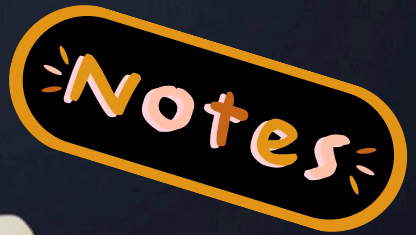


MUHIBB ALI



INTRODUCTION — TO — PSYCHOLOGY

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INTRODUCTION TO PSYCHOLOGY

Prologue

Psychology is a quest for understanding about behaviour. Everyone wants to know about one self and others. The search for such knowledge requires scientific approach with strong motivation. Psychologists have begun to understand a lot about human nature but still the work of psychology goes on in laboratories, as well as in natural settings, from subways to street corners, from pre-school to colleges and universities, from factories, markets, offices, parks and including every social setting. They study about how, what and why of human behaviour.

Our hope is to give you a strong enough sense of knowledge about the nature of human nature so that you pursue a quest on your own.

Definition

The word "psychology" comes from Greek roots meaning "the study of soul or spirit". The combination of two Greek letters "Psych" and "Logus" make the term psychology. Psych means self, soul or mind and logus stands for knowledge. So psychology was defined as knowledge of soul, mind and consciousness in different era. Let's discuss how these definitions restrict or help the field of psychology, and see if any one of them can enable us to understand what psychology is and what it deals with.

Psychology as a Science of Soul

First of all psychology was defined as "science of soul". Soul is a concept we all know very well but can't describe easily. Muslims and non-muslims both have clear concept according to their own belief.

This term has changed its meaning with the passage of time. In primitive era it was believed that each and everything has the soul, but afterwards this belief was limited to living organisms only. Another strong notion about soul is that it is immortal. In Greek period concept of good and bad soul was prevailing yet Greek philosopher had described it by their own. Let's discuss some of them.

Pythagoras: He proposed that body is a prison for soul. After the death of an individual soul becomes free and roam any where according to its will.

Socrates: He was the first who introduced the word psyche. He advocated that body is greater than soul. He believed that soul is immortal and not the

body. He said that everybody must seek the knowledge to make the soul pure.

Plato: Plato was in opinion that soul and body are separate system. Both remain active and functioning till the last breadth. He told that soul is just a shadow which can only be felt but no one can understand its reality.

Aristotle: He wrote a book "De Anima" which is considered the first book on psychology. So he is considered the first psychologist. He termed soul as living principle in all animate beings believed that life is nothing without soul because it is the basic principle of life.

Along with Greek philosopher some Europeans like Plotinus and St. Augustine described about soul. Muslim scholars Al-Kindi, Farabi, Ibn-Miskawaih, Avicenna and many others had also discussed a lot about human soul. They all agreed about its immortality. Historical perspective gives the view that concept of soul was commonly known, even then we can't label the psychology as science of soul due to following reasons:

Criticism

1. Psychology is defined as a science. In science experimentation and observation is necessary. Being science of soul this condition can't be fulfilled.
2. Soul is mystery it can't be seen so can't be observed or verified.
3. Soul as a term implies certain theories of religion with regard to immortality and relationship to God. Psychologists do not oppose the religion, but they certainly want to keep this science free from religious impact and vague terminology.
4. This definition is non-scientific, non observable, non objective and having no physical entity.

In short, science observes facts, and soul is not open for observation or experimentation. So the definition of psychology as science of soul is rejected.

Psychology as a Science of Mind

Greek philosophers named psychology as a science of mind. Mind is defined as feelings, sentiments, sensation, conscious and unconscious functions.

Greek philosophers used the term of soul and mind unanimously. Plato was the person who introduced this term for the first time. Aristotle proposed mind as the function of body and mental process are effected due to environmental factors. John Locke declared that soul is religious concept and mind is psychological concept. He presented the notion known as "Tabula Rasa" that means mind is absolutely blank sheet at the time of birth, environmental experiences make prints on it. When individual analyze and organize these prints, the effect his sensation and feelings about that particular event, situation or person.

In 19th century psychology was emerging as a separate discipline. It was defined as the science of "mental processes".

Wundt: When Wundt established the first laboratory and evolved structuralism as a school of thought, he defined psychology as science of mind. Actually Wundt and Titchener both were trying to study the mental process.

There are two types of mental processes, cognition and affect. Perception, beliefs, thoughts and ideas are included in cognitive mental processes. It also includes activities such as perceiving, thinking, understanding and remembering. Affect refers to mental processes involving one's feelings, mood or emotional state.

Aspects: Cognition, conation (behaviour), and Affect are the three aspects of mental processes. Actually it is the subject matter of psychology. That means psychology is the science of A, B, C. (Affect, Behaviour and Cognition). To understand someone at any given time or to predict what one will do next, we have to understand what he or she is feeling (A), doing (B) and thinking (C). Mind is comprised of consciousness, sub-consciousness, and unconsciousness. Mind or mental processes have following characteristics:-

1. **Complete Unit:** Mind is a complete unit. It does not work as different or separate faculties, such as memory, imagination or thinking. We analyze them separately just for our study purpose yet mind itself is a complete unit.
2. **Non-Matter:** Mind is not made of flesh or other matter like brain. Although it is connected with brain, yet we can never touch it.
3. **Active:** Mind remains active without any gap.
4. **Continuity:** There is constant flow of mental processes. Mind is compared to a continuously flowing stream, yet its past, present and futures are connected to a complete whole.
5. **Subjective:** Mental processes are subjective and very personal. No other person can directly observe or judge them.

After having all this discussion if we replace the term of "mind" with "mental processes", then this definition can become quite reasonable. Even then it has to face some criticism.

Criticism

1. Mind or mental processes are untouchable and can't be seen or observed, so experimentation will become impossible or difficult.
 2. We can be aware of our mental activities and not of others. Dependency on this definition will make our knowledge limited and subjective.
 3. Animals, kids and mental patients can't observe their own mental processes.
 4. Due to the flow of mental processes it becomes quite difficult to study them, as they are continuously changing.
- So this definition is also not fully acceptable. Let's discuss the next one.

Forensic Psychology

- 1) **Psychology and Law:** Forensic psychology is the interface between psychology and the law, so all psychological services provided for the legal community is forensic psychological services. However, most forensic psychologists provide services which are both clinical and forensic in nature. When a psychologist treats an individual who was emotionally traumatized by an accident, the treatment is clinical in nature, designed to assist the individual in recovering from the trauma. But, when the psychologist is asked to provide a report for the court, regarding the extent of the trauma, and to assess the psychological damage incurred, then the psychologist is providing forensic services.
- 2) **Forensic psychology** is the intersection between psychology and the justice system. It involves understanding fundamental legal principles, particularly with regard to expert witness testimony and the specific content area of concern (e.g., competence to stand trial, child custody and visitation, or workplace discrimination), as well as relevant jurisdictional considerations (e.g., in the United States, the definition of insanity in criminal trials differs from state to state) in order to be able to interact appropriately with judges, attorneys and other legal professionals.
- 3) An important aspect of forensic psychology is the ability to testify in court as an expert witness, reformulating psychological findings into the legal language of the courtroom, providing information to legal personnel in a way that can be understood. Further, in order to be a credible witness the forensic psychologist must understand the philosophy, rules, and standards of the judicial system. Primary is an understanding of the adversarial system. There are also rules about hearsay evidence and most importantly, the exclusionary rule. Lack of a firm grasp of these procedures will result in the forensic psychologist losing credibility in the courtroom.
- 4) A forensic psychologist can be trained in clinical, social, organizational or any other branch of psychology.
- 5) Generally, a forensic psychologist is designated as an expert in a specific field of study. The number of areas of expertise in which a forensic psychologist qualifies as an expert increases with experience and reputation. Forensic neuropsychologists are generally asked to appear as expert

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witnesses in court to discuss cases that involve issues with the brain or brain damage. They may also deal with issues of whether a person is legally competent to stand trial.

- 6) Questions asked by the court of a forensic psychologist are generally not questions regarding psychology but are legal questions and the response must be in language the court understands. For example, a forensic psychologist is frequently appointed by the court to assess a defendant's competence to stand trial. The court also frequently appoints a forensic psychologist to assess the state of mind of the defendant at the time of the offense. This is referred to as an evaluation of the defendant's sanity or insanity (which relates to criminal responsibility) at the time of the offense. These are not primarily psychological questions but rather legal ones. Thus, a forensic psychologist must be able to translate psychological information into a legal framework.
- 7) Forensic psychologists may be called on to provide sentencing recommendations, treatment recommendations or any other information the judge requests, such as information regarding mitigating factors, assessment of future risk and evaluation of witness credibility. Forensic psychology also involves training and evaluating police or other law enforcement personnel, providing law enforcement with criminal profiles and in other ways working with police departments. Forensic psychologists may work with any party and in criminal or family law. In the United States they may also help with jury selection.
- 8) The practice of forensic psychology, and perhaps the most frequent duty of forensic psychologists, is the psychological assessment of individuals who are involved, in one way or another, with the legal system. Therefore, although it is necessary to have training in law and forensic psychology, the most important skills a forensic psychologist must possess are solid clinical skills. That is, skills like clinical assessment, interviewing, report writing, strong verbal communication skills (especially if an expert witness in court) and case presentation are all very important in setting the foundation of the practice of forensic psychology. With these skills forensic psychologists perform such tasks as threat assessment for schools, child custody evaluations, competency evaluations of criminal defendants and of the elderly, counseling services to victims of crime, death notification

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procedures, screening and selection of law enforcement applicants, the assessment of post-traumatic stress disorder and the delivery and evaluation of intervention and treatment programs for juvenile and adult offenders. The practice of forensic psychology involves investigations, research studies, assessments, consultation, the design and implementation of treatment programs and expert witness courtroom testimony.

- 9) **Juvenile Delinquency:** Juvenile delinquency, also known as "juvenile offending", is participation in illegal behavior by minors (juveniles, i.e. individuals younger than the statutory age of majority). Most legal systems prescribe specific procedures for dealing with juveniles, such as juvenile detention centers, and courts. A juvenile delinquent in the United States is a person who is typically under the age of 17 and commits an act that otherwise would have been charged as a crime if they were an adult. Depending on the type and severity of the offense committed, it is possible for persons under 18 to be charged and tried as adults.
- 10) In recent years a higher proportion of youth have experienced arrests by their early 20s than in the past, although some scholars have concluded this may reflect more aggressive criminal justice and zero-tolerance policies rather than changes in youth behavior. Juvenile crimes can range from status offenses (such as underage smoking), to property crimes and violent crimes. Youth violence rates in the United States have dropped to approximately 12% of peak rates in 1993 according to official US government statistics, suggesting that most juvenile offending is non-violent. However, juvenile offending can be considered normative adolescent behavior. This is because most teens tend to offend by committing non-violent crimes, only once or a few times, and only during adolescence. Repeated and/or violent offending is likely to lead to later and more violent offenses. When this happens, the offender often displayed antisocial behavior even before reaching adolescence.

Health Psychology

1) Health Psychology and Beliefs and Behaviour

- I. Health psychologists study the role of psychology in health and wellbeing. They highlight the importance of both a) developing and testing psychological theory and b) relating theory to health practice.
- II. Health psychology examines health beliefs as possible predictors of health-related behaviours, such as:
 - i. the costs and benefits of a behaviour,
 - ii. susceptibility and severity of an illness,
 - iii. self efficacy in changing behaviour,
 - iv. a person's past behaviour
 - v. the beliefs of important others.
- III. Health psychology also examines beliefs about illness and suggests that individuals conceptualize their illness in terms of its time line, its symptoms, the causes and consequences of the problem, and whether it can be controlled or cured.
- IV. The self-regulatory model of illness behaviour highlights how symptoms are a perception, how people are motivated to make sense of their illness, how they cope with illness in different ways, and how these factors can influence how they behave in relation to their illness.
- V. A health professional's beliefs about the symptoms, the illness or the patient may influence their diagnosis, how patients are treated and the effectiveness of any communication between patient and professional.
- VI. Stress is seen as an interaction between the person and their environment. It can influence illness, either through changing health-related behaviours such as smoking and exercise or via a physiological pathway, and it is mediated by coping and social support.
- VII. Beliefs and behaviours can influence whether a person becomes ill in the first place, whether they seek help and how they adjust to their illness.
- VIII. Contrary to common beliefs people don't collect information from the outside world to form new beliefs but they gather new information that supports their already existing beliefs.

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- IX. This means that believing that someone is arrogant will result in changing your behavior in such a way that you will only focus on his mistakes and ignore his good deeds.
- X. Not only can beliefs affect behavior but they can affect your life and shape your entire reality.
- XI. The belief about the relationship between mind and body affects your behavior. The more that you see the mind and body as a unit, the more respect you show your body.
- XII. Beliefs Affect behavior in the following ways:
- i. Limiting beliefs limits people's potential: Limiting beliefs affects behavior by preventing people from taking certain actions that they would have otherwise took if the belief was not there. An intelligent child might never study and so fails the exams if he believes that he is not intelligent.
 - ii. Beliefs and information filtering: Just as a i said before we filter information based on our beliefs and only absorb the information that matches our belief system. This impacts our behavior by making us biased towards what we believe in no matter how many proofs are provided. That's why persuading someone to believe into something against his beliefs is hard
 - iii. Beliefs shape reality: If a guy thinks that he will never find a job (a belief) then he will not become motivated to prepare himself for the job market (change in behavior) and later on when he tries to find a job he will fail (so his belief will become true). That's how beliefs can shape reality
 - iv. Beliefs and self confidence: In the Solid Self confidence program i said that self confidence is no more than a set beliefs that you have about yourself. If those beliefs were positive then you will behave like a confident person while if they became negative your behavior will be changed to the opposite
- XIII. How the relationship between behavior and beliefs can be useful
- i. Its now clear that beliefs can control your actions, behavior and potential. If you learned how to acquire positive beliefs and how to get rid of negative ones then you will be able to use the tremendous power of beliefs on your side.

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- ii. With a positive and powerful belief system there is no limit to what you can achieve in this world.

2) Models of Health Psychology

I. Biomedical model of Health

- i. a conceptual model of illness that excludes psychological and social factors and includes only biologic factors in an attempt to understand a person's medical illness or disorder.

II. The Biopsychosocial Model of Health

- i. According to the biopsychosocial model, interactions between people's genetic makeup (biology), mental health and personality (psychology), and sociocultural environment (social world) contribute to their experience of health or illness.
- ii. The biological influences on mental health and mental illness are varied, and include genetics, infections, physical trauma, nutrition, hormones, and toxins.
- iii. The psychological component looks for potential psychological explanations for a health problem, such as lack of self-control, emotional turmoil, or negative thinking.
- iv. Social and cultural factors are conceptualized as a particular set of stressful events (being laid off, for example) that can differentially impact mental health depending on the individual and his or her social context.
- v. The biopsychosocial theory posits that each one of these factors is not sufficient to create health or mental illness, but the interaction between them determines the course of one's development.
- vi. Despite its usefulness, there are issues with the biopsychosocial model, including the degree of influence that each factor has, the degree of interaction between factors, and variation across individuals and life spans.

3) STRESS, HEALTH & ILLNESS

I. What is stress?

- i. Definition: any circumstances that threaten or are perceived to threaten one's well-being and thereby tax one's coping abilities

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- ii. Stress is generally known as pattern of disruptive physiological and psychological reaction to events that threaten the ability to cope.
 - iii. It has become an important topic because it is clear that the pattern of disease, especially cardiovascular disease, and other diseases such as gastrointestinal, skin, immune system, and respiratory diseases cannot be explained simply by physiological factors alone.
- II. Sources of stress
- i. Internal- Originate from within a person. Cancer, Depression
 - ii. External- From outside a person, including Situational stressors Marriage or divorce, Birth, death, illness.
 - iii. Developmental stressors (Erikson)
- III. TYPES OF STRESS
- i. Negative stress
 - ii. Positive stress
- IV. SYMPTOMS OF STRESS
- i. Physical symptoms
 - ii. Mental symptoms
 - iii. Behavioural symptoms
 - iv. Emotional symptoms
- V. Approaches to The Study of Stress
- i. There are many approaches to the study of stress. Generally researchers have conceptualized stress in three Ways. In one approach, stress is seen as a stimulus, and studies focus on the impact of stressors (events).
 - ii. Another approach treats stress as a response and examines the strains that the stressors produce (e.g. the the physiological consequences).
 - iii. The third approach views stress as a process that involves continuous interaction and adjustment- or transaction- between the person and the environment.
- VI. Three Views of Stress
- i. Focus on the environment

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ii. Focus on the RESPONSE: Reaction to stress: stress as a response (distress) (F/F)

iii. Focus On The Interaction Processes: Cognitive

VII. A General Definition

i. These viewpoints have led to the definition of stress as the condition that results when a person/environment transactions leads the individual to perceive a discrepancy between the demands of the situation and the resources of the person's biological, psychological, and social systems.

VIII. Models of stress:

i. The Stimulus-Based Model of Stress

1. (Holmes and Rahe advanced this theory. It proposed that life changes (LIFE EVENTS) or (STRESSORS), either positive or negative, are stressors that tax the adaptation capacity of an individual, causing physiological and psychological strains that lead to health problems.

2. (They developed the Social Readjustment Rating Scale (SRRS). They hypothesized that people with higher scores in the SRRS, -that is major life changes-are more likely to experience physical or mental illness.

3. There is some supporting evidence to this, but the correlation is fairly low. Moreover, this theory was criticized as ignoring the cognitive aspects of the effects of stress. In other words, it does not account for the individual appraisal of the meaning of various life events.

ii. The Response-Based Model of Stress

1. This model emphasizes the common physiological consequences of stressful situation. It is represented in the well-known theory of Hans Selye. It is similar to the "Fight or Flight" response, which occurs in situation that perceived as very threatening.

2. The response is a physiological one in which arousal of the sympathetic nervous system results in many physiological and somatic changes and finally disruption of homeostasis.

3. Selye developed this idea into a theoretical model of stress called the General Adaptation Syndrome theory. He defined stress as (a non-specific response and demand made upon the body). He proposed that different types of stimuli would result in similar physiological responses.

iii. General Adaptation Syndrome Theory

1. The GAS theory has three phases, which is based on the hypothesis that the body has normal level of resistance to stress.
2. Phase (I): Initial alarm resulting in a slight reduction in the resistance to stress, (The Shock stage). Then reverts to the normal level in the (Counter-shock Stage,)
3. Phase (II): RESISTANCE remains high until the final stage of exhaustion, where resistance rapidly drops □ Phase (III): which starts with exhaustion and described as Collapse, where disease occurs.
4. Stage 1 Alarm Reaction Stage 2 Resistance Stage 3 Exhaustion: Notice how the curve first goes down before ascending upward? This is where the curve Peaks if adaptation Occurs normal
5. ALARM RESPONSE This is the “ Fight or Flight” response that prepares the body for immediate action
6. The GAS – Stage Two – RESISTANCE: Not as intense as the Alarm Stage, but bodily levels of hormonal secretion are still above normal □Occurs during the stress response and if stressor is removed helps return the body to normal levels. ADAPTATION PHASE
7. The GAS – Stage 3 - EXHAUSTION □Bodily systems have been depleted due to prolonged resistance □Can bring about the threat of onset of “diseases of adaptation”
8. EXHAUSTION In chronic stress situations, sufferers enter the exhaustion phase: emotional, physical and mental resources suffer heavily, the body experiences ‘ adrenal exhaustion’ leading to decreased stress tolerance,

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progressive mental and physical exhaustion, illness and collapse.

iv. The Transactional Model of Stress

- v. 1) Lazarus & Folkman (1980) proposed the third approach. They criticized the first and the second models mentioned above as treating people as machines. They believe that people have the capacity to think, evaluate, and then react. Thinking can make stress either better or worse. (Lazarus developed an interaction theory, which emphasizes the role of cognition. This theory proposed that people engage in TWO-STAGE PROCESS of appraisal:

1. A Primary Appraisal Process: Determine whether the event represents a threat to the individual. This results in three outcomes: 1. Events regarded as irrelevant. 2. Events regarded as positive to well being. 3. Events regarded as negative to well being. This negative appraisal leads to:
2. A Secondary Appraisal Process: Here the individuals assess their COPING RESOURCES. These resources include environmental factors, social support or help, knowledge, and skills to reduce this threat. Appraisal of Stress □ Some people are more prone to feeling stress than others, irrespective of event. Appraisals of potentially stressful events are influenced by two factors: (1) the controllability of events (2) the predictability of events Events are more stressful when they are uncontrollable and unpredictable

IX. Effects of Coping Resources and Strategies

- i. When coping outcomes are positive such as accepting the death of a relative or passing an exam, a psychological adjustment or adaptation takes place. □ However, unsuccessful coping leads anxiety and depression or exacerbate other physical and mental disease.
- ii. Maladjustment or maladaptation is more frequently associated situation when Primary or Secondary Appraisals fail to identify an appropriate course of action. These may include:

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1. Uncertainty: “I don’t know what is going on” Primary Appraisal.
2. Unpredictability: “I don’t know what is going to happen” Primary Appraisal.~
3. Uncontrollability: “I don’t Know what to do about it” Secondary Appraisal.
4. OR “There is nothing that I can do” Secondary Appraisal
5. OR There is nothing anyone can do” Secondary Appraisal

4) Chronic and Terminal Illness

- I. Terminal illness is a disease that cannot be cured or adequately treated and that is reasonably expected to result in the death of the patient within a short period of time. This term is more commonly used for progressive diseases such as cancer or advanced heart disease than for trauma. In popular use, it indicates a disease that eventually ends the life of the sufferer. Often, a patient is considered terminally ill when their estimated life expectancy is six months or less, under the assumption that the disease will run its normal course. The six-month standard is arbitrary.
- II. By definition, there is no cure or adequate treatment for terminal illnesses. However, some kinds of medical treatments may be appropriate anyway, such as treatment to reduce pain or ease breathing.
- III. Some terminally ill patients stop all debilitating treatments to reduce unwanted side effects. Others continue aggressive treatment in the hope of an unexpected success. Still others reject conventional medical treatment and pursue unproven treatments such as radical dietary modifications. Patients' choices about different treatments may change over time.
- IV. Palliative care is normally offered to terminally ill patients, regardless of their overall disease management style, if it seems likely to help manage symptoms such as pain and improve quality of life. Hospice care, which can be provided at home or in a long-term care facility, additionally provides emotional and spiritual support for the patient and loved ones. Some alternative medicine approaches, such as

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relaxation therapy, massage, and acupuncture may relieve some symptoms and other causes of suffering.

- V. A chronic condition is a human health condition or disease that is persistent or otherwise long-lasting in its effects or a disease that comes with time. The term chronic is usually applied when the course of the disease lasts for more than three months. Common chronic diseases include arthritis, asthma, cancer, COPD, diabetes and viral diseases such as hepatitis C and HIV/AIDS.
- VI. In medicine, the opposite of chronic is acute. A chronic course is further distinguished from a recurrent course; recurrent diseases relapse repeatedly, with periods of remission in between.
- VII. The non-communicable diseases are also usually lasting medical conditions but are separated by their non-infectious causes. In contrast, some chronic diseases, such as HIV/AIDS, are caused by transmissible infections.
- VIII. Chronic diseases constitute a major cause of mortality and the World Health Organization (WHO) reports chronic non-communicable conditions to be by far the leading cause of mortality in the world, representing 35 million deaths in 2005 and over 60% of all deaths.
- IX. Chronic Disease is a long-lasting condition that can be controlled but not cured. Chronic illness affects the population worldwide.
- X. People who have serious, chronic, or terminal illnesses are at increased risk for experiencing anxiety and depression.

