencies are likely to persist to better academic performance levels, presenting an achievement personality, according to Cassandra B. Whyte

Recognition that the tendency to consider that hard work and persistence often results in attainment of life and academic goals has influenced formal educational and counseling efforts with students of several ages and in several settings since the 1970s research in relation to the achievement. Counseling aimed toward encouraging individuals to design ambitious goals and work toward them, with recognition that there are external factors that may impact, often results in the incorporation of a more positive achievement style through students and employees, whatever the setting, to contain higher education, workplace, or justice programming.

Walter Mischel (1999) has also defended a cognitive approach to personality. His work refers to "Cognitive Affective Units", and considers factors such as encoding of stimuli, affect, goal-setting, and self-regulatory beliefs. The term "Cognitive Affective Units" shows how his approach considers affect as well as cognition.

Cognitive-Experiential Self-Theory (CEST) is another cognitive personality theory. Urbanized through Seymour Epstein, CEST argues that humans operate through method of two independent information processing systems: experiential system and rational system. The experiential system is fast and

emotion-driven. The rational system is slow and logic-driven. These two systems interact to determine our goals, thoughts, and behavior.

Personal construct psychology (PCP) is a theory of personality urbanized through the American psychologist George Kelly in the 1950s. Kelly's fundamental view of personality was that people are like naive scientists who see the world through a scrupulous lens, based on their uniquely organized systems of construction, which they use to expect events. But because people are naive scientists, they sometimes employ systems for construing the world that are distorted through idiosyncratic experiences not applicable to their current social situation. A system of construction that chronically fails to characterize and/or predict events, and is not appropriately revised to comprehend and predict one's changing social world, is measured to underlie psychopathology (or mental illness.) From the theory, Kelly derived a psychotherapy approach and also a technique described *The Repertory Grid Interview* that helped his patients to uncover their own "constructs" with minimal intervention or interpretation through the therapist. The Repertory Grid was later adapted for several uses within organizations, including decision-making and interpretation of other people's world-views.

Behavioral and self [sh]

Behaviorists explain personality in conditions of the effects external stimuli have on behavior. The approaches used to analyze the behavioral aspect of personality are recognized as behavioral theories or learning-conditioning theories. These approaches were a radical shift absent from Freudian philosophy. One of the major tenets of this concentration of personality psychology is a strong emphasis on scientific thinking and experimentation. This school of thought was urbanized through B. F. Skinner who put forth a model which accentuated the mutual interaction of the person or "the organism" with its environment. Skinner whispered children do bad things because the behavior obtains attention that serves as a reinforcer. For instance: a child cries because the child's crying in the past has led to attention. These are the *response*, and *consequences*. The response is the child crying, and the attention that child gets is the reinforcing consequence. According to this theory, people's behavior is formed through processes such as operant conditioning. Skinner put forward a "three term contingency model" which helped promote analysis of behavior based on the "Incentive - Response - Consequence Model" in which the critical question is: "Under which circumstances or antecedent 'stimuli' does the organism engage in a scrupulous behavior or 'response', which in turn produces a scrupulous 'consequence'?"

Richard Herrnstein extended this theory through accounting for attitudes and traits. An attitude develops as the response strength (the tendency to respond)

in the presences of a group of stimuli become stable. Rather than describing conditionable traits in non-behavioral language, response strength in a given situation accounts for the environmental portion. Herrnstein also saw traits as having a large genetic or biological component as do most modern behaviorists.

Ivan Pavlov is another notable influence. He is well recognized for his classical conditioning experiments involving dogs. These physiological studies led him to discover the foundation of behaviorism as well as classical conditioning.

Measurement and Personality [h]

The Personality and Measurement area gives the graduate program in psychology with a strong theoretical and applied orientation through offering training in both the theory and measurement of individual differences. The curriculum emphasizes the integration of sound measurement principles and substantive psychological research. Area faculty members have widely-varying areas of expertise and offer courses in both personality (e.g., personality theory, personality assessment, person perception, intelligence, evolutionary issues) and measurement (e.g., statistics and research design, factor analysis and multidimensional scaling, psychometric theory and test construction, computer-assisted test interpretation, structured equation modeling, cognitive psychometrics). Graduates of the Personality and Measurement area have a comprehensive understanding of individual difference and their assessment and have the skills to critically evaluate empirical research data.

REVIEW QUESTIONS [MH]

- Describe the emotions.
- Explain the physiology of emotion.
- Discuss the emotional expression.
- Explain the emotional theories.
- What is frustration.

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