INTELLIGENCE

1) Introduction

2) Modern statistical calculation of intelligence

i. IQ -- Intelligence quotient:

- i. The Stanford-Binet test of 1916 calculated I.Q. as follows: $IQ = (MA/CA) \times 100$, MA = mental age CA = chronological (actual) age.
- ii. Because Mental Age doesn't typically grow after 25, this method underestimates most adult IQs.
- iii. On modern tests, a deviation IQ is obtained.
- iv. By comparing your actual score on an intelligence test to the average score on that test, we determine whether you are above average, below average, or average in intelligence.
- v. We take the raw data from the test (your score, the average, and the standard deviation) and we statistically transform the score into a distribution where the mean is 100 and the standard deviation is 15. Because this is a normal (bell curve) distribution, we can state with certainty where you fall within the population.

ii. EQ- Emotional Quotient

- i. Emotional intelligence is a new concept developed by Dr John Mayer and Dr Peter Salovey (1990) from American University. However, it was popularised by American Psychologist Daniel Goleman (1995).
- ii. Emotional intelligence is defined as "one's ability to know, feel and judge emotions in cooperation with a person's thinking process for behaving in a proper way, with ultimate realisation of happiness in him and in others".
- iii. Like general intelligence, emotional intelligence is also developed in a person by birth.
- iv. Normal development of emotion leads to healthy life, but too much variation in emotional level damages the individual's life.
- v. The level of emotion in a person is called Emotional Quotient (EQ). This can be obtained by using emotional intelligence

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tests, same way as we assess the IQ of a person. The success of a person in his job or profession depends not only on his IQ, but also on his EQ.

- vi. The nurse with high emotional quotient can identify and perceive her emotions and of others like patients easily through face reading, bodily language, voice tone, etc. She can have a proper understanding of the nature, intensity and outcomes of her emotions. High EQ also helps the nurse to exercise proper control and regulation over the expression and use of emotions in dealing with her and others, so as to promote harmony and peace.

3) Distribution of Intelligence

- i. Every individual in a society will have some amount of intelligence. But they differ in the level of intelligence.
- ii. Some may be very dull, some may be average and some other people may be more intelligent. But how many of them in a group or a society are dull or intelligent or average? The answer to this question lies in knowing the distribution of intelligence in a given population.
- iii. If we measure the intelligence of a large number of people and plot the IQ scores of these people on a graph, it assumes the shape of a “Normal Distribution Curve” or otherwise called ‘Bell Shaped Curve’
- iv. This curve indicates that, a very few people will be at the lowest score and the equal number will be at the highest level of the IQ. The number gradually increases as we go up from the lowest point till we reach the midpoint or the average. A large number of people in a population will cluster around the mean score.
- v. The number gradually decreases from the midpoint till the highest level is reached wherein there will be very few individuals. The lower side of the curve indicates the people with low intelligence and the higher side indicates people with above average level of intelligence. According to American Association for Mentally Retarded: Terman and Goddard have classified MR as follows:
 - i. Idiots: IQ: 0-25,
 - ii. Imbecile: IQ: 26-50
 - iii. Moron: IQ: 51-70

4) Notes on Factor Theories and Cognitive Theories of Intelligence

- i. Characteristics of people with regard to their intellectual activities and abilities indicate that the intelligence cannot be a single function or capacity.
- ii. There must be various components for intelligence. Psychologists have attempted to analyze these components, which has resulted in the development of different theories.
- iii. These theories have been grouped into two categories—viz., Factor theories and cognitive theories.
- iv. Factor Theories:
 - i. Thurston's multifactor theory: Thurston (1946) rejected the General theory of intelligence and instead presented his own theory. This theory states that the human intelligence includes 7 primary mental abilities. Though these abilities appear to be different, they are related to each other. They are: Primary mental abilities; Thurston has developed a test called Primary Mental Abilities test to assess these factors.
 1. Verbal Comprehension - vocabulary, reading, verbal analogies
 2. Word Fluency --- anagrams, rhyming tests
 3. Number -- mathematical operations
 4. Space - spatial visualizations and mental transformation.
 5. Associative Memory -- rote memory
 6. Perceptual Speed -- quickness in noticing similarities and differences
 7. Reasoning - skill in inductive, deductive, and math problems
 - ii. Spearman's two-factor theory: This is a very popular theory. According to Spearman intelligence is the ability to think constructively. Spearman (1927) proposes that intelligence consists of two abilities, viz. 'G'- general ability and 'S'- special ability. General factor or ability works in conjunction with special ability. In all intellectual activities of the human being along with general ability, there will also be a special ability which is related to such action.

- iii. Multi factor theory of intelligence: Proposed by EL Thorndike. According to Thorndike, intelligence is not a single factor like general intelligence rather it is a combination of multiple factors. These factors include: (a) Abstract intelligence, (b) Concrete (technical) intelligence, (c) Social intelligence, etc. Thorndike states, each factor is an independent element and hence it is not possible to combine all these elements.
- iv. Guilford's tri-dimensional theory: JP Guilford (1961) developed a model of intelligence in which he explained that every intellectual activity can be described in terms of three different basic dimensions, viz., operations- the act of thinking, contents- the terms in which we think like words, symbols, etc. and products- the ideas we develop. He has proposed his tri-dimensional theory of intelligence represented by cubical model. This model is provided with 120 primary abilities, and is a combination of 4 contents, 5 operations and 6 products ($4 \times 5 \times 6 = 120$). Guilford's model of the Structure of Intellect: the primary mental abilities included in intelligence. However, Guilford (1967) has expanded his cube-shaped model of intellect to include 150 factors, which includes 5 contents, 6 products and 5 operations ($5 \times 6 \times 5 = 150$). This may be understood by studying this example: A child is asked to determine the day of the week on a particular date with the help of a calendar. The task involves operations like convergent thinking, memory and cognition. In carrying out these operations, he has to make use of the contents. In this particular case, he will make use of semantics, i.e. reading and understanding of the printed words and figures indicating days and dates of a particular month in the calendar. By carrying out mental operations with the help of the contents he will finally arrive at the products. The day of the week to which the date in question refers represents the factor known as 'relations'.
- v. Hierarchical Models of Intelligence: Vernon (1960) borrowed from both Spearman and Thurstone in his conception of intelligence. General intelligence, g can be broken down into

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two major group factors --- Verbal-Educational, and Spatial - Motor. In turn, these major group factors can be broken down into minor group factors, and these minor factors account for patterns of association seen in cognitive ability tests. Hierarchical Models suggest that both broad and general abilities can be measured. The key is to determine what you are trying to predict, and to match the type of intelligence which is most relevant to making your predictions.

- v. Cognitive Theories of Intelligence: These theories are otherwise called process-oriented theories. They focus on intellectual processes; the patterns of thinking and reasoning in people, used to solve problems. These theories consider intelligence as a process which helps to deal with problems and to find out the answers. They are called cognitive theories because of their focus on fundamental cognitive processes. The important theories are:
 - i. Cattell and Horn's Theory: Cattell (1971) and Horn (1978) have proposed this theory in which they have distinguished two types of intelligence. Fluid intelligence: This is an innate, biologically or genetically determined capacity and not influenced by education or training. This capacity helps the person in learning and problem solving. This is the ability which is useful in understanding and adjusting to strange situations. This ability develops fully in people by the end of an individual's adolescence. Crystallized intelligence: It is a learned or acquired capacity. It is influenced by environmental factors like education, training, culture, knowledge and learned skills. This ability can be observed in the behaviour of a person while dealing within culture, traditions in society, his knowledge in worldly affairs, through the skills in handling machinery, tools, etc. Generally it continues throughout life. Though both types of intelligence are independent, they are interrelated.
 - ii. Information Processing Theory of Intelligence: This theory was proposed by American Psychologist Robert Sternberg (1984). He distinguished between information processing components and meta-components. Components are the steps to solve a problem and the meta-components are the basics of knowledge that one has to

know to solve the problem. The information processing is like a process of solving a problem by an individual in which he proceeds to solve a problem which he comes across, gathers the necessary information and makes use of this information for completing that task. Information processing includes the following steps: Identifying the relevant information (encoding), Drawing the necessary inferences (inferring), Establishing relationship between past and present experiences (mapping), Applying the inferred relationship (application), Justifying the correct solution (justification), Provide the correct solution (response).

- iii. Jensen's Theory of Mental Functioning: Arther Jensen (1969) proposed this theory. According to him, the functioning of one's mind depends upon the type and degree of intelligence one possesses. Jensen splits intelligence into two types of abilities-associative abilities and cognitive abilities. Associative ability is the capacity to learn, identify, discriminate, remember and reproduce the learnt information and experiences. On the other hand, cognitive or conceptual ability is concerned with higher order thinking, reasoning, analysing and problem solving. According to Jensen associative abilities are related to biological maturation and the cognitive are dependent on education and culture, leading to more individual differences.
- iv. In addition to these, there are theories proposed by HJ Eysenck, Compion and Brown, Gardner's theory of multiple intelligence, etc.

LEARNING AND MEMORY

Nature and Forms of Learning

1) Meaning and Nature:

- i. Learning is a key process in human behaviour. All living is learning.
- ii. The individual is constantly interacting with and influenced by the environment. This experience makes him to change or modify his behaviour in order to deal effectively with it. Therefore, learning is a change in behaviour, influenced by previous behaviour.
- iii. Learning is defined as “any relatively permanent change in behaviour that occurs as a result of practice and experience”. This definition has three important elements.
 - i. Learning is a change in behaviour—better or worse.
 - ii. It is a change that takes place through practice or experience, but changes due to growth or maturation are not learning.
 - iii. This change in behaviour must be relatively permanent, and it must last a fairly long time.
- iv. All learning involves activities. These activities involve either physical or mental activities. They may be simple mental activities or complex, involving various muscles, bones, etc. So also the mental activities may be very simple involving one or two activities of mind or complex which involve higher mental activities.

2) Types of Learning:

- i. Motor learning: motor activities. The individual has to learn them in order to maintain his regular life, for example walking, running, skating, driving, climbing, etc. All these activities involve the muscular coordination.
- ii. Verbal learning:
- iii. Concept learning: It is the form of learning which requires higher order mental processes like thinking, reasoning, intelligence, etc. we learn different concepts from childhood. Concept learning involves two processes, viz. abstraction and generalisation. This learning is very useful in recognising, identifying things.
- iv. Discrimination learning: Learning to differentiate between stimuli and showing an appropriate response to these stimuli is called

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discrimination learning. Example, sound horns of different vehicles like bus, car, ambulance, etc.

- v. Learning of principles: Individuals learn certain principles related to science, mathematics, grammar, etc. in order to manage their work effectively. These principles always show the relationship between two or more concepts. Example: formulae, laws, associations, correlations, etc.
- vi. Problem solving: This is a higher order learning process. This learning requires the use of cognitive abilities-such as thinking, reasoning, observation, imagination, generalization, etc. This is very useful to overcome difficult problems encountered by the people.
- vii. Attitude learning: Attitude is a predisposition which determines and directs our behaviour. We develop different attitudes from our childhood about the people, objects and everything we know. Our behaviour may be positive or negative depending upon our attitudes. Example: attitudes of nurse towards her profession, patients, etc.

3) Theories of Learning:

- i. Trial and Error Learning Theory: This theory was developed by an American psychologist EL Thorndike (1874-1949). He argues that learning takes place through trial and error method. According to him learning is a gradual process where the individual will make many attempts to learn. The essence of this theory is-as the trials increase, the errors decrease. This is possible because of association formed between sense impressions and impulses to action. Such an association comes to be known as a 'bond' or a 'connection, because it is these bonds or connections which become strengthened or weakened in making and breaking of habits. According to this theory when an individual is placed in a new situation, he makes a number of random movements. Among them, those which are unsuccessful are eliminated and the successful ones are fixed. Experiment cat in the puzzle box.

ii. Learning by Conditioning:

- i. Classical conditioning: Sub-principles of Classical Conditioning:

1. Extinction and spontaneous recovery

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2. Stimulus generalization
3. Stimulus discrimination:
4. Higher order conditioning:
 - ii. Operant Conditioning:
 1. Reinforcement which is the most important aspect of this experiment is divided into two types: positive reinforcement is used in reward training. Negative reinforcement-like punishment is used to stop undesired responses or behaviours. Operant conditioning is useful in shaping undesirable behaviour and also in modification of behaviour.
 - iii. Learning by Insight: Learning by perceiving the relationship in the scene and understanding the situation is insightful learning. This theory was developed by a psychologist known as Wolfgang Kohler, who belonged to Gestalt school of psychology. According to Gestalt theory—perception of a situation as a ‘whole’ gives better understanding than sum total of its parts. That is, the situation viewed as a whole will definitely look different from that, viewed through its parts. Kohler conducted his most famous experiments on chimpanzee-called Sultan. Insight occurs, when the individual sees in a flash, the solution to his problem or difficulty. It is not blind or stupid learning. It is an intelligent way of learning.
 - iv. Learning by Imitation: Psychologists like Millar and Dollard have tried to show that the tendency to imitate is itself a learned response and if reinforced, the individual will be more likely to continue to imitate. Many people believe that imitation is a lower form type of learning. Still others argue that imitation can never lead to novel responses and there will be no chance to use individual’s creativity or originality
- 4) Laws of Learning: EL Thorndike has explained three laws of learning called Primary laws and in addition to these, he has also framed 5 subsidiary laws in connection with his trial and error learning theory.
 - i. Primary laws:
 - i. Law of readiness: By readiness means the organism is ready to respond or act. This is more essential prerequisite for learning.

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- ii. Law of exercise: This law is also known as law of frequency. Frequency refers to number of repetitions of learning. Thorndike believed that repeated exercising of a response strengthens its connection with stimulus.
 - iii. Law of effect: This law states that when a connection is accomplished by satisfying effect- its strength is increased. By this, Thorndike meant that the probability of its occurrence is greater. In his experiment if the hungry cat succeeded in opening the door, would get its favourable dish to eat.
- ii. Secondary laws:
- i. Law of multiple response: It means when a response fails to elicit a desired effect, the learner will try with new responses until the goal is reached.
 - ii. Law of set or attitude: Mental set or positive attitude is very important in any learning.
 - iii. Law of associative shifting: This is nothing but shifting of the response to a new situation which is similar to the earlier one. Because the fundamental notion is that, if a response can be kept intact through a series of changes in stimulating situation, it may finally be given to a new situation.
 - iv. Law of prepotency of elements: This law states that the learner is able to react in a selected way, only to the salient elements of the problem and not for other unimportant elements.
 - v. Law of response by analogy: It means comparing a new situation to the previously learned one and thus giving a response by analogy.

Motivation and Emotion

1) Homeostasis

- i. Homeostasis refers to the body's need to reach and maintain a certain state of equilibrium. The term is often used to refer to the body's tendency to monitor and maintain internal states such as temperature and energy levels at fairly constant and stable levels.
- ii. The term homeostasis was first coined by a psychologist named Walter Cannon in 1926. The term refers to an organism's ability to regulate various physiological processes to keep internal states steady and balanced.
- iii. These processes take place mostly without our conscious awareness.
- iv. Our internal regulatory systems have what is known as a **set point** for a variety of things. This is much like the thermostat in your house. Once set at a certain point, these systems work to keep the internal states at these levels. In the same way, if something is out of balance in your body, a variety of physiological reactions will kick in until the set point is once again reached.
- v. Homeostasis involves three key features:
 - i. A clear set point
 - ii. The ability to detect deviations from this set point
 - iii. Behavioral and physiological responses designed to return the body to the set point
- vi. Your body has set points for a variety of things including temperature, weight, sleep, thirst, and hunger.
- vii. One prominent theory of human motivation, known as drive reduction theory, suggests that homeostatic imbalances create needs. This need to restore balance drives people to perform actions that will return the body to its ideal state.
- viii. How Does the Body Regulate Temperature?
 - i. All organisms, from large mammals to tiny bacteria, must maintain an ideal temperature in order to survive. Some factors that influence this ability to maintain a stable body temperature include how these systems are regulated as well as the overall size of the organism. Birds and mammals (including humans) are endotherms. Other creatures are ectotherms (aka "cold blooded") and rely on external sources to regulate their body temperature. Reptiles and amphibians are both ectotherms.
 - ii. Homeostasis is also influenced by an organism's size, or more specifically, the surface-to-volume ratio. Larger creatures have a much greater body volume, which causes them to produce more body heat. Smaller animals, on the other, produce less body heat but also have a higher surface-to-volume ratio. They lose more body heat than they produce, so their

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internal systems must work much harder to maintain a steady body temperature.

- ix. Behavioral and Physiological Responses
 - i. homeostasis involves both physiological and behavioral responses. In terms of behavior, you might seek out warm clothes or a patch of sunlight if you start to feel chilly. When you start to feel chilled, you might also curl your body inward and keep your arms tucked in close to your body to keep in heat.
 - ii. As endotherms, people also possess a number of internal systems that help regulate body temperature. humans have a body temperature set point of 98.6 degrees Fahrenheit. When your body temperature dips below this point, it sets off a number of physiological reactions to help restore balance. Blood vessels in the body's extremities constrict in order to prevent heat loss. Shivering also helps the body produce more heat.
 - iii. The body also responds when temperatures go above 98.6 degrees. When you are too warm, your blood vessels dilate in order to give off more body heat. Perspiration is another common way to reduce body heat.
- 2) Factors influencing Motivation
 - i. The Incentive Theory suggests that people are pulled toward behaviors by rewards (incentives).
 - ii. Extrinsic (external) motivation is any influence comes from an outside source. An intrinsic (internal) motivation is any motivation comes from within and provides a sense of satisfaction. Incentives can provide negative motivation, a promise of an unpleasant outcome, that can be avoided if a specific behavior is performed.
 - iii. External Factors
 - i. Social – how people in our social/per group behave and their beliefs,
 - ii. Legal – legislation, codes, and regulations made by society puts acceptable limits on our behavior,
 - iii. Economic – how the our national and local economy affects affects our net spendable income,
 - iv. Political – how changes in local. state, and national elections can affect government policy that might limit or expand our opportunities,
 - v. Technological – how the rapid pace of changes in technology can limit or expand our opportunities,
 - vi. Ethical – what is regarded as morally right or wrong regarding our personal, social, and business conduct.
 - iv. Internal Factors
 - i. Anxiety
 - ii. Higher level of interest: Curiosity and Interest, more cognitive engagement, more learning, and higher levels of achievement

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- iii. Locus of Control
- iv. Higher levels of value: Task value refers to persons' opinion about the utility, or how interesting they find a task given the goals that are being pursued
- v. Learned helplessness
- vi. Self-efficacy beliefs and competence perceptions: Perceptions of self-efficacy refer to persons' beliefs about their ability to successfully accomplish tasks they are given, and have been related to persons' successful engagement and persistence in tasks
- vii. Attributions and control beliefs: The basic construct refers to beliefs about the causes of success and failure, and how much perceived control one needs to affect outcomes or to control one's behavior
- viii. Goals and goal orientation: Setting goals is a key point in the learning process.

3) Theories of Motivation

- i. Optimal-level Theory: This is also called as theory of homeostasis. Claud Bernard coined the word homeostasis to explain the state of equilibrium in the body. This is a 'hedonistic' (hedonism- doctrine that happiness is the highest good) theory which says that, there is a certain optimal level for normal functioning of the body. Maintenance of optimal level leads to equilibrium which gives pleasure. Disequilibrium leads to displeasure. Hence, every individual strives to avoid disequilibrium by maintaining optimal level of the needs like food, water, body temperature, etc.
- ii. Psychoanalytic Theory: This theory which has been explained by Sigmund Freud, deals with unconscious motivation. According to Freud, the inborn tendencies called instincts influence our behaviour. There are two groups of instincts with opposite nature:
 - i. Life instincts (Eros): these instincts have the life energy called Libido- which motivates the individual towards constructive activities like love, sympathy/helping others, etc.
 - ii. Death instincts (Thanatos)-motivate the individual for destructive activities like murder, suicides, aggression, attack, etc.
- iii. Freud has emphasised that the unconscious motives play more dominant role in determining our behaviour, than conscious or preconscious. He pointed that, our actions are determined by our unconscious motives. According to him, our unconscious mannerisms, slips of tongue and pen, phobias are the result of these hidden motives. These hidden motives may also drive the people towards various psychosomatic disorders like chronic headaches, insomnia, gastric troubles, etc. Our motives also appear in the form of dreams according to Freud.

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- iv. Humanistic Theory: This theory believes in striving tendency of the individual for realizing his potentialities, especially creative ones, strengthening self-confidence and attaining the ideal self. There are two important persons related to this theory— Abraham Maslow and Carl Rogers. Biological motives like hunger, thirst, etc., Safety and security needs (protection from external threats), Love and belongingness needs (Affection, warmth, etc.), Esteem needs (self-esteem, respect, approval, etc.), Self-actualisation motive (achieving maximum development of one's potentialities). According to him the needs at one level should be satisfied at least partially, before the next level needs become active. Most of the people end their struggle to reach third or fourth level needs. Only a few will aspire for self-actualisation which is the ultimate goal of life. Self-actualisation means becoming everything one is capable of, or becoming what he can, that is, fulfillment of his basic potentialities. Maslow explains that the self-actualised people experience, what he calls the 'peak experiences', when they fulfill the need for self-actualisation. Carl Rogers, as a humanist believes in the strength and potentialities of human beings. According to him all human beings have a natural inclination for learning and a desire to grow and progress known as self-actualizing tendency. Hence in the view of Rogers, the motivation for self-growth and becoming a fully functioning person are important concepts.
- 4) Measurement of Human Motivation
- i. Direct measurement: objective observation, conscious self-reports, administering questionnaires, and inventories assess specific motives as required by the observer. To measure the drive like hunger, thirst, many gadgets have been derived. These gadgets have a precise quantitative measure of the level of deprivation, physiological changes accompanying the drive and some behavioral changes, as a whole. In these types of measures, the tools are basically structured and responses classified into predetermined categories.
 - ii. Indirect measurement: projective techniques, the stimuli are deliberately made somewhat ambiguous in nature and the organism is free to give the responses he wishes. used to assess motives are ink-blot, pictures, incomplete sentences, and ambiguous figures. Thematic Apperception Test (TAT). This test was originally introduced by Morgan and Murray in 1935. The TAT test consists of a series of pictures about which the person is asked to write stories. These stories are analyzed and coded as motives, needs, wishes, and desires etc., which are assumed to have been projected by the respondent into the characters in the pictures.
 - iii. California Measure of Mental Motivation Level III (CM3): The California Measure of Mental Motivation (CM3) Level III is calibrated to measure the degree to which college students and adults are cognitively engaged and mentally motivated toward intellectual activities.

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- iv. Self-Determination Theory (SDT) is a theory of motivation. It is concerned with supporting our natural or intrinsic tendencies to behave in effective and healthy ways. SDT has been researched and practiced by a network of researchers around the world. The theory was initially developed by Edward L. Deci and Richard M. Ryan, and has been elaborated and refined by scholars from many countries.
- 5) Emotion
- i. The term emotion is derived from the Latin verb 'movere' means stir up, agitate, disturb or move. Woodworth has defined emotion as "conscious stirred up state of the organism".
 - ii. Components of Emotions:
 - i. Cognition: This component serves primarily to influence an evaluation of given situation, prompting us to become emotional in one way or another, or not at all.
 - ii. Feeling: In daily life we think of feelings. The feelings are most readily evident changes in an aroused person. Feelings have immediate motivational significance. They give rise to many physiological processes in the cardiovascular system and produce increased blood pressure, changes in sexual urge. They also stimulate nervous system and prompt widespread electrochemical activities.
 - iii. Behaviour: The behavioural component involves facial, postural, gestures and vocal responses.
 - iii. Changes during Emotions:
 - i. External changes:
 - 1. The voice changes according to the type of emotion. Experiments have proved that emotions can be identified on the basis of voice.
 - 2. Facial expressions change. We can identify emotion experienced by a person by looking at his face.
 - 3. There will be changes in the body language like stiffness of muscles, twisting of fingers, movements of hands and legs.
 - 4. Sweating.
 - 5. Wrinkles on forehead.
 - 6. Redness of eyes.
 - 7. Erection of hairs on the skin, etc.
 - ii. Internal changes: These internal changes are the result of stimulation of the ANS, which has 2 subdivisions. Sympathetic division prepares the body for facing emergency either by fight or by flight, i.e. fights if possible, otherwise escapes from the situation. It stimulates the adrenal glands and causes the excess release of adrenaline and nor-adrenaline. Adrenaline gets circulated all over the body and stimulates vital organs leading to following internal changes.

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1. Increase in heart rate thereby increase in BP
2. Increase in rate of respiration
3. Increase in blood sugar level
4. Decrease in functioning of GI tract-that is why we do not experience the feeling of hunger during emotional states
5. Changes in frequency of brain waves
6. Dilatation of pupils
7. Decreased secretion of saliva and dryness of mouth.
8. After the emergency or emotional situation is over, the next step is to restore the energy spent during emotion. This work is carried on by parasympathetic division.

iv. Types of Emotions

- i. Conceptions: direct your behavior. Conceptions are positive or negative mental effects that are triggered by conclusions. Conceptions can also be triggered by imagining a conclusion. Conceptions do not trigger physical effects. E.g. maternal love, grief, infatuation, revenge, criminal guilt, pride, humor, envy.
- ii. Sensations: Sensations direct your behavior. Sensations are positive or negative mental effects that are triggered by the presence or absence of sensory stimuli. Pleasing taste is a positive effect triggered by the taste of food. Hunger is a negative effect triggered by the absence of food. Disgust is a negative effect triggered by the smell of toxins, such as fecal matter. Sensations trigger almost no physical effects. A few sensations do trigger minor physical effects, like salivation. E.g. hunger disgust, lust, sexual pleasure, excitement, boredom
- iii. Reflexes: Reflexes help you avoid threats. Reflexes are triggered by conclusions or sensory stimuli. Fear can be triggered by the conclusion “a man is pointing a loaded gun at me”. Fear can also be triggered by the sight of a snake. Reflexes trigger defensive physical effects. Startle involuntarily tenses neck muscles, which prevents tearing by a predator’s claws or talons. Fear releases adrenalin to increase heart rate, which helps fight or flight. E.g. startle fear
- iv. Involuntary Expressions: Involuntary expressions direct the behavior of others. Involuntary expressions are triggered by a conception, sensation or reflex. The reflex of fear triggers the involuntary expression of horror. Involuntary expressions have a different purpose than their trigger emotion. Fear helps you avoid threats. The expression of horror on your face helps others avoid threats. E.g. horror, crying, prolonged smiling, blushing
- v. Voluntary Expressions: Voluntary expressions direct the behavior of others. Voluntary expressions are triggered by habitual decision. Anger is a habitual response to feeling revenge. Laughter is a habitual response to feeling humor. These expressions seem involuntary because they are deeply ingrained habits, like walking or talking. E.g anger, laughter

Organizational and Industrial Psychology

1) Leadership Styles

- i. Visionary. This style is most appropriate when an organization needs a new direction. Its goal is to move people towards a new set of shared dreams. “Visionary leaders articulate where a group is going, but not how it will get there – setting people free to innovate, experiment, take calculated risks,” write Mr. Goleman and his coauthors.
- ii. Coaching. This one-on-one style focuses on developing individuals, showing them how to improve their performance, and helping to connect their goals to the goals of the organization. Coaching works best, Mr. Goleman writes, “with employees who show initiative and want more professional development.” But it can backfire if it’s perceived as “micromanaging” an employee, and undermines his or her self-confidence.
- iii. Affiliative. This style emphasizes the importance of team work, and creates harmony in a group by connecting people to each other. Mr. Goleman argues this approach is particularly valuable “when trying to heighten team harmony, increase morale, improve communication or repair broken trust in an organization.” But he warns against using it alone, since its emphasis on group praise can allow poor performance to go uncorrected. “Employees may perceive,” he writes, “that mediocrity is tolerated.”
- iv. Democratic. This style draws on people’s knowledge and skills, and creates a group commitment to the resulting goals. It works best when the direction the organization should take is unclear, and the leader needs to tap the collective wisdom of the group. Mr. Goleman warns that this consensus-building approach can be disastrous in times of crisis, when urgent events demand quick decisions.
- v. Pacesetter. In this style, the leader sets high standards for performance. He or she is “obsessive about doing things better and faster, and asks the same of everyone.” But Mr. Goleman warns this style should be used sparingly, because it can undercut morale and make people feel as if they are failing. “Our data shows that, more often than not, pacesetter poisons the climate,” he writes.
- vi. Commanding. This is classic model of “military” style leadership – probably the most often used, but the least often effective. Because it rarely involves praise and frequently employs criticism, it undercuts morale and job satisfaction. Mr. Goleman argues it is only effective in a crisis, when an urgent turnaround is needed. Even the modern military has come to recognize its limited usefulness.
- vii. Transactional: Managers using the transactional leadership style receive certain tasks to perform and provide rewards or punishments to team members based on performance results. Managers and team members set predetermined goals together, and employees agree to follow the direction and leadership of the manager to accomplish those goals. The manager possesses power to review

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results and train or correct employees when team members fail to meet goals. Employees receive rewards, such as bonuses, when they accomplish goals.

viii. **Transformational:** The transformational leadership style depends on high levels of communication from management to meet goals. Leaders motivate employees and enhance productivity and efficiency through communication and high visibility. This style of leadership requires the involvement of management to meet goals. Leaders focus on the big picture within an organization and delegate smaller tasks to the team to accomplish goals.

2) Process of Decision Making

- i. **The use of heuristics:** For much of our evolution we have faced an environment with major differences from the modern business world. We have developed a range of cognitive mechanisms to cope with adverse environments in which resources are scarce. These mechanisms include a range of simplifying and confidence-sustaining mental short cuts (heuristics) that help us to make quick decisions when pausing to undertake a full analysis would be unwise. While these ways of thinking are not the same as rigorous logic or formally rational reasoning, they are well suited to fast-paced intuitive judgements and actions. However, these evolved modes of thinking also create some major traps.
- ii. **Framing the problem:** The way in which a problem is framed can have a significant effect on how you make decisions. Medical decisions can be affected by whether outcomes are framed as likelihood of deaths or of saving patients. Financial decisions can be affected by whether you see yourself in a position of loss or gain. In a position of gain we tend to become risk averse; in a position of loss we will tend to take risks to avoid or recover losses. You may know people who are good at using this to their advantage; they exert influence by framing choices so that others will choose the option they prefer. Framing effects can be quite subtle and even affect our recall of events. For example, in one study, groups of students were shown a film of a car accident. Each group of students was shown the same film clip and then asked 'How fast were the cars going when they ---- each other?' where '----' was a different word for each group, variously 'smashed into', 'collided into', 'bumped into', 'hit' and 'contacted'. The table below shows the average speed estimated by each group.
- iii. **Using information:** Our use of information is often biased in important regards. First, we pay more attention to information that is easily available. Second, we overweight memories which are more easily retrievable – usually because they are emotionally vivid or have personal relevance. We pay selective attention to information, often in a self-serving way. We will often give greater weight to information which shows us in a favourable light (self-serving bias), or information that supports an already established point of view (confirmation bias).

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- iv. **Problems of judgement:** We are constantly bombarded by information. Simply walking through a room risks flooding us with more sensory information than we can possibly process. Stop for a moment and consider all the different things you can see, hear, smell, or feel. Which of them do you usually tune out? From birth we start learning to filter information out and to prioritise, label and classify the phenomena we observe. This is a vital process. Without it we literally could not function in our day-to-day lives. In our work lives, if we did not filter information and discard options we would suffer from analysis paralysis: the inability to make any decision in the face of the complexity and the ambiguity of the real world. However, this filtering comes at a cost and introduces some significant biases into the judgements we make. One is overconfidence: we tend to be unduly optimistic about estimates and judgements that we make and filter out of our awareness many of the sources of uncertainty. Another problem is our tendency to be swayed by how a problem is framed. Many decisions need revisiting and updating as new information comes available. However most of us make insufficient anchoring adjustment: this is the tendency to fail to update one's targets as the environment changes. Once a manager has made an initial decision or judgement then this provides a mental anchor which acts as a source of resistance to reaching a significantly different conclusion as new information becomes available. It is what happens when one has made a snap judgement and then disregards feedback that is inconsistent with this position. This bias can affect judgements about people as well as technical judgements. Making early judgements about someone, for example in a job interview, may put you in an anchored position and later information may come too late to shift your opinion.
- v. **Post-decision evaluation:** For most normally functioning people, maintaining self-esteem is an important internal goal. This can cause us to filter out or discount information that might show us in an unfavourable light. This is what lies behind the fundamental attribution bias. This is the tendency to attribute good outcomes to our own actions and bad outcomes to factors outside our control. While such defences against loss of self-esteem can be helpful to the extent that they help us persist in the face of adversity, they can reduce learning and reduce opportunities to take corrective action. Another important internal goal is to maintain a sense of control over events and our environment. In consequence, a common way in which we distort our understanding of events is to assume we have greater control of events than we really do. When we suffer from this illusion of control, we are likely to underestimate the risks of our actions and decisions, and have problems in learning from experience, as we discount information that suggests we are not in control. This psychological perspective sees people as driven to achieve cognitive mastery of their environment. It is essential to try and avoid the inherent bias involved in our coping mechanisms.

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3) Decision making Strategies

- i. **The Single-Feature Model:** This approach involves hinging your decision solely on a single-feature. For example, imagine that you are buying soap. Faced with a wide variety of options at your local superstore, you decide to base your decision on price and buy the cheapest type of soap available. In this case, you ignored other variables (such as scent, brand, reputation, and effectiveness) and focused on just a single feature. The single-feature approach can be effective in situations where the decision is relatively simple and you are pressed for time. However, it is generally not the best strategy when dealing with more complex decisions.
- ii. **The Additive Feature Model:** This method involves taking into account all the important features of the possible choices and then systematically evaluating each option. This approach tends to be a better method when making more complex decisions. For example, imagine that you are interested in buying a new camera. You create a list of important features that you want the camera to have, then you rate each possible option on a scale of -5 to +5. Cameras that have important advantages might get a +5 rating for that factor, while those that have major drawbacks might get a -5 rating for that factor. Once you have looked at each option, you can then tally up the results to determine which option has the highest rating. The additive feature model can be a great way to determine the best option among a variety of choices. It can be quite time consuming and is probably not the best decision-making strategy to use if you are pressed for time.
- iii. **The Elimination by Aspects Model:** The elimination by aspects model was first proposed by psychologist Amos Tversky in 1972. In this approach, you evaluate each option one characteristic at a time beginning with whatever feature you believe is the most important. When an item fails to meet the criteria you have established, you cross the item off your list of options. Your list of possible choices gets smaller and smaller as you cross items off the list until you eventually arrive at just one alternative.
- iv. **The Availability Heuristic:** When we are trying to determine how likely something is, we often base such estimates on how easily we can remember similar events happening in the past. For example, if you are trying to determine if you should drive over the speed limit and risk getting a ticket, you might think of how many times you have seen people getting pulled over by a police officer on a particular stretch of highway. If you cannot immediately think of any examples, you might decide to go ahead and take a chance, since the availability heuristic has led to you judge that few people get pulled over for speeding on your particular route. If you can think of numerous examples of people getting pulled over, you might decide to just play it safe and drive the suggested speed limit.
- v. **The Representativeness Heuristic:** This mental shortcut involves comparing our current situation to our prototype of a particular event or behavior. For example,

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when trying to determine whether you should speed to get to your class on time, you might compare yourself to your image a person who is most likely to get a speeding ticket. If your prototype is that of a careless teen that drives a hot-rod car and you are a young business-woman who drives a sedan, you might estimate that the probability of getting a speeding ticket is quite low.

4) Work Motivation

i. Motivational Theories

i. Maslow's Hierarchy of Needs

1. Self-actualization — know exactly who you are, where you are going, and what you want to accomplish. A state of well-being
2. Esteem — feeling of moving up in world, recognition, few doubts about self
3. Belongingness and love — belong to a group, close friends to confide with
4. Safety — feel free from immediate danger
5. Physiological — food, water, shelter, sex

ii. Maslow's Hierarchy of Needs: Later Years

1. Self-transcendence — a transegoic level that emphasizes visionary intuition, altruism, and unity consciousness.
2. Self-actualization — know exactly who you are, where you are going, and what you want to accomplish. A state of well-being.
3. Aesthetic — to do things not simply for the outcome but because it's the reason you are here on earth — at peace, more curious about the inner workings of all things.
4. Cognitive — to be free of the good opinion of others — learning for learning alone, contribute knowledge.
5. Esteem — feeling of moving up in world, recognition, few doubts about self.
6. Belongingness and love — belong to a group, close friends to confide with.
7. Safety — feel free from immediate danger.
8. Physiological — food, water, shelter, sex. (Transegoic means a higher, psychic, or spiritual state of development. The trans is related to transcendence, while the ego is based on Freud's work. We go from preEGOic levels to EGOic levels to transEGOic. The EGO in all three terms is used in the Jungian sense of consciousness as opposed to the unconscious. Ego equates with the personality.)

iii. Herzberg's Hygiene and Motivational Factors

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1. Hygiene or Dissatisfiers: Working conditions, Policies and administrative practices, Salary and Benefits, Supervision, Status, Job security, Co-workers, Personal life
 2. Motivators or Satisfiers: Recognition, Achievement, Advancement, Growth, Responsibility, Job challenge
- iv. McGregor's Theory X and Theory Y
1. Douglas McGregor (1957) developed a philosophical view of humankind with his Theory X and Theory Y — two opposing perceptions about how people view human behavior at work and organizational life. McGregor felt that organizations and their managers followed one or the other approach:
 2. Theory X: People have an inherent dislike for work and will avoid it whenever possible. People must be coerced, controlled, directed, or threatened with punishment in order to get them to achieve the organizational objectives. People prefer to be directed, do not want responsibility, and have little or no ambition. People seek security above all else. In an organization with Theory X assumptions, management's role is to coerce and control employees.
 3. Theory Y: Work is as natural as play and rest. People will exercise self-direction if they are committed to the objectives (they are NOT lazy). Commitment to objectives is a function of the rewards associated with their achievement. People learn to accept and seek responsibility. Creativity, ingenuity, and imagination are widely distributed among the population. People are capable of using these abilities to solve an organizational problem. People have potential.
- v. Analysis
1. Herzberg's theory is a micro version of Maslow's theory in that it is focused on the work environment.
 2. McGregor's Theory X is based on workers caught in the lower levels (1 to 3) of Maslow's theory due to bad management practices, while Theory Y is for workers who have gone above level 3 with the help of management.
 3. McGregor's Theory X is also based on workers caught in Herzberg's Hygiene Dissatisfiers, while Theory Y is based on workers who are in the Motivators or Satisfiers section.
- vi. Hawthorne Effect: The Hawthorne Effect was first described by Henry A. Landsberger in 1950 who noticed a tendency for some people to work harder and perform better when they were being observed by researchers. The Hawthorne Effect is named after a series of social experiments on the

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influence of physical conditions on productivity at Western Electric's factory at Hawthorne, Chicago in the 1920s and 30s. The researchers changed a number of physical conditions over the course of the experiments including lighting, working hours and breaks. In all cases, employee productivity increased when a change was made. The researchers concluded that employees became motivated to work harder as a response to the attention being paid to them, rather than the actual physical changes themselves. The Hawthorne Effect studies suggest that employees will work harder if they know they're being observed. While I don't recommend hovering over your employees watching them all day, you could try providing regular feedback, letting your team know that you know what they're up to and how they're doing. Showing your employees that you care about them and their working conditions may also motivate them to work harder. Encourage your team to give you feedback and suggestions about their workspace and development.

- vii. Expectancy Theory: Expectancy Theory proposes that people will choose how to behave depending on the outcomes they expect as a result of their behaviour. In other words, we decide what to do based on what we expect the outcome to be. At work, it might be that we work longer hours because we expect a pay rise. However, Expectancy Theory also suggests that the process by which we decide our behaviours is also influenced by how likely we perceive those rewards to be. In this instance, workers may be more likely to work harder if they had been promised a pay rise (and thus perceived that outcome as very likely) than if they had only assumed they might get one (and perceived the outcome as possible but not likely)

Expectancy Theory is based on three elements:

1. Expectancy – the belief that your effort will result in your desired goal. This is based on your past experience, your self confidence and how difficult you think the goal is to achieve.
2. Instrumentality – the belief that you will receive a reward if you meet performance expectations.
3. Valence – the value you place on the reward.

Therefore, according to Expectancy Theory, people are most motivated if they believe that they will receive a desired reward if they hit an achievable target. They are least motivated if they don't want the reward or they don't believe that their efforts will result in the reward. The key here is to set achievable goals for your employees and provide rewards that they actually want. Rewards don't have to come in the form of pay rises, bonuses or all-expenses paid nights out (although I find these are usually welcomed!) Praise, opportunities for progression and "employee of the month" style rewards can all go a long way in motivating your employees.

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- viii. Three-Dimensional Theory of Attribution: Attribution Theory explains how we attach meaning to our own, and other people's, behaviour. There are a number of theories about attribution. Bernard Weiner's Three-Dimensional theory of attribution assumes that people try to determine why we do what we do. According to Weiner, the reasons we attribute to our behaviour can influence how we behave in the future. For example, a student who fails an exam could attribute their failure to a number of factors and it's this attribution that will affect their motivation in the future. Weiner theorised that specific attributions (e.g. bad luck, not studying hard enough) were less important than the characteristics of that attribution. According to Weiner, there are three main characteristics of attributions that can affect future motivation.
1. Stability – how stable is the attribution? For example, if the student believes they failed the exam because they weren't smart enough, this is a stable factor. An unstable factor is less permanent, such as being ill. According to Weiner, stable attributions for successful achievements, such as passing exams, can lead to positive expectations, and thus higher motivation, for success in the future. However, in negative situations, such as failing the exam, stable attributions can lead to lower expectations in the future.
 2. Locus of control – was the event caused by an internal or an external factor? For example, if the student believes it's their own fault they failed the exam, because they are innately not smart enough (an internal cause), they may be less motivated in the future. If they believed an external factor was to blame, such as poor teaching, they may not experience such a drop in motivation.
 3. Controllability – how controllable was the situation? If an individual believes they could have performed better, they may be less motivated to try again in the future than someone who believes they failed because of factors outside of their control.
- ix. Weiner's Three-Dimensional theory of attribution has implications for employee feedback. Make sure you give your employees specific feedback, letting them know that you know they can improve and how they can about it. This, in theory, will help prevent them from attributing their failure to an innate lack of skill and see that success is controllable if they work harder or use different strategies. You could also praise your employees for showing an improvement, even if the outcome was still not correct. For example, you might praise someone for using the correct methodology even though the results weren't what you wanted. This way,

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you are encouraging employees to attribute the failure to controllable factors, which again, can be improved upon in the future.

5) Organizational Culture

- i. Organizational culture can be viewed as an important concept in organizational psychology and social psychology. It is important to define organizational culture.
- ii. Organizational culture reflects the values, beliefs, and norms that characterize an organization as a whole.
- iii. This definition suggests that organizational culture reflects what is common, typical, and general for the organization. Values, beliefs, and behaviors that are uncommon in the organization, or specific to a particular subgroup within an organization, would not be considered to be part of the culture of the organization.
- iv. Elements of Organizational Culture:
 - i. Organizational Values. Values reflect what we feel is important. Organizations may have core values that reflect what is important in the organization. These values may be guiding principles of behavior for all members in the organization. The core values may be stated on the organization's website. For example, an organization could state that their core values are creativity, humor, integrity, dedication, mutual respect, kindness, and contribution to society.
 - ii. Organizational Beliefs. Beliefs that are part of an organization's culture may include beliefs about the best ways to achieve certain goals such as increasing productivity and job motivation. For example, an organization may convey the belief that the expression of humor in the workplace is an effective way to increase productivity and job motivation.
 - iii. Organizational Norms. Norms reflect the typical and accepted behaviors in an organization. They may reflect the values and beliefs of the organization. They may reflect how certain tasks are generally expected to be accomplished, the attributes of the work environment, the typical ways that people communicate in the organization, and the typical leadership styles in the organization. For example, the work environment of a company may be described as relaxed, cheerful, and pleasant. Moreover, the organization may have a participative decision making process in which many people in the organization are able to express their views concerning important decisions. Also, an organization may have many meetings to discuss ideas.
- v. The Importance of the Organizational Culture Concept
 - i. Organizational culture may be an important concept for a few reasons. First, understanding the culture of an organization may be helpful for applicants. They may have a better idea about whether they would like to

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work for a company. Second, understanding the culture of an organization may help in training new employees. Third, understanding organizational culture may help leaders to identify possible sources of problems in the organization.

vi. Organizational Culture and Leadership

- i. There may be at least three ways in which leadership is important with respect to organizational culture. First, a leader of an organization may play an important role in identifying the elements of the organization's culture. The leader could make a list of the organization's current values, beliefs, and norms. Second, after identifying the current elements of the organization's culture, the leader can make evaluations of the elements of organizational culture that may be negative. The leader could make a list of the specific values, beliefs, and norms that may contribute to major problems in the organization (e.g., a lack of job motivation). Third, after identifying the possible negative elements, the leader could develop strategies to foster a positive organizational culture change. The leader could make a list of the elements of a more ideal culture, develop specific ways to communicate the changes, and develop techniques to motivate people to adopt the new culture.

vii. Organizational Culture Change

- i. There may be many reasons why the culture of an organization needs to be changed. These reasons may include lack of morale, lack of job motivation, lack of job meaning, and changes in the business (e.g., the development of a new product) that would require a change in the way things are done in the organization.
- ii. For example, there may be too much micromanagement in a company. It may be better if employees had more autonomy. This may increase morale. Sherman (1989) found that unit morale was positively correlated with autonomy. Because this finding is correlational, we cannot make causal conclusions.
- iii. This process of culture change should involve all members of the organization. This process of culture change could involve surveys in which members describe specific elements of the organizational culture that members view as negative.

viii. Culture vs. Organizational Culture

- i. Although the concept of organizational culture is similar to the concept of culture (e.g., the elements of culture may be similar to the elements of organizational culture), it is important to make a distinction between the two concepts. There may be a few ways in which these concepts may be different. First, organizational culture may be more formal than culture.

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Some organizations may have a significant part of their culture in written form. For example, they may have the core values stated on the website, and the values, beliefs, and norms of the organization may be indicated in employee manuals. In contrast, much of the values, beliefs, and norms that are a reflection of a culture may be unwritten. Second, there may be less consistency between elements of organizational culture than elements of culture. Some of the elements of organizational culture that are in written form may be inconsistent with certain norms observed in the organization. In contrast, many of the norms of a culture may simply reflect the values of the culture. According to J.D. Brodzinski, R.F. Scherer and K A Goyer, Stress is, “the interaction between the individual and the environment characterized by physiological and psychological changes that cause a deviation from normal performance.”

6) Stress and Conflict at Work and its Management psychology

- i. According to Lyle E. Bourne, Jr. and Bruce R. Ekstrand, “Stress may be defined in many different ways, depending on one’s perspective. From a physiological point of view, stress may be defined as any state during which the body tends to mobilize its resources and utilize more energy than it ordinarily would.” Any event in the environment may cause stress if the same is perceived as threatening. Any event may cause stress. It is not certain that the specific events are the causes of stress. Sometimes an event may cause stress but the same event may not cause stress some other time. The stress leads to physiological and psychological changes such as changes in heart rate, skin resistance, respiration, blood pressure and endocrine activity. These changes will deviate a person from normal performance. These changes are known as stress response. These changes often lead to anxiety and fatigue. A moderate level of stress may have positive effect and person may work harder and for long hours but a low level of stress may have negative effect and adversely affect the performance of the employee.
- ii. Stress at workplace has become an important topic of study of organisational behaviour. It has become important for effective practice of human resource management for:
 - i. It has psychological and physiological effects on both employees and managers both affecting their health and performance at work,
 - ii. It is a major cause of absenteeism and poor employee turnover,
 - iii. Employee under stress may cause safety problems to fellow employees specially when he is handling dangerous machines and equipment’s,
 - iv. It makes an employee nervous and may lose temper,
 - v. It makes an employee non- cooperative in nature,
 - vi. It may affect any member of the organisation whether he or she is a worker, manager, old and young both.

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- iii. Stress is not always negative. Any event causing stress results into an action form person under stress. This action may also result into positive performance. If so, according to Cynthia D Fisher, L F Schoenfeldt and J B Shaw, “The optimum level of tension will result in maximum performance.” Optimum level of stress is difficult to determine as it depends upon the kind of occupation, age, sex and race of the employee. Overstress is always dangerous. No employee can escape its consequences. Person’s attitude and expectations lead to stress. If he fails to fulfill the expected demands he comes under stress. This kind of stress is self induced by the person himself. A poor facility at workplace also leads to stress. Stress is not tangible. It breeds in the minds of the people and exists through their actions. Managing stress at workplace has become an important issue. When stress is not checked its adverse effects start pouring in.
- iv. According to Hans Selye, “by stress the physician means the common results of exposure to any stimulus. For example, the bodily changes produced whether a person is exposed to nervous tension, physical injury, infection, cold, heat, X-rays, or anything else are what we call stress.” Managing stress is essential to improve quality of life at work. Stress is related to heart disease. Man is a wanting animal. There is no end to his demands. Most of the demands are created through media. People specially of middle class get attracted but due to constraints of resources and money could not satisfy them. These demands and constraints put them under stress.
- v. Causes of Stress: Stressors the word coined for causes of stress. Any situation, any event can be a potential cause of stress. The causes of stress vary from person to person and situation to situation. So to say, the causes of stress are relative to person time and situation.
 - i. Organisational Causes:
 1. The organisational causes include the organisational structure, managerial leaderships, rules and regulations, extent of centralization and decentralization, type of communication, delegation of powers, number of employees in a room or hall working together etc. are the potential causes of stress at the organisation level. Organisation structure defines authority responsibility relationship, and decision making process.
 2. Excessive nature of centralized decisions and allowing participation of employees in decision making process cause stress. Style of leadership adopted by the managers and executives of the organisation also affect the mental balance of the employees and they fall a prey to stress. Some managers create fear in the minds of the employees that become a cause of stress. While democratic style eases the tension.

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3. Rules and regulations also become the cause of stress. Bad and coercive rules and regulations and strict adherence to them by managers are the immediate cause of stress. More centralisation of authority in one or few hands may also cause stress. Decentralisation of authority relieves the employees from stress.
4. Type of communication adopted by the organisation also causes stress. Effective communication is must for smooth working. Policies rules and regulations must be communicated to the employees. Lack of communication creates problems.
5. Delegation of authority is effected to get the work completed early and relieve the managers of their managerial burden. Some managers do not delegate their authority and want to work themselves. This increases their burden of work and they come under stress. The large number of employees working in a room also is a cause of stress. They can't concentrate on their work in a crowd and come under tension.
6. The nature of job is another potential cause of stress. Certain jobs are associated with stress. These jobs pose threat for timely performance. A pressure is created for their performance on time. Timely decisions are to be taken.
7. Some of the high strain jobs include those of telephone operators, assembly job workers, personal assistant and secretaries, busy executives etc. These jobs require higher level of performance within a short period of time such job performers work under strain. There are certain jobs need work for long hours and have to acquire new skills.
8. Long working hours put them under strain. There are certain jobs where high tone noise and terrible heat is involved and working environment is not that good. Such jobs put the workers under tension. Certain employees are overloaded with work and their superiors want early disposal of the work. This naturally puts the employee under stress.
9. In the organisation various types and kinds of people are working. They have to achieve organisational goals unitedly. Hence cooperation of all is essential. But because of lack of interpersonal relationship among employees some do not receive social support from their partners. This attitude on the part of other employees put them under stress.

ii. Group Level Causes:

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1. At workplace human beings are working. Human beings are social animals they live in groups. This group ideology holds good at workplace also. Employees have to work in groups. Certain jobs demand teamwork. Employees' behaviour is influenced by group. The group is also a potential cause of stress where there is lack of cohesiveness and social support. Working together in groups is essential at lower level of the organization.
 2. Lack of this is a cause of stress. Workers when they work together and in groups they develop social relationships at the workplace. They get support from each other. Lack of social support becomes a cause of stress. The conflicts between groups also are a cause of stress because inter-department or intergroup conflicts increase the burden of work and cause strain.
- iii. Individual Level Causes:
1. There are many reasons for causing stress to an individual. At the workplace when two superiors have assigned the work to the same individual simultaneously put him under stress. He will be under tension as to whose work is to be finished first. This is because of role conflict.
 2. Another reason for stress for an individual is when the job responsibilities are not clearly defined. The types of personality also are the causes of stress to an individual. "Type A personality" individuals are workaholics; works speedily and exactly, don't rest, and don't enjoy life.
 3. If they fail to achieve task, they come under stress. They suffer from high blood pressure and prone to heart attack. As against them, the individuals with "Type B personality" remain stress free comparatively. These individuals do not bother if work suffers, they take their own time to complete the task, and they enjoy life and take full rest. The change in job and job responsibilities because of promotion or transfer also put an individual under stress. Dual career is also a reason for stress.
- iv. Domestic Level Causes:
1. Several changes are taking place nowadays. Joint family system has now broken. Modern approach to life has changed the life style of individuals. Everyone wants complete freedom. To run the family according to modern life style is becoming increasingly difficult.
 2. Majority middle class people face the identity crisis. They want to lead sophisticated life style which the rich can afford. They suffer

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from financial crisis which becomes a major cause of worry and tension for them. Children's education, death of a spouse, purchase of new house, soaring prices, etc. are the causes of stress to an individual on domestic front.

v. Other Causes:

1. Among other include economic, political and technological changes that are going on continuously. These are extra organisational but sometimes have negative effect on jobs. E.g. in India computerization in banks and government organisation was opposed by the employees unions because they took it as a threat to their jobs.
2. In the similar manner the Narsinhan Committee's report on banking was also opposed. The changes in economic, political and technological front sometimes have potential threat to the jobs. These reasons put the employees under stress.
3. Age, health and education are also the factors causing stress. The employees above the age of 35 having less chances of promotion because of pyramidal structure of organisations put them under stress. Increasing age contributes to stress.
4. Health is another factor that gives strength to cope with stress. Unhealthy and sick employees cannot cope with stress. Education is yet another factor for stress. Highly educated, not getting promotion lives under tension. A well educated and understandable and matured person has more ability to cope up with stress.

vi. Consequences of Stress:

- i. There are serious consequences or effects of stress on health of the employees and their work performance. Stress proves expensive to the organisation also. People who suffer from stress have serious physical and psychological problems.
- ii. As for physical problems include chronic fatigue, ulcers, diabetes, skin disorders, asthma, allergies, high blood pressure, migraine, irritations, increased heart and breath rates, heart attacks etc. The psychological problems include tension, emotional imbalance, boredom, job dissatisfaction, anxiety, depression, irritation and procrastination i.e. the habit of putting off the work. Stress also affects the behaviour of the persons. It leads to adverse changes in job performance, increased absenteeism, and turnover, significant increase in the habit of smoking and alcoholism, and cynicism.
- iii. The economic effect of stress is that the stressed employees failed to put their best performance resulting into low production ultimately leading to

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losses. Moreover the organisations providing medical facilities have to spend more on the employees suffering from diseases resulting from stress. This is a cognizable financial burden on the organisations.

- iv. Burnouts: Stress can lead to burnout. Burnout is the result of chronic emotional stress, physical exhaustion and excess depression. K. Aswathappa defined burnout as, “a state of mind resulting from prolonged exposure to intense emotional stress and involving, physical, emotional and mental exhaustion.” When the stress reaches extreme level leads to burnout. The symptoms of burnout are excessive increase in drinking and smoking and person wants to isolate from others, increase in high risk taking behaviour and become accident prone, goes crazy, over depression leads to feeling of helplessness, doesn't believe anyone etc.
- v. Richard M. Hodgetts has tried to distinguish stress from burnout. According to him under stress person feels fatigued while under burnout he meets chronic exhaustion, under stress he is anxious, under burnout he is hypertensive, under stress he is dissatisfied with the job, under burnout he is bored and cynical about it, and under stress person feels moody and guilty but under burnout he feels impatient and mentally depressed.
- vi. The person under stress undergoes physical changes like increased blood pressure and heart beats but under burnout he has psychosomatic complaints. Excess stress causes burnout. It is therefore necessary to take steps that stress should not be allowed to go excess leading to burnout. Burnout should be identified among employees and necessary attempts to prevent the process of burnout should be taken. Focus on individual and improving interpersonal relations help in reducing burnout.
- vii. Stress Reduction Strategies:
 - i. Organisational Level Strategies:
 - 1. The stressors or causes of stress at organisation level can be effectively controlled and managed by the organisation itself. The organisation can implement the programmes for its employees such as relaxation techniques, physical fitness programmes, stress education, group discussions, family counseling, hobby workshops, sports and recreation facilities, time management, counseling in respect of drug and alcohol abuse, obesity control techniques etc. to reduce stress.
 - 2. Ergonomics can be used to reduce stress at the workplace. Ergonomics is the technique used to reduce discomfort. It is a combination of industrial engineering physiological and psychological needs of the individual at the workplace. Comfortable chairs can be designed for sitting employees

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comfortably. Personal comfort is sought at the workplace for employees while working by the techniques of ergonomics.

3. Improved communication, proper delegation of authority reducing centralization of authority, jobs redesign specially to enrich them, proper selection and placement of persons at respective jobs, participative decision making and practicing the core techniques of human resource management are some of the strategies that can keep the stress under control.
 4. Certain sophisticated companies have massage centres at the workplace for their employees. High tech stress therapy is used in Japan to relieve hard working Japanese employees and executives from stress. They have their developed brain mind gyms for stress reduction. Organisation can reduce the heat, temperature and humidity and maintain soothing climate by its deliberate efforts. This helps in reducing stress at workplace.
- ii. Individual Level Strategies: Organisation can make its own efforts as far as possible to reduce the stressors at workplace but an individual should make all out efforts to manage his own stress effectively.
1. One should take proper balanced diet at proper time.
 2. Avoid drinking and smoking.
 3. Regular exercise for fitness.
 4. Know your strong and weak points.
 5. Relax for some time to control blood pressure, heart rate.
 6. Prayers like worshiping, offering Namaz, etc., meditations, yoga can help reduce tension.
 7. Effective time management by preparing daily lists of work according to their priorities and follow it.
 8. Plan your career.
 9. Open your heart to your friends; express your feelings, emotions, threats etc. It helps in relieving the mind from botheration.
 10. Take pride on your achievements and receive from others.
 11. Exercise control on yourself.
 12. Identify the factors causing stress. Try to keep away from them as far as possible.
- viii. Conflict:
- i. Like stress, conflict is also a part of life of an individual and organisation. According to Wendell French, “conflict in the organisation consists of opposing behaviours between two or more people or groups who have incompatible goals.”

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- ii. Conflict affects behaviour of employees their performance and job satisfaction. Conflict arises because of disagreement. According to Leonard Greenhalgh, “conflict is not an objective, tangible phenomenon; rather, it exists in the minds of the people who are party to it.”
- iii. Conflict can exist between two managers or executives of two different departments or two groups of employees of the same organisation. The conflict cannot be resolved unless third impartial party interferes or both coming together and hold a talk.
- iv. Managers have to spend much of their time in resolving conflicts between employees or groups of employees. The parties to conflict try to embarrass or frustrate each other. Conflict differs from competition. In conflict and competition parties have incompatible goals but in former both interfere with each other and in latter they don't interfere but make themselves busy in attaining their goals.
- v. Conflict is now inevitable and cannot be avoided. There are many causes that lead to conflict such as organisational structure, differences in values, perceptions, and objectives etc. which are to be dealt in skillfully to ease away conflict so that maximum performance can be achieved from all the human resources of the organisation.
- vi. Conflict can be visibly seen through arguments, fighting brooding etc. For managing conflict one must understand the situation and then pursue the parties to conflict to reconsider their perceptions and come to compromise. A compromise formula can be reached by successful pursuance of the parties and taking them into confidence. In doing so organization's interests should not be sacrificed. Conflicts arise because of confrontation of ideas, objectives and the individuals or groups of them that are responsible for improvement in performance of the organisation.
- vii. The conflicts sometimes if well managed become conducive to the effective functioning of the organisation otherwise it may result in distortion of interests of the organisation. Manager has to take care that conflicts should not harm the interests of the organisation. He should attempt to exploit the conflicting situation for the benefits of the organisation. There are certain benefits arising out of conflicts.
- viii. Benefits of Conflicts:
 - 1. Conflicts create awareness in respect of the problems faced by the organisation, they can then be solved on time.
 - 2. Conflicts bring about change. They bring injustice, inefficiencies and other defects to surface. The corrective measures can be taken through appropriate changes.

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3. Conflicts involve opposition of ideas and views. Through this opposition better ideas are evolved leading to correct decisions.
4. Conflicts make the people curious to evolve new creative ideas for better performance and solutions to the problems than the rival groups. This helps in stimulating creativity among employees.
- ix. If such advantageous are the dimensions of conflicts then it is really beneficial and enjoyable because good is the yielding. If conflict takes the severe turn then it becomes very harmful and organisation suffers from it.
- x. If issues involved in the conflicts are of principles then it becomes difficult to resolve because parties will prefer to stick to their principles but if these issues are divisible and basic principles are not involved in it then the conflict is easy to resolve.
- xi. If the size of stake is larger the conflict is difficult to resolve, on the contrary small size of stake is easy to resolve. The interference of third party who is impartial, trusted, prestigious, neutral and powerful then conflict can be easily resolved, the contrary is difficult. Again in conflict the parties to it have inflicted equal harm on each other it is easy to resolve.
- xii. The manager must be a watchful person. He should closely watch the eruption of conflict at the beginning itself. If it seems to increase performance he should stimulate it. If it seems to harm the performance then he should take the steps to reduce it or don't allow it to take hazardous stage. Regulation of conflict is essential by adopting standard rules and procedure.

7) Organizational Socialization

- i. Organizational socialization is the process whereby an employee learns the knowledge and skills necessary to assume his or her organizational role. As newcomers become socialized, they learn about the organization and its history, values, jargon, culture, and procedures. This acquired knowledge about new employees' future work environment affects the way they are able to apply their skills and abilities to their jobs. How actively engaged the employees are in pursuing knowledge affects their socialization process. They also learn about their work group, the specific people they work with on a daily basis, their own role in the organization, the skills needed to do their job, and both formal procedures and informal norms. Socialization functions as a control system in that newcomers learn to internalize and obey organizational values and practices.
- ii. Onboarding, also known as organizational socialization, refers to the mechanism through which new employees acquire the necessary knowledge, skills, and behaviors to become effective organizational members and insiders. Tactics used in this process include formal meetings, lectures, videos, printed materials, or

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computer-based orientations to introduce newcomers to their new jobs and organizations. Research has demonstrated that these socialization techniques lead to positive outcomes for new employees such as higher job satisfaction, better job performance, greater organizational commitment, and reduction in occupational stress and intent to quit. These outcomes are particularly important to an organization looking to retain a competitive advantage in an increasingly mobile and globalized workforce. In the United States, for example, up to 25% of workers are organizational newcomers engaged in an onboarding process.

- iii. Onboarding is a multifaceted operation influenced by a number of factors pertaining to both the individual newcomer and the organization. Researchers have separated these factors into three broad categories: new employee characteristics, new employee behaviors, and organizational efforts. New employee characteristics are individual differences across incoming workers, ranging from personality traits to previous work experiences. New employee behaviors refer to the specific actions carried out by newcomers as they take an active role in the socialization process. Finally, organizational efforts help facilitate the process of acclimating a new worker to an establishment through activities such as orientation or mentoring programs.
- iv. Organizations also invest a great amount of time and resources into the training and orientation of new company hires. Organizations differ in the variety of socialization activities they offer in order to integrate productive new workers. Possible activities include their socialization tactics, formal orientation programs, recruitment strategies, and mentorship opportunities.
- v. In order to increase the success of an onboarding program, it is important for an organization to monitor how well their new hires are adjusting to their new roles, responsibilities, peers, supervisors, and the organization at large. Researchers have noted that role clarity, self-efficacy, social acceptance, and knowledge of organizational culture are particularly good indicators of well-adjusted new employees who have benefitted from an effective onboarding system.
- vi. Although the outcomes of organizational socialization have been positively associated with the process of uncertainty reduction, they may not necessarily be desirable to all organizations. Jones (1986) as well as Allen and Meyer (1990) found that socialization tactics were related to commitment, but they were negatively correlated to role clarity. Because formal socialization tactics insulate the newcomer from their full responsibilities while “learning the ropes”, there is a potential for role confusion once expected to fully enter the organization. In some cases though, organizations may even desire a certain level of person-organizational misfit in order to achieve outcomes via innovative behaviors. Depending on the culture of the organization, it may be more desirable to increase

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ambiguity despite the potentially negative connection with organizational commitment.

- vii. Additionally, socialization researchers have had major concerns over the length of time that it takes newcomers to adjust. There has been great difficulty determining the role that time plays, but once the length of the adjustment is determined, organizations can make appropriate recommendations regarding what matters most in various stages of the adjustment process.
 - viii. Further criticisms include the use of special orientation sessions to educate newcomers about the organization and strengthen their organizational commitment. While these sessions have been found to be often formal and ritualistic, several studies have found them unpleasant or traumatic. Orientation sessions are a frequently used socialization tactic, however, employees have not found them to be helpful, nor has any research provided any evidence for their benefits.
 - ix. Executive onboarding is the application of general onboarding principles to helping new executives become productive members of an organization. Practically, executive onboarding involves acquiring, accommodating, assimilating and accelerating new executives. Proponents emphasize the importance of making the most of the "honeymoon" stage of a hire, a period which has been described by various sources as either the first 90 to 100 days or the first full year
 - x. Some suggest that practitioners should seek to design an onboarding strategy that takes individual newcomer characteristics into consideration and encourages proactive behaviors, such as information seeking, that help facilitate the development of role clarity, self-efficacy, social acceptance, and knowledge of organizational culture.
- 8) Job Attitudes
- i. A job attitude is a set of evaluations of one's job that constitute one's feelings toward, beliefs about, and attachment to one's job. Overall job attitude can be conceptualized in two ways. Either as affective job satisfaction that constitutes a general or global subjective feeling about a job, or as a composite of objective cognitive assessments of specific job facets, such as pay, conditions, opportunities and other aspects of a particular job. Employees evaluate their advancement opportunities by observing their job, their occupation, and their employer.
 - ii. Research demonstrates that interrelationships and complexities underlie what would seem to be the simply defined term job attitudes. The long history of research into job attitudes suggests there is no commonly agreed upon definition. There are both cognitive and affective aspects, which need not be in correspondence with each other. Job attitude should also not be confused with the broader term attitude, because attitude is defined as a psychological tendency that

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is expressed by evaluating a particular entity with some degree of favor or disfavor, whereas job attitude is a particular instance as an entity. In the definition above, the term "job" involves one's current position, one's work or one's occupation, and one's employer as its entity. However, one's attitude towards his/her work does not necessarily have to be equal with one's attitudes towards his/her employer, and these two factors often diverge.

- iii. Global job attitudes are attitudes developed towards a job through the organization, working environment, affective disposition, aggregate measures of job characteristics and the social environment. They depend on the broad totality of work conditions. In fact, job attitudes are also closely associated with more global measures of life satisfaction. Scales such as "Faces" enable researchers to interpret overall satisfaction with work. The Job in General scale focuses on the cognitive perspective (rather than applied) of the effects of job attitudes. A variety of job attributes are associated with different levels of satisfaction within global job attitudes.
 - iv. Other Attitudes:
 - i. Job Involvement: Identifying with one's job and actively participating in it, and considering performance important to self-worth.
 - ii. Organizational Commitment: Identifying with a particular organization and its goals, and wishing to maintain membership in the organization.
 - iii. Perceived Organizational Support (POS): The degree to which employees feel the organization cares about their well-being.
 - iv. Employee Engagement: An individual's involvement with, satisfaction with, and enthusiasm for the organization
 - v. Affective job satisfaction is a singular construct comprising an overall emotional feeling about a job as a whole or in general. Affective job satisfaction is measured with items addressing the extent to which individuals subjectively and emotively like their job overall, not a composite of how individuals cognitively assess two or more specific aspects of their job
- 9) Sexual Harrasment:
- i. sexual harassment is a form of gender discrimination
 - ii. Types of Sexual Harassment
 - i. Gender Harassment: Generalized sexist statements and behavior that convey insulting or degrading attitudes about women. Examples include insulting remarks, offensive graffiti, obscene jokes or humor about sex or women in general.
 - ii. Seductive Behavior: Unwanted, inappropriate and offensive sexual advances. Examples include repeated unwanted sexual invitations, insistent requests for dinner, drinks or dates, persistent letters, phone calls and other invitations.

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- iii. Sexual Bribery: Solicitation of sexual activity or other sex-linked behavior by promise of reward; the proposition may be either overt or subtle.
 - iv. Sexual Coercion: Coercion of sexual activity or other sex-linked behavior by threat of punishment; examples include negative performance evaluations, withholding of promotions, threat of termination.
 - v. Sexual Imposition: Gross sexual imposition (such as forceful touching, feeling, grabbing) or sexual assault.
- iii. Effects of Sexual Harassment
- i. Psychological Reactions
 1. Depression, anxiety, shock, denial
 2. Anger, fear, frustration, irritability
 3. Insecurity, embarrassment, feelings of betrayal Confusion, feelings of being powerless Shame, self-consciousness, low self-esteem
 4. Guilt, self-blame, isolation
 - ii. Physiological Reactions: Headaches, Lethargy, Gastrointestinal distress, Dermatological reactions, Weight fluctuations, Sleep Disturbances, nightmares, Phobias, panic reactions, Sexual problems
 - iii. Career-Related Effects: Decreased job satisfaction, Unfavorable performance evaluations, Loss of job or promotion, Drop in academic or work performance due to stress, Absenteeism, Withdrawal from work or school, Change in career goals
- iv. Effective Strategies
- i. Say NO to the harasser! Be direct.
 - ii. Write a letter to the harasser. Describe the incident and how it made you feel. State that you would like the harassment to stop. Send the letter by certified mail. Keep a copy.
 - iii. Keep a record of what happened and when. Include dates, times, places, names of persons involved and witnesses, and who said what to whom.
 - iv. Tell someone; don't keep it to yourself. By being quiet about the harassment, you don't help stop it. Chances are extremely good that you aren't the only victim of your harasser. Speaking up can be helpful in finding support and in protecting others from being victims.
 - v. Finding out who is responsible for dealing with harassment on your organization and whether you can talk in confidence to that person. Almost all organizations have sexual harassment policies, procedures and individuals or counselors who administer them.
 - vi. Find out what the procedure is at your workplace or school; it is the organization's responsibility to provide you with advice, help and support, but such meetings at the workplace can provide an important record if legal action is ever advisable.

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- vii. If you are a union member, speak to your union representative. Unions are generally very committed to eliminating sexual harassment in the workplace.
- viii. If you are experiencing severe psychological distress, you may want to consult a psychologist or other mental health professional who understands the problems caused by sexual harassment.

10) Glass Ceiling

- i. A glass ceiling is a term used to describe "the unseen, yet unbreakable barrier that keeps minorities and women from rising to the upper rungs of the corporate ladder, regardless of their qualifications or achievements."
- ii. Initially, and sometimes still today, the metaphor was applied by feminists in reference to barriers in the careers of high achieving women. In the US the concept is sometimes extended to refer to obstacles hindering the advancement of minority men, as well as women.
- iii. The glass ceiling metaphor has often been used to describe invisible barriers ("glass") through which women can see elite positions but cannot reach them ("ceiling"). These barriers prevent large numbers of women and ethnic minorities from obtaining and securing the most powerful, prestigious, and highest-grossing jobs in the workforce. Moreover, this effect may make women feel they are not worthy to fill high-ranking positions or as if their bosses do not take them seriously or see them as potential candidates for advancement.
- iv. The concept of glass ceiling was originally introduced outside of print media at the National Press Club in July 1979 at a Conference of the Women's Institute for Freedom of the Press by Katherine Lawrence of Hewlett Packard. This was part of an ongoing discussion of a clash between written policy of promotion versus action opportunities for women at HP. The term was coined by Lawrence and HP manager Maryanne Schreiber.
- v. David Cotter and colleagues defined four distinctive characteristics that must be met to conclude that a glass ceiling exists. A glass ceiling inequality represents:
 - i. "A gender or racial difference that is not explained by other job-relevant characteristics of the employee."
 - ii. "A gender or racial difference that is greater at higher levels of an outcome than at lower levels of an outcome."
 - iii. "A gender or racial inequality in the chances of advancement into higher levels, not merely the proportions of each gender or race currently at those higher levels."
 - iv. "A gender or racial inequality that increases over the course of a career."
- vi. The gender pay gap is the difference between male and female earnings.
- vii. In addition to the glass ceiling, which already is stopping women from climbing higher in success in the workplace, a parallel phenomenon is occurring called the "glass escalator." This can be defined as how more men are joining fields that

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were previously occupied mainly by women, such as nursing and teaching, and within these job fields, the men are riding right past women and going straight to the top, similarly to if they were on an escalator and a woman was taking stairs. Men are being offered more promotions than women and even though women have worked just as hard, they are still not being offered the same chances as men are in some circumstances.

- viii. Governments, organizations, and individuals around the world have tried to encourage an increase in the number of women who reach the upper echelons of power. Many nations have made progress (Canada has set up a government program to encourage female participation on corporate boards) but the Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden) have done more than any other region in the world to address female corporate participation. The Nordic nations have generous maternity leave laws, state child care, and quotas requiring publicly listed firms to allocate 40% of corporate board seats to women. In the latest Global Gender Gap Report, the top five countries were all Nordic.

11) Human Computer interaction

- i. Human-computer interaction (HCI) researches the design and use of computer technology, focusing particularly on the interfaces between people (users) and computers. Researchers in the field of HCI both observe the ways in which humans interact with computers and design technologies that let humans interact with computers in novel ways.
- ii. As a field of research, Human-Computer Interaction is situated at the intersection of computer science, behavioral sciences, design, media studies, and several other fields of study. The term was popularized by Stuart K. Card and Allen Newell of Carnegie Mellon University and Thomas P. Moran of IBM Research in their seminal 1983 book, *The Psychology of Human-Computer Interaction*, although the authors first used the term in 1980[1] and the first known use was in 1975.
- iii. The term connotes that, unlike other tools with only limited uses (such as a hammer, useful for driving nails, but not much else), a computer has many uses and this takes place as an open-ended dialog between the user and the computer. The notion of dialog likens human-computer interaction to human-to-human interaction, an analogy the discussion of which is crucial to theoretical considerations in the field.
- iv. Human-Computer Interaction studies the ways in which humans make, or make not, use of computational artifacts, systems and infrastructures. In doing so, much of the research in the field seek to 'improve' human-computer interaction by improving the 'usability' of computer interfaces. How 'usability' is to be precisely understood, how it relates to other social and cultural values and when it is, and when it may not be a desirable property of computer interfaces is increasingly debated.

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- v. Much of the research in the field of Human-Computer Interaction takes an interest in:
 - i. methods for designing novel computer interfaces, thereby optimizing a design for a desired property such as, e.g., learnability or efficiency of use. An example of a design method that has been continuously developed by HCI researchers is Participatory Design.
 - ii. methods for implementing interfaces, e.g., by means of software tool kits and libraries
 - iii. methods for evaluating and comparing interfaces with respect to their usability or other desirable properties
 - iv. methods for studying human computer use and its sociocultural implications more broadly
 - v. models and theories of human computer use as well as conceptual frameworks for the design of computer interfaces, such as, e.g., cognitivist user models, Activity Theory or ethnomethodological accounts of human computer use
 - vi. perspectives that critically reflect upon the values that underlie computational design, computer use and HCI research practice
- vi. HCI differs from human factors and ergonomics as HCI focuses more on users working specifically with computers, rather than other kinds of machines or designed artifacts. There is also a focus in HCI on how to implement the computer software and hardware mechanisms to support human-computer interaction. Thus, human factors is a broader term; HCI could be described as the human factors of computers – although some experts try to differentiate these areas.
- vii. The human-computer interface can be described as the point of communication between the human user and the computer. The flow of information between the human and computer is defined as the loop of interaction. The loop of interaction has several aspects to it, including:
 - i. Visual Based: The visual based human computer inter-action is probably the most widespread area in HCI research.
 - ii. Audio Based: The audio based interaction between a computer and a human is another important area of in HCI systems. This area deals with information acquired by different audio signals.
 - iii. Task environment: The conditions and goals set upon the user.
 - iv. Machine environment: The environment that the computer is connected to, e.g. a laptop in a college student's dorm room.
 - v. Areas of the interface: Non-overlapping areas involve processes of the human and computer not pertaining to their interaction. Meanwhile, the overlapping areas only concern themselves with the processes pertaining to their interaction.

PERSONALITY

1) Introduction: Types and Traits Theories of Personality!

- i. The earliest attempt to categories personality was made by Hippocrates (400 BC).
- ii. He categorised people on the basis of four body humours and prominent personality characteristics associated with them such as: Temperamental characteristics
- iii. Recently, psychologists have attempted to study personality in their own way. They have formulated various theories to explain personality.
- iv. These are divided into two types, viz., types and traits theories. Both these theories of personality focus on people's personal characteristics. However, 'type' theorists and 'trait' theorists differ in the ways they use characteristics to describe people.

2) Type Theories:

- i. Type theorists have explained personality on the basis of physique and temperament. Temperament refers to emotional aspect of the personality like changes in mood, tensions, excitement, etc. A 'type' is simply a class of individuals said to share a common collection of characteristics. Three important 'Type theories' of personality are explained here:
- ii. CG Jung's Classification:
 - i. CG Jung has classified personality on the basis of sociability character as Introverts and Extraverts.
 - ii. Introverts are described as people who share characteristics such as shyness, social withdrawal, and tendency to talk less. Because of these characteristics these people appear to be self-centered, unable to adjust easily in social situations. They are not easily suggestible. They are future oriented, very sensible and rigid in ideas.
 - iii. Extraverts share a tendency to be outgoing, friendly, talkative, and social in nature. They prefer social contacts, generous, sportive, and courageous. They are happy-go-lucky persons and show interest in present reality than future. They express their

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feelings openly. Take decisions quickly and act upon quickly. They are not affected easily by difficulties.

- iv. Ambiverts: There are only few people who are pure introverts or pure extraverts. The remaining majority of people possess both the qualities of introverts and extraverts. Such people are called as Ambiverts. This classification was made by psychologists who came after Jung.

iii. Ernest Kretschmer's Classification:

- i. German psychologist Kretschmer has attempted to correlate physique and character. From his studies on mental patients, he found that certain body types are associated with particular types of mental disorders. He has classified personalities into four types:

1. Pyknic type: These are people who are short and having round body. They will have personality traits of extraverts. These people are more prone to suffer from a mental disorder called Manic Depressive Psychosis (MDP).
2. Asthenic type: These people will have a slender or slim body. They will have the personality traits of introverts. These people are more prone to suffer from a serious mental disorder called Schizophrenia.
3. Athletic type: These people will have strong body. They are more energetic and aggressive. They will be strong enough, determined, adventurous and balanced. They are comparable with ambiverts. They are more prone to suffer from MDP.
4. Dysplastic type: These people will have unproportionate body and do not belong to any of the three types mentioned above. This disproportion is due to hormonal imbalance. Their behaviour and personality are also imbalanced.

iv. William Sheldon's Classification:

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- i. Sheldon has proposed a theory of personality correlating temperament and body type. He has divided people into three types:
 1. Endomorph: These people will have soft, fat and round body, having predominance of abdominal region. They are sociable and relaxed (can be compared to pyknic type).
 2. Ectomorph: These are the people who are tall, thin and flat chested, having the skin, bones and neural structure predominantly. They are shy, reserved and self-conscious (can be compared with asthenic type).
 3. Mesomorph: These people are well built with heavy and strong muscles appear predominantly. They are physically active, noisy, adventurous by nature (can be compared to athletic type).

3) Traits of Personality and Trait Theories:

- i. Traits are tendencies to behave in relatively consistent and distinctive ways across situations. These are the measurable aspects of personality. The most common way to describe people is to list these traits or qualities possessed by them. For example, friendliness, social, honesty, perseverance, submissiveness, dominance, etc.
- ii. The groups of personality traits are known as personality factors or dimensions of personality. Allport and RB Cattell are famous for their work on personality studies using traits.
- iii. GW Allport was the first person to adopt the trait approach against the type approach for the description of personalities. According to him the traits are the basic units of personality. Every person develops a unique set of organised tendencies called traits.
- iv. Allport has identified three types of traits—cardinal, central and secondary. Cardinal traits are primary and they cover all aspects of an individual's behaviour and attributes.
- v. Central traits represent few characteristics which can be used to describe a person such as kindness, honesty, etc. Secondary traits appear in only a relatively small range of situations. These are not

strong enough like cardinal traits and hence they are not regarded as integral parts of one's personality.

vi. RB Cattell has identified two types of traits. They are source traits and surface traits. Source traits are the underlying structures or sources that determine our behaviour. Surface traits are influenced by source traits and are manifested in our behaviour.

vii. Cattell, by adopting a method called factor analysis has recognised 16 'Source traits' as building blocks of our personality. The 'Sixteen personality factor test' developed by him includes these factors. This test is widely used, because these personality characteristics can be measured and described more objectively.

4) Development and Organisation of Personality:

i. As defined—the personality is a dynamic organisation of various qualities including physical and psychological aspects. Personality is something that grows and develops as a result of interplay of biological, sociocultural and psychological factors. Because of the developmental process, the personality is subjected to change. That is why there are individual differences. What causes these differences? The answer to this question lies in the factors influencing the development of personality. These factors are classified into three categories:

ii. Biological Factors:

i. These are also called as physiological factors which include endocrine glands, blood sugar and other externally imposed biological conditions. There are many endocrine glands which are situated in different parts of the body.

ii. These glands produce different hormones. Normal secretion of these hormones promotes healthy and normal personality. Abnormalities in secretion like over or under secretions lead to im-balancement.

iii. In addition to the biological factors drug dependence, alcoholism also affects personality. Dietary problems like—semi- starvation, vitamin deficiencies, diseases which are acute as well as chronic—like toxic and bacterial infection due to

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syphilis, encephalitis or such other diseases cause very severe damage to the personality development and functioning.

iii. Sociocultural Factors:

- i. The society and culture play important role in the development of personality. Among the factors which influence the personality— the influence of home atmosphere is very crucial. Parental behaviour will have greater impact on children.
- ii. Parental attitude towards children, pattern of care like over protection, over indulgence, rejection, negligence, encouragement, discouragement, their attitude towards life, relationship with friends and relatives all will affect the development. Number of children in a family, order of birth, peer group, school atmosphere also influences personality development.

iv. Psychological Factors:

- i. The psychological factors like intelligence level, motives, different interests acquired by the person, attitudes developed, will and character, thinking and reasoning abilities, perceptual ability, emotional development and such other psychological factors also influence the formation, development and organisation of personality.

5) Theories of Personality:

- i. There are number of theories developed by psychologists to explain personality and its development. Each theory is unique and explains personality development and functioning in its own way. Some of the prominent theories are explained here under:

- ii. Psychoanalytical Theory: This theory was developed by famous psychologist Sigmund Freud. This theory has three major parts: (a) The personality structure which includes Id, Ego and Super ego (b) Topography of mind and (c) Psychosocial stages of development,

- i. Personality structure: Freud constructed a model of personality with three interlocking parts: the Id, the Ego and the Super ego.

1. The Id: This is the most primitive part, develops with the birth of the child. It can be thought of as a sort of store house of biologically based urges: the urge to eat, drink,

eliminate and especially, to be sexually stimulated. The sexual energy underlying these urges is called the libido. According to Freud the Id operates on a 'pleasure principle'. That is-left to itself, the id would satisfy its fundamental urges immediately and reflexively as they arose without regard to rules, the realities of life or morals of any kind.

2. The Ego: This part usually develops from the school year of life of the child—as a result of social contacts. The ego consists of elaborate ways of behaving and thinking which constitute the executive function of the person. The ego delays motives of Id and channels behaviour into more socially acceptable outlets. It keeps a person working for a living, getting along with people and generally adjusting to the realities of life. Freud characterised the ego as working in the service on the 'reality principle'. That is, the ego tries to satisfy the id's urge for pleasure, but only in realistic ways. The ongoing tension between insistent urges of the id and the constraints of reality helps the ego develop certain skills to safeguard the self-image. These skills are called ego defence mechanisms
 3. The Super ego: This part of personality corresponds closely to what we commonly call the conscience. It consists mainly of prohibitions learned from parents and other authorities. The super ego may condemn as 'wrong' certain things which the ego would otherwise do to satisfy the id. However, super ego is guided by 'ego ideal'- a set of values and moral ideals that are pursued because they are perceived to be worthy. In other words the super ego operates on the 'moral principal'.
- ii. Freud believed that because of the diverse nature of these three parts, there will be constant conflicts between one another, which leads to three types of anxiety, viz.

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1. Reality anxiety-arising when the individual is confronted by dangers or threats in the external world.
 2. Neurotic anxiety-arising when the individual's Id impulses threaten to break through his ego controls and result in behaviour that will lead to his punishment and
 3. Moral anxiety- arising when the individual does something or even contemplates doing something in conflict with his super ego or moral values and arouses guilt feelings.
- iii. Topography: It is understood that there will be constant conflicts going on between id, ego and super ego. These conflicts may occur in the conscious, subconscious and unconscious levels of human psyche. Freud refers to the unconscious, the subconscious and the conscious as the 'topographical' aspects of the self, also called as the level of consciousness. The functioning of these levels is as follows:
1. The conscious: According to Freud the conscious part of mind is that part which is ready to receive the stimuli from the external world. It helps to perform the functions like eating, drinking, reading, writing, talking, thinking and such other activities and also helps us to behave in an appropriate way. It will be functioning only when the individual is in a wake up state. At the conscious level we will be aware of certain things around us and of certain thoughts.
 2. The preconscious: This is also known as subconscious. At this level are memories or thoughts that are easily available with a moment's reflection. For example, what we had for breakfast or what class was held today morning. Preconscious will be functioning between conscious and unconscious parts. In character it resembles conscious to greater extent and will have better adjustment with it. Its contents can be recalled easily. It prevents the suppressed thoughts and other prohibited

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motives in the unconscious from entering the conscious part. Hence, it is also called as 'Censor'.

3. The unconscious: This part of mind contains memories, thoughts and motives which we cannot easily call up. It is the largest and also the powerful part of mind. It contains the natural instincts, thoughts inappropriate desires, irrational motives and painful experiences. All the experiences suppressed by conscious part will remain here. These forces will be trying to come to conscious part for satisfaction. But their entry is prevented by preconscious. Hence, they try to come out when preconscious part is at rest. They appear in the form of dreams, or in the form of slip of tongue, slip of pen, automatic writing, amnesia, etc.
- iv. Freud has developed certain techniques such as free association, dream analysis, analysis of transference, analysis of resistance, hypnosis and such other techniques in order to bring out the contents of unconscious which cause mental illness.
- v. Freud has compared these three levels to an 'Ice berg' in water. The conscious part will be like tip of ice berg which is above the surface level. Although that is the part we can see, it is only a small part.
- vi. The subconscious part, as a thin layer is separating the conscious and unconscious. The major part of the mind that is unconscious will be like a submerged big part of ice berg.
- vii. Psychosexual stages of development: In his theory of child development, Freud described a succession of stages around body zones. In his opinion, every child will have an innate tendency to seek pleasure especially through physical stimulation and particularly through stimulation of parts of the body that are sensitive to touch: the mouth, the anus and the genitals. Such a pleasure includes many psychological issues also. Hence, these stages are called as psychosexual stages. These are:

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1. Oral stage (birth to age one): According to Freud's theory, the infant obtains sensual pleasure first by sucking and later by biting. A baby given too little or too much opportunity to suck, or made anxious about it may acquire oral fixations, leading to abnormal behaviour like over talkativeness, dependency, chain smoking, etc.
2. Anal stage (age one to age three): This is a period of toilet training by parents. The anus becomes highly sensitive area. The child finds pleasure in holding on and letting go of feces. Parents try to teach to avoid such prohibited behaviour connected with excretion. This leads to fixation causing abnormal characteristics during adulthood such as messiness and disorders such as excessive compulsiveness, over conformity and exaggerated self-control.
3. Phallic stage (age three to age five): During this stage the child's interest shifts toward genitals. The child enjoys stimulating the genital organs. Freud believed that it is at this time the children develop sensual feelings toward the parent of the opposite sex. Boys develop 'Oedipus complex', i.e. develop affection towards mother and in turn develop castration anxiety. On the other side, girls develop affection towards father which is called as 'Electra complex'.
4. Latency stage (age six through puberty): During this period the child's interest is shifted towards learning more about the world, sexuality is largely repressed and the ego expands.
5. Genital stage (adolescence and beyond): Mature heterosexual interests develop during this phase. The stage is set for responsible enjoyment of adult sexuality. During this stage the sexual interests will lie outside the family circle.

iii. Adler's Theory of Striving for Superiority:

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- i. Alfred Adler was the follower of Freud, but opposed his views and established his own school of thought called Individual Psychology. Adler stressed on the social, rather than biological determinants of personality and on the upward drive of the self. In his view the prime source of man's motivation is the innate striving for superiority by attaining perfection.
- ii. According to Adler, every child will suffer from some weakness which results in development of inferiority. But every child will try to compensate one weakness through some other ability. For example, a bodily handicapped child may work hard and get a rank in the examination.
- iii. An ugly looking girl may gain social recognition by becoming a famous singer. Inferiority feelings are thus essential requirements of psychological growth. Adler thought that under optimal circumstances of development, striving for superiority take socially constructive forms having to do with co-operative relationships with people, identification with the group and efforts to bring about the ideal society.
- iv. Jung's Theory of Personality:
 - i. C.G.Jung was the follower of Freud, but due to difference of opinion established his own school of thought called 'Analytical Psychology'. Jung opposed the views of Freud about psychosexual development during childhood.
 - ii. On the other hand, he stressed 'adult adjustment' aspect. Jung felt that the libido is not only sexual energy but it is 'continuous life energy', a striving to live and insure the survival of one's species. He called unconscious as 'Collective unconscious' and divided it as 'personal unconscious' and 'racial unconscious'.
 - iii. The personal unconscious is developed out of any of the individual's conscious experiences that had been repressed.
 - iv. Collective unconscious grows out of the past experiences of the human race. He said, collective unconscious will be stored with primitive fundamental images, impressions or predispositions that were common to earlier members of the human race. He called these images, impressions or predispositions as

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‘archetypes’. He said these archetypes will cause emotion generated, behaviour.

- v. According to Jung, the self develops as a result of harmonisation of conscious and unconscious and leads to unique patterns of behaviour. He called this process as individuation, i.e. every individual is distinct from others.
- vi. Jung has also proposed two concepts to explain nature of personality, viz., extraversion and introversion. He has also introduced a concept called ‘complexes’ which he defined as a ‘network of ideas bound together by a common emotion or a set of feelings’.
- v. Karen Horney and Basic Anxiety:
 - i. Karen Horney concentrates mainly on ‘Basic anxiety’ as a prime concept to understand human personality. Basic anxiety according to Horney—stems from anything that causes insecurity in the child, especially in relation to his/her parents.
 - ii. That is being dominated by parents, being inconsistently treated, being given too much or too little responsibility, being treated with coldness or indifferences, being involved in parental conflicts and so on.
 - iii. The child tries to cope with this anxiety by various adjective and largely irrational acts. But if the anxieties are intense and prolonged, it develops neurotic behaviour and requires treatment. Horney stresses that the main cause of basic anxiety and other personality problems is the social and culturally induced disturbances in the child’s developmental experiences.
- vi. Sullivan and Interpersonal Relations:
 - i. Harry Stack Sullivan describes personality as the relatively enduring pattern of recurrent interpersonal situations which characterise a human life. According to him there is no personality apart from its relations with other people; all that is distinctly human is a product of social interactions from birth onwards and every individual is motivated towards achieving social and interpersonal security.

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- ii. Therefore, according to Sullivan the study of personality is really the study of the whole interpersonal situation and not an isolated individual.
- vii. Erickson and Psychosocial Crisis:
 - i. Erik Erickson's theory is known as Ego psychology. According to Erickson, as the individual progresses through his developmental stages, meets with psychosocial crises peculiar to each stage. It is psychosocial because, society has developed social institutions specific to each stage in an attempt to mould and socialise the individual as he progresses through these stages.
 - ii. In Erickson's scheme, there are eight psychosocial stages extending through the life span from infancy to old age. Each stage will experience certain conflicts called crises.
 - iii. Among all the crises the 'search for identity' during adolescence is most powerful motive. Erickson also states that the individual develops a healthy personality by mastering inner and outer crises with positive solutions to life's problems.
- viii. Theory of Learning and Personality Development:
 - i. Learning and conditioning in classical, instrumental and cognitive forms are highly relevant to personality and its development. Dollard and Miller used animal experiments to test human conflicts and repressions thus advancing social learning theory.
 - ii. Albert Bandura and Walters extended social learning theory into the domain of observational learning. They said that observational learning or imitation generally takes place in a social situation involving a model and an imitator.
 - iii. The imitator observes the model and experiences the model's behaviour and its consequences vicariously (observational learning).
 - iv. This process is called vicarious learning. For example, seeing that one child is punished by teacher for talking in the class, other child may stop talking. The observer himself will not

experience rewards or punishments that are imposed on the model, but vicariously experienced them.

- v. Skinner developed a method called 'Learning by conditioning' in which the individuals as a result of their experiences establish an association or linkage between two events. He used Instrumental conditioning principles to explain the ways in which environmental conditions as reinforcements influence people's behaviour.

ix. Humanistic Theories:

- i. These theories are developed by two psychologists—Carl Rogers and Abraham Maslow. Humanistic theories emphasise the importance of people's subjective attitudes, feelings and beliefs especially with regard to self. Roger's theory focuses on the impact of disparity between a person's perceived real self and his ideal self that is, 'how I am and how I would like to be'. Maslow focuses on the significance of self-actualization.
- ii. Humanistic theories believe that each person is potential enough to be creative and responsible, he is free to choose his destiny and every individual strives to fulfill his need for self-actualization or realizing his/her fullest potential.

6) Determinants and Factors of Personality:

- i. Every person has a different personality, which is the result of various factors that shape it up. We call them the 'determinants of personality' or the 'factors of personality'.
- ii. These determinants or factors of personality can be divided into 4 major categories: environmental factors, physical factors, situational factors and heredity factors.
- iii. Contrary to many beliefs, heredity factors are indeed major determinants of personality.
- iv. Personalities change over time. As an individual grows, experiences different environments, lives and works with other people, and as his physical structures change, his personality also evolves.

PSYCHOLOGICAL ASSESSMENT

1) Defining and Measuring Psychological Attributes

- i. Anne Anastasi, a famous psychologist in field of psychological testing has defined as, 'A psychological test is essentially an objective and standardised measure of a sample of behaviour'.
- ii. "A psychological test is a standardised procedure to measure quantitatively or qualitatively one or more than one aspect of a trait by means of a sample of verbal or non-verbal behaviour".
- iii. An important person in psychological testing was American psychologist James Mickeen Cattell. In 1840, he used the term 'Mental test' for the first time. In 1895, Kraepelin prepared a test to measure the basic factors in characterisation of a person.
- iv. In 1905, Binet and Simon developed the first standardized intelligence test. Most of these tests were essentially individual tests.

2) Attributes of Psychological Measures

- i. Certain psychological attributes have been shown to be more relevant for long term decision making.
- ii. Psychological Attributes vary on a fluid - stable continuum
- iii. Fluid attributes such as mood can change on an hour to hour basis. This instability indicates that moods are not great predictors of future behavior within a particular situation. Attitudes and Opinions are also relatively fluid from 18 to 25. Personal Values can also change over time. The fluidity of the above attributes makes them less than optimal predictors of important behaviors
- iv. Stable Psychological Attributes: Stable attributes are essential in making long term predictions. Some researchers, for example, believe that an individual's personality is basically set by age 5. Intelligence, although relatively fluid at an early age, is relatively stable across the majority of adult years. The validity of the SAT test, for example, is dependent on the stability of intelligence. Broad classes of Interest are also relatively stable.
- v. Due to the relative stability of measures of ability, interest, and personality, these three areas are the primary focus of people using psychological tests to predict future behavior.
- vi. One important assumption that is made when measuring these attributes is that : All psychological attributes of interest are assumed to be normally distributed. Therefore, all psychological attributes should reveal individual differences. This assumption of normal distribution is necessary in order to analyze data with parametric statistics.
- vii. When using psychological attributes in making predictions, it is absolutely vital to match the appropriate attribute with the predicted behavior. For example, measures of general intelligence wouldn't be of much use in determining an appropriate psychological treatment.

3) Intelligence -- General Mental Ability

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- i. What is Intelligence: Intelligence is a construct, not a concrete object. Researchers disagree on what the definition of intelligence should be.
 - ii. Scientists believe that intelligence is a valid and useful construct for two reasons: First, a wide variety of mental processing tasks show systematic individual variation. An individual who performs well on one measure of cognitive ability, will likely perform well on other measures of mental processing. Second, this construct is related to success in a wide variety of life tasks: school performance, training programs, and work behaviors. So, since intelligence does exhibit consistent individual differences and can be used to predict performance in a number of important areas, Psychologists study general mental ability extensively.
 - iii. General Mental Ability (intelligence): The performance of tasks involving the manipulation, retrieval, evaluation, and/or processing of information which shows individual differences.
- 4) Characteristics of a good test of General Mental Ability
- i. Broad sampling of tasks : If you believe that there are 7 (or 180) Broad classes of mental ability, then you should have problems which address each type of mental category.
 - ii. Sufficient sample of items within task type. 30 or more would be statistically ideal, less than 10 would be statistically shaky.
 - iii. General Intelligence tests should not test specific content. Achievement type items, which show mastery of specific subject area, should be kept to an absolute minimum. Remember, we want to tap into the process of intelligent action, not retrieval of specific facts.
 - iv. Indifference of the indicator: underlining the point made in three, the specific content of a test item is not nearly as important as the content of the underlying process which produces a specific answer.
- 5) Main Characteristics of a Good Psychological Test
- i. Objectivity: The test should be free from subjective—judgement regarding the ability, skill, knowledge, trait or potentiality to be measured and evaluated.
 - ii. Reliability: This refers to the extent to which they obtained results are consistent or reliable. When the test is administered on the same sample for more than once with a reasonable gap of time, a reliable test will yield same scores. It means the test is trustworthy. There are many methods of testing reliability of a test.
 - i. Test-Retest Reliability -- the same individuals are given the test twice, separated by some interval of time.
 - ii. Split-Half Reliability -- individuals take the test and then the items are divided into two equivalent halves, which are then separately scored. The pairs of scores for each test are then correlated as in the test-retest method.
 - iii. Validity: It refers to extent to which the test measures what it intends to measure. For example, when an intelligent test is developed to assess the level of

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intelligence, it should assess the intelligence of the person, not other factors. Validity explains us whether the test fulfils the objective of its development. There are many methods to assess validity of a test.

- i. Concurrent Validity -- results of the test agree with those of another test of accepted validity as a measure of that characteristic.
 - ii. Predictive Validity -- predictions based on the results agree with what one would expect if the test is a valid measure of the characteristic.
 - iii. Face Validity -- examination of the test reveals that the test appears to measure what it is intended to measure.
 - iv. Norms: Norms refer to the average performance of a representative sample on a given test. It gives a picture of average standard of a particular sample in a particular aspect. Norms are the standard scores, developed by the person who develops test. The future users of the test can compare their scores with norms to know the level of their sample.
 - v. Practicability: The test must be practicable in- time required for completion, the length, number of items or questions, scoring, etc. The test should not be too lengthy and difficult to answer as well as scoring.
 - vi. Standardization: In tests of physical characteristics such as weight, it is possible to establish the accuracy of the measurement by comparing measurements against a set of known standards.
- 6) Item Analysis
- i. Item is a statement in the form of a question. Item analysis is one of the most important aspects of test construction.
 - ii. Item analysis is a general term for a set of methods used to evaluate test items.
 - iii. Items can be analyzed qualitatively in terms of their content and form and quantitatively in terms of their statistical properties.
 - iv. Importance of item Analysis:
 - i. Item represents the test. All the things of a test depend on items. The importance of item analysis is given below:
 - ii. There can be little doubt that item analysis is a vitally important operation in the development of a new test and one that should invariably be carried out unless special circumstances.
 - iii. Both the validity and reliability of any test depend ultimately on the characteristics of its items. High reliability and validity can be built into a test in advance through item analysis.
 - iv. Tests can be improved through the selection, substitution or revision of items.
 - v. Item analysis makes it possible to shorten a test and at the same time to increase its validity and reliability.
 - v. Methods of computing item analysis:

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- i. Item Difficulty index: For testing purpose, the difficulty of an item is defined in terms of the percentage or proportion of persons who answer it correctly. The easier the item, the larger this percentage will be.
- ii. Item Discrimination index: Item discrimination refers to the degree to which an item differentiates correctly among test takers in the behavior that the test is designed to measure.

7) Modern Test Theory

- i. In psychometrics, item response theory (IRT) also known as latent trait theory, strong true score theory, or modern mental test theory, is a paradigm for the design, analysis, and scoring of tests, questionnaires, and similar instruments measuring abilities, attitudes, or other variables.
- ii. Unlike simpler alternatives for creating scales evaluating questionnaire responses it does not assume that each item is equally difficult. This distinguishes IRT from, for instance, the assumption in Likert scaling that "All items are assumed to be replications of each other or in other words items are considered to be parallel instruments"[1] (p. 197).
- iii. By contrast, item response theory treats the difficulty of each item (the ICCs) as information to be incorporated in scaling items. ICC stands for item characteristic curve.
- iv. It is based on the application of related mathematical models to testing data. Because it is generally regarded as superior to classical test theory, it is the preferred method for developing scales in the United States, especially when optimal decisions are demanded, as in so-called high-stakes tests, e.g., the Graduate Record Examination (GRE) and Graduate Management Admission Test (GMAT).
- v. The name item response theory is due to the focus of the theory on the item, as opposed to the test-level focus of classical test theory. Thus IRT models the response of each examinee of a given ability to each item in the test. The term item is generic: covering all kinds of informative item. They might be multiple choice questions that have incorrect and correct responses, but are also commonly statements on questionnaires that allow respondents to indicate level of agreement (a rating or Likert scale), or patient symptoms scored as present/absent, or diagnostic information in complex systems.
- vi. IRT is based on the idea that the probability of a correct/keyed response to an item is a mathematical function of person and item parameters. The person parameter is construed as (usually) a single latent trait or dimension. Examples include general intelligence or the strength of an attitude.
- vii. Parameters on which items are characterized include their difficulty (known as "location" for their location on the difficulty range), discrimination (slope or correlation) representing how steeply the rate of success of individuals varies with

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their ability, and a pseudoguessing parameter, characterising the (lower) asymptote at which even the least able persons will score due to guessing (for instance, 25% for pure chance on a multiple choice item with four possible responses).

8) Some Examples of Psychological Tests

- i. Psychological tests abound; here I provide only a few major categories and examples.
- i. Intelligence Tests -- these measure aspects of intelligence that contribute to good academic performance.
- ii. Personality Tests -- these measure personality characteristics. Different tests measure different characteristics, according to the theory of personality on which they were based. Examples include:
 1. **Minnesota Multiphasic Personality Inventory** -- measures personality traits on several scales based on true-false answers to 500 statements. Scale values are plotted on a set of parallel scales and the dots are connected by lines to form a "profile" used in diagnosis and assessment. Objectively scored.
 2. **Thematic Apperception Test (TAT)** -- individual is shown a series of 8" X 10" cards, each depicting a scene of some sort, and is asked to tell a story based on that scene. Designed to allow the person to "project" something about himself or herself into the answers (a type of projective test). Not objectively scored.
 3. **Rorshack Inkblot Test** -- individual is shown a series of left-right symmetrical inkblots and is asked to describe what he or she sees there. Another projective test.
- iii. Aptitude Tests -- designed to indicate an individual's aptitude or talent in some area. It works by assessing the degree to which the individual already has the requisite knowledge and skills required. The SAT that high-school students take for admission to college assesses your aptitude for college-level work. In fact, it was once called the "Scholastic Aptitude Test," but has been renamed for political reasons.
- iv. Achievement Tests -- these measure what an individual knows or can do. A familiar example to Indiana students is the ISTEP test, designed to assess what Indiana primary and secondary school students have learned.
- v. Interest Inventory -- The tests asks you to indicate, for each of a large number of activities, what you are interested or not interested in doing. Your results are compared to the pattern marked by successful individuals in each of a variety of occupational fields. If your responses match up well with those of, say, a successful architect, then you would probably enjoy the sort of work an architect does. This does not tell you, however, whether you have any aptitude for the work!

SOCIAL INFLUENCE AND GROUP DYNAMICS

1) Introduction

2) Social Facilitation

- i. Social facilitation can be defined as ‘an improvement in performance produced by the mere presence of others’.
- ii. There are two types of social facilitation: co-action effects and audience effect.
- iii. The first social psychology laboratory experiment was undertaken in this area by Norman Triplett in 1898. In his research on the speed records of cyclists, he noticed that racing against each other rather than against the clock alone increased the cyclists' speeds.
- iv. Triplett's experiments demonstrate the co-action effect, a phenomenon whereby increased task performance comes about by the mere presence of others doing the same task.
- v. Social facilitation occurs not only in the presence of a co-actor but also in the presence of a passive spectator/audience. This is known as the audience effect.
- vi. Dashiell (1935) found that the presence of an audience facilitated subjects' multiplication performance by increasing the number of simple multiplications completed.
- vii. Travis (1925) found that well-trained subjects were better at a psychomotor task (pursuit rotor) in front of spectators.
- viii. According to Cottrell (1968), it's not the presence of other people that is important for social facilitation to occur but the apprehension about being evaluated by them. We know that approval and disapproval are often dependent on others' evaluations and so the presence of others triggers an acquired arousal drive based on evaluation anxiety.

3) Attribution Theory:

- i. Attribution theory deals with how the social perceiver uses information to arrive at causal explanations for events. It examines what information is gathered and how it is combined to form a causal judgment” (Fiske, & Taylor, 1991).

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- ii. Attribution theory is concerned with how and why ordinary people explain events as they do.
- iii. Heider (1958) believed that people are naive psychologists trying to make sense of the social world. People tend to see cause and effect relationships, even where there is none!
- iv. Heider didn't so much develop a theory himself as emphasize certain themes that others took up. There were two main ideas that he put forward that became influential.
 - i. Internal Attribution: The process of assigning the cause of behaviour to some internal characteristic, rather than to outside forces. When we explain the behavior of others we look for enduring internal attributions, such as personality traits. For example, we attribute the behavior of a person to their personality, motives or beliefs.
 - ii. External Attribution: The process of assigning the cause of behaviour to some situation or event outside a person's control rather than to some internal characteristic. When we try to explain our own behavior we tend to make external attributions, such as situational or environment features.
- v. Jones and Davis (1965) thought that people pay particular attention to intentional behavior (as opposed to accidental or unthinking behavior).
- vi. Jones and Davis' theory helps us understand the process of making an internal attribution. They say that we tend to do this when we see a correspondence between motive and behavior. For example, when we see a correspondence between someone behaving in a friendly way and being a friendly person.
- vii. Davis used the term correspondent inference to refer to an occasion when an observer infers that a person's behavior matches or corresponds with their personality. It is an alternative term to dispositional attribution. Jones and Davis say we draw on 5 sources of information:
 - i. Choice: If a behavior is freely chosen it is believed to be due to internal (dispositional) factors.

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- ii. Accidental vs. Intentional Behavior: Behavior that is intentional is likely to be attributed to the person's personality, and behavior which is accidental is likely to be attributed to situation / external causes.
- iii. Social Desirability: Behaviors low in sociably desirability (non conforming) lead us to make (internal) dispositional inferences more than socially undesirable behaviors. For example, if you observe a person getting on a bus and sitting on the floor instead of one of the seats. This behavior has low social desirability (non conforming) and is likely to correspond with the personality of the individual.
- iv. Hedonistic Relevance: If the other person's behavior appears to be directly intended to benefit or harm us.
- v. Personalism: If the other person's behavior appears to be intended to have an impact on us, we assume that it is "personal", and not just a by-product of the situation we are both in.
- viii. Kelley's (1967) covariation model is the best known attribution theory. He developed a logical model for judging whether a particular action should be attributed to some characteristic (internal) of the person or the environment (external).
- ix. The term covariation simply means that a person has information from multiple observations, at different times and situations, and can perceive the covariation of an observed effect and its causes.
- x. He argues that in trying to discover the causes of behavior people act like scientists. More specifically they take into account three kinds of evidence.
- xi. Kelley believed that there were three types of causal information which influenced our judgments. Low factors = person (i.e. internal) attribution. High factors = situational (i.e. external) attribution.
 - i. Consensus: the extent to which other people behave in the same way in a similar situation. E.g. Alison smokes a cigarette when she goes out for a meal with her friend. If her friend smokes, her behavior is high in consensus. If only Alison smokes it is low.

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- ii. Distinctiveness: the extent to which the person behaves in the same way in similar situations. If Alison only smokes when she is out with friends, her behavior is high in distinctiveness. If she smokes at any time or place, distinctiveness is low.
- iii. Consistency: the extent to which the person behaves like this every time the situation occurs. If Alison only smokes when she is out with friends, consistency is high. If she only smokes on one special occasion, consistency is low.

4) Conformity

- i. Conformity is a type of social influence involving a change in belief or behavior in order to fit in with a group.
- ii. This change is in response to real (involving the physical presence of others) or imagined (involving the pressure of social norms / expectations) group pressure. Jenness (1932) was the first psychologist to study conformity. His experiment was an ambiguous situation involving a glass bottle filled with beans. He asked participants individually to estimate how many beans the bottle contained.

5) Types of Social Conformity

- i. Man (1969) states that “the essence of conformity is yielding to group pressure”. He identified three types of conformity: Normative, informational and ingratiation.
 - i. Normative Conformity: Yielding to group pressure because a person wants to fit in with the group. E.g. Asch Line Study. Conforming because the person is scared of being rejected by the group. This type of conformity usually involves compliance – where a person publicly accepts the views of a group but privately rejects them.
 - ii. Informational Conformity: This usually occurs when a person lacks knowledge and looks to the group for guidance. Or when a person is in an ambiguous (i.e. unclear) situation and socially compares their behavior with the group. E.g. Sherif's Study. This type of conformity usually involves internalization – where a person accepts the views of the groups and adopts them as an individual.

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- iii. Ingratiation Conformity: Where a person conforms to impress or gain favor/acceptance from other people. It is similar to normative influence, but is motivated by the need for social rewards rather than the threat of rejection, i.e., group pressure does not enter the decision to conform.
 - ii. Kelman (1958) distinguished between three different types of conformity: Compliance, internalization and identification.
 - i. Compliance: Publicly changing behavior to fit in with the group while privately disagreeing. In other words, conforming to the majority (publicly), in spite of not really agreeing with them (privately). This is seen in Asch's line experiment.
 - ii. Internalization: Publicly changing behavior to fit in with the group and also agreeing with them privately. This is seen in Sherif's autokinetic experiment.
 - iii. Identification: Conforming to the expectations of a social role. Similar to compliance, there does not have to be a change in private opinion. A good example is Zimbardo's Prison Study.
 - iii. Non-Conformity: Not everyone conforms to social pressure. Indeed, there are many factors that contribute to an individual's desire to remain independent of the group. For example, Smith and Bond (1998) discovered cultural differences in conformity between western and eastern countries. People from Western cultures (such as America and the UK) are more likely to be individualistic and don't want to be seen as being the same as everyone else. In contrast eastern cultures (such as Asian countries) are more likely to value the needs of the family and other social groups before their own. They are known as collectivist cultures and are more likely to conform.
- 6) Obedience:
- i. Obedience is a form of social influence where an individual acts in response to a direct order from another individual, who is usually an authority figure. It is assumed that without such an order the person would not have acted in this way.
 - ii. Obedience occurs when you are told to do something (authority), whereas conformity happens through social pressure (the norms of the majority). Obedience involves a hierarchy of power / status.

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Therefore, the person giving the order has a higher status than the person receiving the order.

- iii. In the 1960s, the social psychologist Stanley Milgram did a famous research study called the obedience study. It showed that people have a strong tendency to comply with authority figures.
 - iv. Real Life example: Adolf Eichmann was executed in 1962 for his part in organizing the Holocaust, in which six million Jewish people, as well as gypsies, communists and trade unionists were transported to death camps and murdered in Nazi Germany and surrounding countries under Nazi control. In his jail diary Eichmann wrote 'The orders were, for me, the highest thing in my life and I had to obey them without question' (extract quoted in The Guardian, 12 August, 1999, p. 13).
- 7) Altruism:
- i. Altruism involves the unselfish concern for other people. It involves doing things simply out of a desire to help, not because you feel obligated to out of duty, loyalty, or religious reasons.
 - ii. Altruism is one aspect of what social psychologists refer to as prosocial behavior. Prosocial behavior refers to any action that benefits other people, no matter what the motive or how the giver benefits from the action.
 - iii. Psychologists have suggested a number of different explanations for why altruism exists, including:
 - i. Biological Reasons: Kin selection - We may be more altruistic towards those we are related to because it increases the odds that our blood relations will survive and transmit their genes to future generations.
 - ii. Neurological Reasons: Altruism activates reward centers in the brain. Neurobiologists have found that when engaged in an altruistic act, the pleasure centers of the brain become active.
 - iii. Social Norms: Society's rules, norms, and expectations can also influence whether or not people engage in altruistic behavior. The norm of reciprocity, for example, is a social expectation in which we feel pressured to help others if they have already done something for us.

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- iv. Cognitive Reasons: While the definition of altruism involves doing for others without reward, there may still be cognitive incentives that are not obvious. For example, we might help others to relieve our own distress or because being kind to others upholds our view of ourselves as kind, empathetic people. Some of the cognitive explanations:
 - v. Empathy: Researchers including Batson et al. (1981) suggest that people are more likely to engage in altruistic behavior when they feel empathy for the person who is in distress, a suggestion known as the empathy-altruism hypothesis. Batson suggests that both empathy and altruism are innate traits and other researchers have found that children tend to become more altruistic as their sense of empathy develops.
 - vi. Helping Relieves Negative Feelings: Other experts have proposed that altruistic acts help relieve the negative feelings created by observing someone else in distress, an idea referred to as the negative-state relief model. Essentially, seeing another person in trouble causes us to feel upset, distressed, or uncomfortable, so helping the person in trouble helps reduce these negative feelings.
- iv. Batson suggests that while people do often behave altruistically for selfish reasons, he believes that true altruism is possible. Cialdini and others have instead suggested that empathy for others is often guided by a desire to help one's self.

8) Attitudes

- i. An attitude is "a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols". "...a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor"
- ii. In psychology, an attitude refers to a set of emotions, beliefs, and behaviors toward a particular object, person, thing, or event. Attitudes are often the result of experience or upbringing. They can have a powerful influence over behavior.
- iii. While attitudes are enduring, they can also change.
- iv. Structure of Attitudes

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- i. Cognitive Component: Your thoughts and beliefs about the subject.
 - ii. Affective Component: How the object, person, issue or event makes you feel.
 - iii. Behavioral Component: How the attitude influences your behavior.
- v. Key Study: LaPiere (1934):
- i. Aim: To investigate the relationship between attitudes and behavior.
 - ii. Method: LaPiere travelled round America with a Chinese couple, expecting to meet discrimination as a result of anti Chinese feeling. At the time prejudice against Asians was widespread and there were no laws against racial discrimination. They visited 67 hotels and 184 restaurants. Six months later, after their return, all the establishments they had visited were sent a letter, asking whether they would accept Chinese guests.
 - iii. Results: They were only refused at one of the establishments they visited, and were generally treated very politely. Of the 128 establishments which responded to the letter, 91% said they were not willing to accept Chinese guests.
 - iv. Conclusion: Attitudes do not always predict behavior. Cognitive and affective components of attitudes are not necessarily expressed in behavior.
 - v. The LaPiere's study shows that the cognitive and affective components of attitudes (e.g. disliking Chinese people) do not necessarily coincide with behavior (e.g. serving them). Attitudes can serve functions for the individual.
- vi. Daniel Katz (1960) outlines four functional areas:
- i. Knowledge. Attitudes provide meaning (knowledge) for life. The knowledge function refers to our need for a world which is consistent and relatively stable. This allows us to predict what is likely to happen, and so gives us a sense of control. Attitudes can help us organize and structure our experience. Knowing a person's attitude helps us predict their behavior.

- ii. Self / Ego-expressive. The attitudes we express (1) help communicate who we are and (2) may make us feel good because we have asserted our identity. Self-expression of attitudes can be non-verbal too.
- iii. Adaptive. If a person holds and/or expresses socially acceptable attitudes, other people will reward them with approval and social acceptance.
- iv. The ego-defensive function refers to holding attitudes that protect our self-esteem or that justify actions that make us feel guilty.

9) Social Roles and Social Norms:

- i. Social roles are the part people play as members of a social group. With each social role you adopt, your behavior changes to fit the expectations both you and others have of that role.
- ii. Social Norms are unwritten rules about how to behave. They provide us with an expected idea of how to behave in a particular social group or culture.
- iii. The idea of norms provides a key to understanding social influence in general and conformity in particular. Social norms are the accepted standards of behavior of social groups. These groups range from friendship and work groups to nation states.
- iv. Behavior which fulfills these norms is called conformity, and most of the time roles and norms are powerful ways of understanding and predicting what people will do. There are norms defining appropriate behavior for every social group. Norms provide order in society.

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RESEARCH METHODS IN PSYCHOLOGY

Psychologists conduct research because they know that they cannot rely on "feelings", "intuitions" or just plain "commonsense" to answer the question about people and their behaviour.

Being science, psychology uses the scientific method to collect empirical data, to base its conclusion. The aim of science is to provide new and useful information in the form of verifiable data that means the data obtained under conditions such that other researcher can repeat the observation and obtain the same results.

All scientific research is aimed at finding out. It can be the finding out of "why it happens". Usually a study about what is happening contributes to an advance in finding out why things happen.

A descriptive investigation aims to find out what is happening. In formal terms research can be referred as descriptive research and hypothesis testing research. Psychologists have to rely on behavioural data which is carefully collected from controlled observations and experimental methods.

Goals of Research

Psychologists strive to achieve four main goals in their research.

- i. To describe a phenomenon
- ii. To make prediction about it
- iii. To introduce control in their research
- iv. To explain the phenomenon with some degree of confidence

Psychologists tend to describe and predict behaviour and mental processes through different methods of study such as, observation, case studies, surveys and experiments.

Following steps are taken usually in the methods of study in psychology.

- Reliance on empirical method.
- Systematic methods to measure and quantify the aspects of behaviour and processes of mind.
- Procedural safeguards are adopted to increase objectivity and reduce the personal biases.
- Keeping complete records of observations and data analysis.
- Findings and conclusions communicated in ways that others can replicate the findings.

Following are the names of different methods of study which can be selected according to the need and demand of problem under study.

Methods of Study

- | | |
|-----------------------------------|-----------------------|
| ➤ Observational Method | ➤ Survey Method |
| ➤ Interview Method | ➤ Day Book Method |
| ➤ Case History or Clinical Method | ➤ Biographical Method |
| ➤ Experimental Method | ➤ Statistical Method |

Observation

Observation is a basic and common technique used in different sciences. Scientific observation is made under precisely defined conditions, in a systematic and objective manner and its record is kept carefully. Observational method is an important tool used by psychologists, anthropologists and sociologists also.

Observation can be a first step in discovering why we behave the way we do. Principles of good observation are same and apply equally well in natural setting and laboratory.

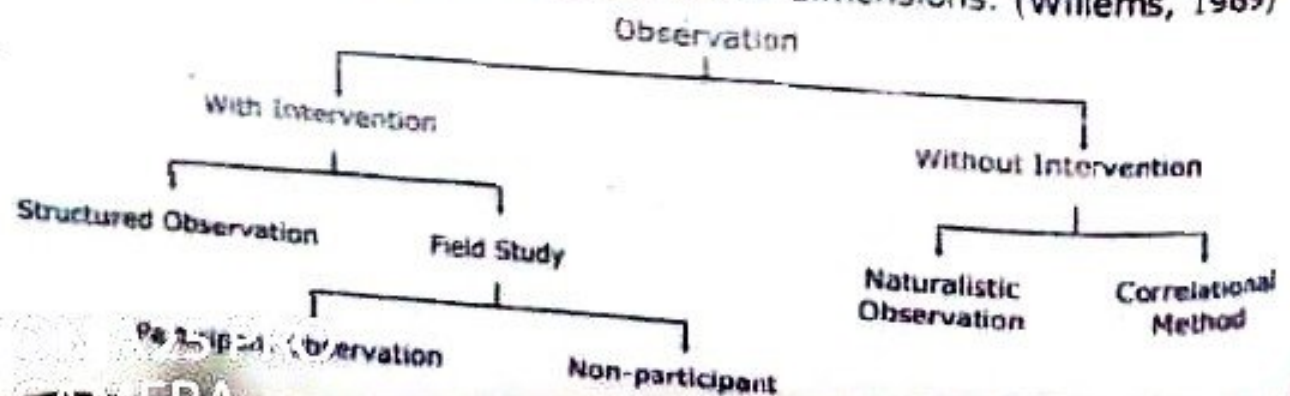
Goal

The primary goal of observational methods is to describe behaviour accurately with details. It is not possible for researcher to observe all of a person's behaviour, so they rely on observing sample of people's behaviour. Sample of behaviour is selected according to the demand and goal of research. Observation is a principal data-gathering technique in this age of advance technology. Science begins with observation and must ultimately return to observation for its final validation.

Observation may take many forms and is at once the most primitive and the most modern of research technique. In daily life we notice something but can't see all happenings. Our preferences and alertness, the range and depth of our knowledge and the goals we seek, all determine our pattern of selective observation. Most of our knowledge which people have about social relations is derived from observation.

Types of Observation

Role of control in observational technique determines its type. Observational methods can be classified on two dimensions. (Willems, 1969)



Along these observational methods Wundt and his followers also discussed and utilized the introspection i.e. internal observation.

Self observation
INTROSPECTION 31-02-2022

When Wundt established his first laboratory for experimentation in psychology, he stressed upon the introspection.

Earlier psychology has been defined as the study of mental experiences and its data were largely self observation in the form of introspection. It means looking within, i.e. the observation of one's own mental processes.

Introspection refers to an individual's careful observation and recording of his or her own perception and feelings. It is actually self reflection about one's nature and course of one's thoughts and feelings. It ranges from reporting immediate sensory impression to the minor stimulus or to the deep rooted probing of emotional experiences.

Merits

1. This method gives us direct and first hand knowledge about mental functioning. We can grasp our mental processes quite intimately.
2. Without observing our own mental processes we can never know what they are.
3. We can guess and interpret the external expression of others by knowing and observing our own mental process i.e. introspection. We take our own mind as a sample and judge other minds by our own.
4. Introspection has a private quality that distinguishes them from other observational methods. Any qualified scientist can replicate the observation of natural sciences, but the introspective observation can be reported by only one observer.

Demerits

1. Psychologists soon became aware of the difficulties of introspection because a scientific knowledge cannot be based, wholly or mainly, on introspection.
2. Watson argued that introspection was a futile approach and if psychology were to be a science, its data must be observable and measurable.
3. Just studying our own mind, we can never come to know, what is generally true about mind.
4. If introspection were the single method of study, psychology would become merely a mental autobiography of particular individuals.
5. Introspection can only be used by the adults. It fails in the case of children, mentally retarded, deaf and dumb people and lower animals.
6. With introspection no information can be obtained about unconscious or sub-conscious, as they are beyond the reach of introspection.

7. It is also criticized that mental processes do not remain constant when one introspects. Sometime they alter or disappear.
8. While introspecting we have to study our own mind, it is quite difficult for the mind to study itself and to present itself for study.
9. Introspection reports cannot be fully trusted as one can twist or misunderstand the information or sometimes one can deliberately tell a lie.
10. It is also said that introspection is actually the retrospection. Retrospection itself is not flawless.

Behaviourists criticized a lot on this method and as a result they introduced another method i.e. external observation.

فارسی مترادف EXTERNAL OBSERVATION ✓

It includes the observation of behaviour which consists of outward looks, gestures, sounds, movements and actions of other persons or animals. External observation is now renamed as systematic or structured observation.

Systematic/Structured Observation

It limits the bias of the individual observer partly by making the subjects feel the situation as natural. This type of observation is most useful in exploratory studies.

When researchers intervene to exert some control over the events, it is called structured observation. In structured observation the degree of intervention and control over event is not so high. Often the researcher intervenes in order to cause an event to occur or to "setup" a situation so that events can be more easily recorded. Structured observations may occur in a natural setting or in a laboratory setting as well.

Importance and Application

Clinical psychologists often use structured observations when making behavioural assessment of parent child interaction. Subjects may be observed in laboratory or clinic often from behind a one-way mirror, while subjects engage in their activity. Developmental psychologists also use structured observation frequently.

Jean Piaget is most notable for his use of this method. In many of Piaget's studies a child is given a problem to solve; and then given several variations of the problem to test the limits of child's understanding. The observer tells the child about the problem and then asks questions to probe the child's reasoning processes.

These structured observations have provided a wealth of information about children's cognition which became the base for Piaget's theory of cognitive development. *thinking Process*

Structured observation represents a compromise between the passive non-intervention of naturalistic and laboratory experimental method. In

structured observation it becomes easy to observe as the conditions are kept close to natural settings.

Merits

Access to Mind

In this method other's activities, behaviour and actions are observed which indicate their mental processes.

Vast Scope

Child psychology and comparative psychology entirely depend on this method of observation.

Scientific Method

This method has made the psychology objective and scientific.

Measurement

In this observational method behaviour is observed and measured. It has given rise to the testing methods. Intelligence, ability, performance or aptitude tests are just measuring the behaviour.

Prediction and Control

Prediction and control which are the fruits of measurement, and the demand of scientific criterion, has been achieved by this method.

Study of Emotion

As different bodily changes can be measured easily, the study of emotional expression has become easy, as these changes can be recorded in scientific way.

Demerits

Subjectivity

Other's behaviour may be judged and interpreted objectively, but it is not the case. Personal biases may affect the observational report. We can misinterpret and sometimes misunderstand the behaviours, as in the case of children or animals.

Incomplete Information

This method is considered quite sufficient to study abnormal behaviour but not for the normal behaviour. Normal individuals alter their behaviour and exaggerate their feelings which are not a true index of their mind.

Limited Behaviour

Overt behaviour can only express conscious mental processes. Unconscious or subconscious mental processes remain hidden. Overt behaviour does not present the complete picture.

Expensive and Tiresome

Sometimes more than one observer is required which costs more money. Observation of behaviour is also time consuming method.

Individual Differences

Due to individual difference; its results may be misleading. Same behaviour may be manifested by different expressions on different occasions. Subjects have variety of expressions for same situation. So individual differences can cause difficulty which must be considered carefully.

Recommendations

- § For this observational method highly trained staff is necessary.
- § More than one observer should study the same situation.
- § For the recording of data audio-visual aids must be used.

NATURALISTIC OBSERVATION

Observation of behaviour in a natural setting, without any attempt by the observer to intervene, is called naturalistic observation.

In this method observer acts as a passive recorder of what occurs. The events occur naturally and they are not manipulated or controlled by the observer. Naturalistic observation is the process of watching without interfering; as a phenomenon occurs in the natural environment.

In this method behaviour is studied in its usual setting, without asking any questions or administering any tests. The investigator simply observes and record what happens in natural environment, as objectively as possible, with tape recorders and cameras. It is especially valuable in cases where other methods are misleading e.g. observation of animal behaviour in laboratory.

Naturalistic observation is a systematic method for observing and recording the events as they naturally occur in real world. It is used in those cases where artificial probes or manipulations might destroy some or all of the basic characteristics of the phenomenon under study. It is also used in such cases where there is no way of making a more controlled observation.

In natural observation investigator gathers ideas and makes hypothesis for subsequent testing in a more controlled settings. As Timbergen (1965), commented, "I find that during the long hours of observation in the field, I not only learn behaviour patterns, but I get ideas, "hunches" for theories, which I later test by experiments when possible".

Researchers who study animal behaviour use unobtrusive observational procedures i.e. getting close enough to the animals in their natural habitat; to be able to observe in such a way that researchers presence goes undetected. In naturalistic observation two different techniques can be used, i.e. overt observation and covert observation.

Overt Observation

When the observer enters in a situation and starts noting down about the phenomenon, the procedure is called overt observation. In this technique observer makes no effort to hide his or her intentions. The subject is aware of the observer, who may use checklists, rating scales and other devices for keeping the systematic records of the behaviour.

Overt observation has the advantage of offering direct access to the subjects; but it can contaminate the whole research also.

Covert Observation

In order to assure that the subjects behave naturally, the investigator's purpose might be concealed, it is known as covert observation.

In this approach the subjects do not know that they are being observed. The investigator proceeds in an unobtrusive manner. The aim may be difficult to achieve but not impossible. Observation of children's playing behaviour can also be studied with the help of one-way mirror technique. The basic idea of this technique is to observe the behaviour without influencing it.

Covert observation has other limitations. Due to lacking close contact with the subjects the investigator may miss important events; or discover through later scrutiny of recorded observation that some events or aspects of behaviour have not been recorded properly.

So the observation, whether overt or covert, has its drawbacks and depends upon the specific situation.

Advantages

- Naturalistic observation of people can also be revealing. It provides large amount of rich information.
- Naturalistic observation has proven to be useful for providing descriptions of actual behaviour in the real world.
- It is the best technique in cases where ethical consideration may prevent the scientist from creating the phenomenon in the laboratory, for example, scientists can never create a situation like war, riots, or any other tragedy to investigate such behavioural phenomenon.
- Psychologists have to observe, record and try to understand the events as they occur naturally.
- This method describes what is happening. Naturalistic observation is a good beginning and highly appropriate for a new area of research. It is relatively simple, natural and straight forward method of investigation.

- There are certain aspects of human behaviour that moral and ethical considerations, prevent us from controlling.
- Therefore, naturalistic observation method is utilized where manipulation of human behaviour is impossible.

Limitations

- Naturalistic observation prevents researchers to make changes in a situation, so they have to wait for a long time until appropriate conditions occur.
- This method cannot explain the behaviour.
- If people know that they are being watched, they may alter their reactions which may make their behaviour as untrue representative. When people know that they are being observed, they tend to act differently than they otherwise would.
- Observation can also be distorted if observer expects to see certain behaviours.
- Observation would tell us something, but they might not make all of the effective variables entirely clear.
- A potential problem is observer's bias. It occurs when one's motives, expectation or experiences interfere with the objectivity of the observations being made. It might be very difficult for a researcher to be objective while observing.
- Another problem which is quite difficult to deal with, is that the behaviour which the researcher wants to observe may not be there. For example, if one wants to observe conformity in social situations, where he has to go? That's why naturalistic observation cannot be employed, on each and every situation.
- Nature is so complex that naturalistic observation typically does not yield an in depth understanding of any phenomenon. As natural conditions cannot be altered so other techniques may be utilized for detailed information.

Recommendations

This method is used on a large scale; its limitations are tried to overcome. To avoid the risk of subject's altered behaviour, researchers typically combat this problem by observing long enough for subjects to get used to situation and begin behaving more naturally.

Another technique which enhances the reliability of results is to use no special categories for observation at the outset. The investigator should record the event as much as possible. As research progresses, certain factors become prominent and the observer may be more selective. Special procedures may be used for testing simple hypothesis in this setting.

Researchers have different opinion that how much behaviour be noted. Careful training of observer is essential and investigator must try to record the event as broadly as possible.

William James recognized these difficulties and stated that no rules could be established in advance for naturalistic observation.

CORRELATIONAL RESEARCH

Testing, interviewing, surveying and sometimes naturalistic observation are often combined under the general heading of a correlational approach to psychological issue. In general, this approach is used to discover the degree of relationship between two or more variables.

Correlation is a statistical measure of relationship. It reveals how closely two things vary together and, thus, how well one predicts the other. Correlational research assesses the relationships among naturally occurring variables with the goal of identifying predictive relationship. These predictive relationships allow the researcher to make predictions about the future behaviour.

A correlation exists when two different measures of the same people, events or things vary together, that means score on one variable co-vary with scores of another variable. A familiar correlation is the predictive relationship between smoking and lung diseases. The size of correlation coefficient indicates the strength of the predictive relationship; knowing how IQ level correlates with college grades, tells us how accurately we can predict college grades from IQ score.

Correlation coefficient ranges in size from -1.0 to 0.0 (negative correlations) and from 0.0 to 1.0 (positive correlation). A value of zero indicates that there is no correlation and there is no basis for making predictions e.g. the relationship between blood group and IQ exhibits a zero correlation. It indicates that we can't predict about a person's IQ on the basis of blood group and vice versa.

The closer correlation coefficient is to 1.0 to -1.0, stronger the relationship between two variables. Thus larger correlation indicates a *direct* relationship, meaning that two things increase together or decrease together.

A negative correlation is equally predictive, that indicates an inverse relationship i.e. one variable increases, the other decreases. For example, it was indicated by a research that people who score low on self esteem scale tend to score high on depression scale i.e. negative correlation. It is important that the sign of the correlation signifies *only* its direction. Correlations are the primary tools used in science to achieve the important goal of prediction.

So correlation enables us to predict but only correlation does *not* prove causation. Correlation does not provide explanation. Knowing that two events are correlated will not tell us anything about causation. For example, the study which indicates negative correlation between depression and low self esteem, does not predict that low self esteem as the cause of depression.

Perhaps depression causes people to be down on themselves or depression and low self-esteem are causally un-related, both might



be caused by some underlying third factor, such as distressing events or a biological predisposition. So correlation does not imply causation.

OBSERVATION WITH INTERVENTION

Most psychological researches use observation with intervention. Psychologists like to intervene and observe its effects. Types of intervention employed by psychologists are numerous and diverse.

Reasons of Intervention

- To participate or cause an event that occurs infrequently in nature, or in some cases, when it occurs it becomes difficult to observe.
- To investigate the limits of an individual's response, by varying systematically the qualities of a stimulus event.
- To gain access to a situation or event that is generally not open to scientific observation.
- To arrange conditions so that important antecedent events are controlled and consequent behaviours can be readily observed.
- To establish a comparison by manipulating one or more independent variable, so their effect or behaviour can be determined.

FIELD STUDY METHOD

Field experiment is a sub type of observation with intervention. When, an observer manipulates one or more independent variables in a natural setting in order to determine their effect on behaviour, the procedure is called a field experiment.

It represents the most extreme form of intervention in observational methods. The basic difference between field experiments and other observational methods is that researcher exerts more control in field experiments. Researchers typically manipulate an independent variable to create two or more conditions, and they measure the effect of the independent variable on behaviour.

Field study method is frequently used in social psychology. Confederates are used in field study experiments also. A confederate is someone in the research situation who is instructed to behave in a certain way, in order to create a situation for observing behaviour. In short Field experiments can yield valuable practical knowledge.

Participant Observation

This procedure is used when the investigator can so disguise himself as to be accepted as a member of the group. e.g. One observer may mingle as a labourer with other labourers or work as a porter in a shop.

In participant observation observer plays a dual role. They observe people's behaviour and participate actively in the situation. In this way

subjects do not know that they are being observed. This quality makes the technique very effective.

It is quite clear that people do not behave as they do in routine, when they know that their behaviour is being recorded. For example, politicians often make different statements when talking to the press, depending on whether their comments are "off the record" or otherwise. Every individual's behaviour is affected by knowing that he is being watched. It can be noted everywhere; while sitting in a class, office, restaurants or in park etc.

But disguised participant observation raises ethical issues which must be settled before the study.

Advantages ✓

- Participant observation allows an observer to gain access to a situation that is not usually open to scientific observation.
- Participant observer is often in a position to have the same experience as the people under study. This experience may provide important insights and understanding of individuals or groups.

Disadvantages ✓

- As participant observers are involved in the situation, their objective reporting is also effected due to their involvement. The more they involve the more their reporting is at risk.
- When observer becomes a participant, he narrows his range of experience. He takes particular position in a group. He learns and follows the pattern of activity which is the characteristics of its members, thus becomes less able to find out what the individuals are doing.
- When the observer participates emotionally he comes to loose the objectivity which is his greatest asset. He may react in anger instead of recording, may take their behaviour mode as natural, so may fail to record all the details.
- In participant observation quality of control is not up to mark.

Non-participant observation can cover some of the above mentioned problems. But to control each and every step is quite difficult.

Non Participant Observation

In this technique the observer does not want to be a part of that situation which is to be observed. He remains indifferent and records the target behaviour or situation with audio-visual aids.

Sometimes the subjects are aware that they are being observed and sometime not. As noted, some social situations can't be observed properly when observer becomes the participant, for example harvesting crops, the ceremonies, tribal rituals or other cultural occasions. Therefore non-participant observation makes the task easier.



Concluding Remarks on Observational Methods

Observational methods differ in the degree of intervention made by observer. These methods also differ in the manner in which behaviour is recorded.

Important feature to be noted is the segment of behaviour which is observed and the situation from where it is recorded.

Sometimes observers want a comprehensive description of behaviour and at other time they focus on only segment of behaviours or events. It all depends on the purpose of the study and the researcher's goal, that how, what and when is observed. Researchers ultimately choose and determine how they summarize, analyze and report about the observed data.

It creates observer's bias which may be reduced by keeping the observer unaware of the goal and hypothesis of study; because expectancy effect can occur when observers are aware of hypothesis for the outcome of the study.

INTERVIEW METHOD

Direct and face to face conversation of subject and researcher is called interview. For study the behaviour and mental processes of individuals; psychologists select different techniques according to the person and purpose of study. As there are varieties of individuals, psychologists have variety of techniques to study the behaviour and mental processes of them. Interview is also one of those techniques which are adopted to collect information about some person. It is also used to know about the opinion of different persons.

Interview method is based on questions but the question-answer session is held in face to face situation. Purpose of interview may be different for different persons. The questions which are asked during the interview also differentiate its types.

The interview is not simply a conversation. In order to be successful, it must have all the warmth and personality exchange of a conversation, with the clarity and guidelines of scientific searching.

Rapport It is an essential part; actually rapport is an excellent interview tool. Establishing rapport is very important element in interviewing. Good interviewer will not violate the rapport in order to probe some questions. Rapport is a state which exists between interviewer and respondents, when the respondent has accepted the research goals of the interviewer, and actively seeks to help him in obtaining the necessary information.

Goal

Goal of the interviewer is to obtain information from the respondent; he must concentrate upon the respondent. The interviewer treats the subjects as a person, giving him a sympathetic hearing.

In clinical method, interview is used as a fundamental technique. Clinical interview is a conversation between the therapist and the client. The goal of this interview is the diagnosis or treatment. Traditionally, the interviewer and interviewee express ideas and opinions, usually sitting on a discussion table. Typically the interviewer asks a number of questions and the subject responds in various ways, sometimes by asking questions in return.

Interview technique is used for research, therapy or combination of these purposes. The chief advantage is that it allows the investigator to go beyond the information collected from a survey, probing for reasons that lie behind the subject during the process of responding.

In social research, different types of interviews are used; they may vary from extremely lengthy and intensive interviews, for probing into the most intimate aspects of the respondent's life, to the voting poll which requires minimum information.

Psychoanalytic interview, which is prescribed by Sigmund Freud, is also widely used.

Types of Interviews ✓

Interview can also be highly structured or unstructured.

Structured Interview ✓

Interviews which are structured consist of a series of items to which the individual is asked to respond i.e. like psychological tests.

A structured interview is more often used to collect data from a group of people that will lead to general conclusions about that population, rather than to do an intensive study of a single individual.

In structured interview number of questions, orders of questions are strictly followed; same instructions, same time limit is given to all subjects as it is determined before hand. Responses are also recorded and interpreted in same manner.

In structured interview questions can be open ended as well as close ended. Both types of question have their own merits and demerits; it is the skill of the interviewer that determines the type of questions according to the demand of situation. Structured interview is rarely used in personality assessment, because a lot of self report inventories along with projective techniques are easily available for personality assessment.

Unstructured Interview ✓

A psychological interview used for case study is usually free-floating and unstructured.

Questions to be asked are not properly formed. In these techniques, subject is asked informally about his attitudes, likings, preferences, prejudices, sentiments, feelings, interests and hobbies etc. This technique has

broad margin, because subject can be asked additional questions about any aspect if required.

If interviewer wants to verify any information, he can use probing technique. Body language of the subject can also be noted which becomes helpful to verify the information. Like the format of questions which is quiet flexible, the time limits is also not followed strictly. That's why interviewer can easily grasp the situation. It has the advantage to build the rapport.

This technique can be applied in panel interview, for selection of staff or admission purpose also.

Purpose of Interview ✓

Interview can be different according to its purpose. Purpose of interview can be therapeutic, investigative or just assessment.

Therapeutic Interview ✓

This type of interview is used in clinical psychology. Therapeutic interview is applied in case history method. Clinical psychologists want to diagnose the patient before applying any therapy. This therapeutic session is not limited to a single session, it may take many sessions.

Investigative Interview ✓

When question answer session is held to investigate some matter, it is called investigative interview. Higher officials adopt this method to check the performance of their subordinates. Inquiry committees also conduct the investigative interview to complete their inquiry.

Assessment Interview

Assessment is the actual purpose of interview. This assessment can be for promotion, selection, treatment or comprehensive study of the subject. This type of interview is supplemented with personality tests.

Critical Analysis

Interview method is basically used to assess the personality; purpose of assessment can be different. It gives detailed information but it is considered a subjective technique.

Skill of interviewer makes the interview reliable; otherwise untrained interviewers cannot grasp the information. Moreover, interview technique becomes tedious and tiresome when we have to interview a large group.

Analysis and interpretation of information become more difficult when subjects are asked large number of questions in open-ended form. Personal bias may affect the process and results of interview. Anyhow interview method gives extensive information, if used skillfully. It is the only method where contradiction on the part of subject can be checked then and there.

As the subject is also under observation, so non-verbal behaviour can also be recorded, which is quite helpful. The information can be verified by other techniques of data collection.

CASE HISTORY METHOD OR CLINICAL METHOD

A scientific biography of a selected individual is called a case study. It is a way to capture the richness and uniqueness of a human personality. The data may come from many sources, such as individuals own recollections, the researcher's observations, interviews with others who know the person and any available information from psychological tests. Case study is an in-depth, intensive investigation of an individual.

Case studies frequently make use of qualitative data. Researchers obtain their data from several sources including naturalistic observation, interviews and psychological tests.

Observations are often an important part of a case study, which is an intensive examination of a phenomenon in a particular individual, group or situation. Case studies often combine observations, tests, interviews, and analysis of written records. Case studies are especially useful when a phenomenon is new, complex or relatively rare. Case study is a detailed statement of the most relevant back ground and current factors in an individual's life.

Retrospective It is the study of one person from a retrospective viewpoint, emphasizing family life, schooling, work history, personal relationships and so on. A psychologist, social worker or physician assembles all information that may be useful in understanding a troubled individual. As it is retrospective method, which means that we start with some given situation that exists today and go back in time to see if there is any relationship between today's state of affairs and previous experiences or events.

This information is used in diagnosis and treatment and its preparation requires the work of well trained persons (Schwartz, 1974). Case history method usually involves an intense and detailed examination of a wide range of issue.

Clinical Method This method is considered as clinical method. It means that psychological activities are carried out in a clinic, hospital, school, or comparable setting for that purpose of helping someone deal with personal problems. This work involves diagnosis and treatment of mal-adjustment in a specific individual. This method increases understanding of humanity in general.

A case study frequently describes the application and results of a particular treatment. For example, a clinical report of a case study may describe individuals symptoms the methods used to understand and treat the symptoms and evidence for the treatments effectiveness. Thus, case studies provide a potentially rich source of information about individual.

Importance

This method has been used by child psychologists, memory researchers and animal behaviourists as well as by researchers in fields such as anthropology, criminology, neurology and sociology.

- § In actual practice, the form and content of case studies are extremely varied.
- § Many aspects of the case study method make it a unique means of studying behaviour.
- § It differs from other experimental approaches in terms of its goals, the methods used and the type of information obtained.
- § The case study method is exploratory in nature and is interrelated as well as complementary to other research methods in psychology. (Kazdin, 1998).
- § Case studies have a long tradition in clinical work. Freud's development of psychoanalysis was based on such case studies whose paralysis or other symptoms disappeared when they were hypnotized.
- § Case studies have also played a special role in neuropsychology. The study of the relationship among brain activity, thinking and behaviour is highly benefited by this method.
- § Case studies can provide valuable raw material for further research. They can also be vital source of information about particular people.
- § Case studies serve as the testing ground for new treatments, training programs and other applications of research.
- § Case studies provide new ideas and hypothesis opportunities to develop new clinical techniques and a chance to study rare phenomenon.
- § Scientific theories can be challenged when the behaviour of single case contradict theoretical principles of claim; theories can receive tentative support using evidence from case studies.

Draw Backs

- § Case studies and naturalistic observation techniques suffer a major drawback, while they provide information about relationships among psychological variables; they do not allow for a determination of direct or cause and effect relationships. For example, a case study of psychologically disturbed person might reveal a difficult childhood, but this does not mean that unhappy early experiences necessarily lead to abnormal behaviour. Any number of other behaviours might also be involved.
- § Researchers are usually unable to make valid causal inferences using the case study method, because extraneous variables are not controlled and several treatments may be applied simultaneously in case studies.
- § Observer bias in data collection can lead to incorrect interpretation of case studies outcomes.

Whether results from a case study may be generalized or not; depends on the variability within the population, from which the case was selected. Some characteristics vary more across individuals than others.

EXPERIMENTAL METHOD

The establishment of direct, cause effect relationships requires a different method of investigation, namely the "experimental method". Experiment is a study carried out to investigate the relationship between two or more factors by deliberately producing a change in one factor and observing the effect that change has upon other factors.

Experiments are intended to discover cause and effect relationships. Experimenter manipulates one variable to see if that causes change in another variable. Many psychologists rely more on experimental method who are interested in determining causes of behaviour i.e. why people do what they do.

An experiment is a carefully regulated procedure in which one or more factors, believed to influence the behaviour being studied, are manipulated while other factors are held constant. So purposely some variables or factors are manipulated in order to observe the consequences.

Purpose

Essential purpose of experimental method is to discover what leads to what; research problems are controlled in one way or the other; thereby permitting more successful study of cause and effect relationships. For this reason experimental research is often considered to stand for most among the various methods in psychology. In addition to observing, experimental psychologists attempt to manipulate and control their subject matter also.

They bring the phenomenon at issue into the laboratory, where condition of interest can be manipulated with precise equipment and procedures, and where all extraneous and distracting variables can be ruled out. Experimental psychologists examine the phenomenon under certain conditions.

Steps of Experimental Method

1. Formulation of Problem
2. Hypothesis and Variables
3. Experimental Design
4. Experimental and Control Group
5. Controlled Conditions
6. Apparatus
7. Analysis of Results

Detail of each step is given below.

1. Formulation of Problem

In experimental method, a simplified version of the problem is constructed for investigation in the laboratory. Formulation of problem explains the purpose of experiment. Problem statement of an experiment clarifies the limits and boundaries of study, as well as helps in the following steps of experimental method.

2. Hypothesis

After the formulation of problem statement, the assumed solutions which may come to mind are considered hypothesis. Hypothesis is the prediction that a variable being manipulated will have some effect on the behaviour being measured.

When it becomes clear what the problem statement is the possible solutions are drawn. These possible solutions are called hypothesis. At this stage it is not clear that hypothesis will be supported or rejected. It is the hypothesis which is actually tested during the experiment.

Variables Experimental method is described in terms of variables. A variable is simply something that can vary or variable is a measurable event that can take on different values.

A variable is any changeable element or event that can be manipulated or studied. Psychologists often speak of three types of variable S-R-O.

A variable that initiates some activity is known as a stimulus (S) and the resulting activity or consequent event is called response (R). Aspect of the subject or organism is known as (O) variables. In research stimuli are known as S-variables and responses as R-variables.

Other than S-R-O division, variables are discussed and classified as independent, dependent and extraneous variables. During the experiment variables are treated according to their position, whether dependent or independent.

Independent Variables The events or conditions that an experimenter manipulates are called independent variables. Experimenter determines which variable is to be manipulated, that variable is referred to as an independent variable. Independent variable is manipulated according to the purpose and basic question of the study. If the experimenter wants to know the effect of noise on sleep, noise will be labelled as independent variable which can be increased or decreased.

When observations of a subject's performance are taken within the laboratory, psychologists try their best to hold most variables constant (that might affect performance) except the independent variable. Independent variable is also known as variable of interest.

Dependent Variables Events or conditions, that the experimenter measures are called dependent variables. After introducing some independent variables, the experimenter observes and measures the subject's response, which is named as independent variable, because its presence, absence or degree of intensity seems to depend on the independent variable.

Experimenter measures subject's performance to find out whether it is changed in any way by the difference in the independent variable. The measure of performance is called dependent variable.

Extraneous Variables Extraneous means not essential or irrelevant. Those factors that can affect the relation between independent and dependent variable are known as extraneous or intervening variables.

There can be two types of intervening variables; *internal* variables and *external* variables. Internal variables are related to subject's personal or internal factors. Hunger, thirst, mental states, personality traits, age, past experiences, intelligence and social status etc are considered internal variables as they can affect the subject's response.

External variables are actually the environmental factors, as they can also affect the subject's response e.g. temperature of lab, light, noise, etc.

During the experiment, experimenter tries his best to control all types of variables. One manipulates independent variables, measures dependent variables and eliminates or controls the effect of extraneous variable.

3. Experimental Design

The overall plan for different conditions and treatments is called the experimental design. It involves the choice of variables, subjects and apparatus but no issue is more important than the control. The reason is that extraneous variables can influence the outcome of the study that can create an interpretable result.

Experimental design is the pattern of experimentation. How the experiment will be conducted, it is determined according to the experimental design. Actually it is the blueprint of experiment. Experimental designs can be of different types such as;

- ✓ Randomized Group Design
- ✓ Match Subject Design
- ✓ Before After Research Design
- ✓ After only Research Design
- ✓ Factorial Design

4. Experimental and Control Group

This step is related to the selection of subjects as they are assigned to experimental or control group according to the demand of experimental design.



The simplest and most common experimental design involves two groups, the experimental and control. Subjects are selected for various groups in an unbiased manner. Two groups may be formed from pair of subjects which are matched in their respects called matched groups. Identical twins can also be used as they have the same heredity. But for the study of acquired characteristics matched group or random assignment is considered effective. Selection of subjects is an important aspect of experimental control.

Individual differences cannot be controlled in the same way as other variables in laboratory situation can be controlled, so experimenters try their best to equalize the groups.

Following steps can also be helpful.

- i. We should select all subjects randomly from the population to which we want to generalize the results.
- ii. Subjects must be assigned randomly to various experimental conditions.
- iii. Large number of subjects must be used to each group to average out random variations and all possible precautions should be taken to avoid biasing subjects in any way.

While assigning of subjects it is assumed that extraneous variables are controlled or evenly distributed by the random assignment.

When random assignment is impossible because the investigator does not know which variables should be matched or the size of sample, become prohibitive, the usual recourse is matching.

Single blind or double blind techniques can be used to rule out the experimenter's bias or the participant bias.

Control Group The control group provides a baseline against which to compare the experimental group. Subjects who do not receive some treatment are called control group. Many experiments failed because the experimenter did not run an appropriate control group.

Experimental Group The subjects who receive some treatment make up the experimental group. As in experiment effect of independent variable is studied, that variable is applied on or introduced only to experimental group. This is the reason these subjects are called experimental group. In experiments there may be a single subject or may have several experimental groups.

5. Controlled Conditions

In the experiments subjects are studied under two different circumstances. The first one is the experimental condition, in which the independent variable is present. The second one is the control condition in which the independent variable is absent. The investigator then assesses influence of the independent variable by comparing the outcomes under these two conditions, which are alike in all important aspects except for the independent variable.

Since unwanted influence should occur equally in both conditions, any difference in subject's response must be due to the influence of the experimental or the independent variables.

The purpose of control is to provide a clear indication of the effect of the independent variable or the dependent variable. The value of an experimental finding depends on the researcher's ability to eliminate or control the influence of extraneous variables. Past experience of the subjects are considered the most difficult extraneous variables to deal with. Common practice in an experiment is to manipulate the independent variable, while keeping control on all other factors. Higher the control better will be the experiment.

6. Apparatus

In experimental method apparatus is also used to test the hypothesis. Apparatus is selected according to the nature of experiment. Stop watch, Maze learning apparatus, Galton's Questionnaire, T.A.T. cards, Star pattern, Muller Layer Card, Mirror drawing apparatus, Exposure board, Colour mixer or Perimeter etc all constitute the apparatus used in laboratory.

7. Analysis of Results

It is the last step of experiment. Information or data recorded during the experiment is arranged and analyzed. Different statistical techniques are used to interpret the data. After compiling the result, it is noted that hypothesis is supported or not. Status of hypothesis becomes clear after the analysis of results.

Advantages

- The key advantage of the experimental method is that it allows for direct cause effect conclusions from the data.
- If all of the variables have been properly controlled and it is observed that the independent variable affect the dependent variable, the experimenter can conclude that the relationship is causal.
- Experimental method is a chief means to find out what causes what.
- It is the only technique available that allows us to determine the causes of behaviour.
- It is the experimental method by which psychology claims to be a science.
- Experimental method enables the researcher to predict about human behaviour.
- This method can be applied on animals also. Pavlov, Thorndike and Skinner are some of those who conducted experiments on animals.



Limitations

There are many behavioural situations in which it cannot be employed.

Many experiments that would in fact reveal important causes of behaviour are impossible for ethical, moral, religious, financial or other reasons. In such cases we have to rely on information gained from non-experimental methods such as the correlation approach.

SURVEY METHOD *Not include in syllabus*

A survey is an investigation of the ideas, attitudes and other responses of a large number of people. Usually they answer a series of questions by mail, telephone or interview.

Origin The origin of this method is usually credited to *Charles Darwin* and his cousin *Francis Galton*, known for his discoveries in anthropology, sensory psychology and statistics.

Survey falls somewhere between structured interviews and psychological tests. Survey consists of a series of questions to which individuals are asked to respond. The purpose of this interview is to determine general opinions, attitudes or feelings on a specific issue.

Surveys represent important research method. In survey research, people chosen to represent some larger population are asked a series of questions about their behaviour, thoughts and attitudes. Survey research is a useful technique. Psychologists, sociologists, political scientists, market researchers, magazine editors and others use surveys to gain information about people's thoughts and feelings.

The result of a survey is often used to describe people's opinions, attitudes and preferences. Survey results are also used to make predictions about people's behaviour. For example, the result of pre-election poll describes voter's preferences. Market survey can predict about consumer behaviour etc.

Characteristics of Survey

Survey research studies large and small populations by selecting and studying samples chosen from the populations to discover the relative incidence, distributions and inter relations of sociological and psychological variables. It involves, selecting a sample and using a predetermined set of questions. The researcher is interested in the accurate assessment of the characteristics of whole population.

Though they differ in how they are used, all surveys share some common characteristics that make properly conducted surveys an excellent method for describing people's attitudes and opinions. Survey research on people, the vital facts of people and their beliefs, opinions, attitudes, motivations and behaviour.

Two types of design are used in survey i.e. cross-sectional design and longitudinal one.

The cross-sectional design is one of the most commonly used techniques. In a cross sectional design, one or more samples are drawn from the population at one time. Its focus is description. It describes the characteristics of a population at a particular point in time.

In a longitudinal design the same respondents are surveyed overtime in order to examine changes in individual respondents. The longitudinal design has two important advantages. First the investigator can determine the direction and second the extent of change for individual respondents. But the major problem with this design is that it can be difficult to obtain a sample of respondents who will agree to participate in longitudinal study, as it means a long term commitment.

Steps in Survey Method

1. Formulation of Problem
2. Population and Sampling
3. Tools of Survey
4. Data Collection
5. Data Analysis
6. Results

Now steps will be discussed in detail.

1. Formulation of Problem

To select accurate topic for survey is basically very important. After the selection of topic or formulation of problem statement, the purpose of survey must be explained.

Purpose of survey indicates what is the objective of research? What researcher will do after collecting the information?

If the topic is related to social issues such as poverty, drug addiction, unemployment, their causes, effect or remedies can be discussed and suggestions may be formulated for higher and concerned authorities. It may indicate that how people can get rid of those problems and, at least, they become aware how to control or combat those issues.

Hypothesis When problem statement is formulated, then solution of problem is proposed which is named as hypothesis. Hypothesis is considered as proposed solution of the problem. When researcher collects information about his topic or target problem, he may formulate many hypotheses. To explain the hypothesis, operational definitions of variables, consisting of hypothesis, are made. In some studies hypothesis can be the problem statement. After defining the topic and hypothesis, it becomes clear where to take the sample.

2. Population and Sampling

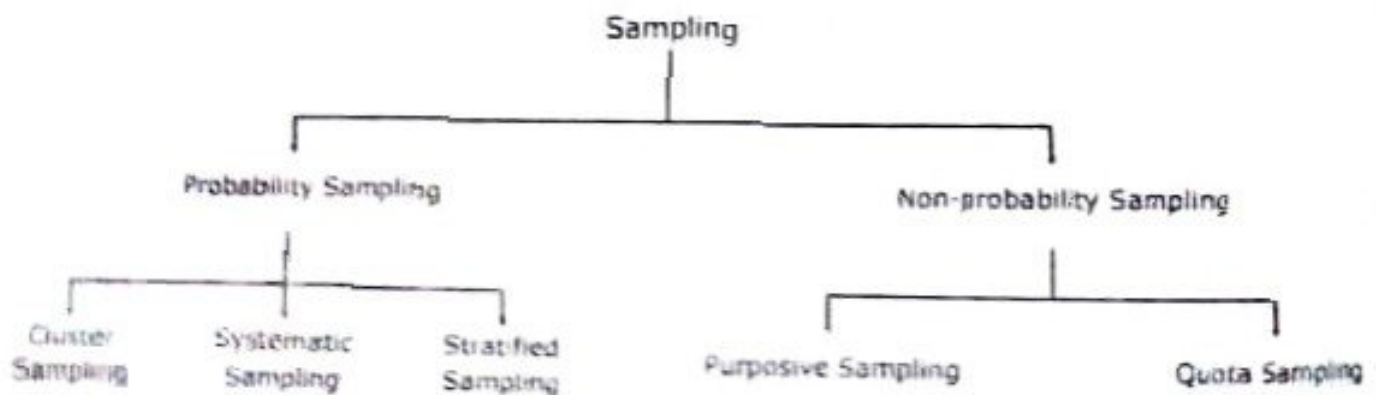
A most critical issue in the survey method is the identification of subjects to whom the instrument will be administered or questions will be asked. These people are typically called a sample, which means a group of subjects drawn from some larger group. This larger group is known as the population that includes all the people, objects or events of a particular class.

When any sample accurately reflects the characteristics of a certain population, it is called a representative sample. Surveys generally involve sampling. Careful selection of a survey sample allows researchers to generalize findings from the sample to the population. Sample is chosen from the sampling frame. The ability to generalize from a sample to the population depends critically on the representativeness of the sample. A biased sample will affect the results; so sample should be free of any bias. If the characteristics of the sample are systematically different from the characteristics of the population, that is considered as bias sample.

Individuals in a population differ in many ways and in turn, populations differ from each other.

Sampling Types *Not include*

Two major types of samples can be drawn i.e. probability and non-probability sampling.



Probability and Non-probability Sampling

Sampling methods may be classified into two types, Probability sampling and Non-probability sampling. When each element in the population (universe) has a known probability of its being included in the sample, the sampling is said to be probability sampling. Simple Random sampling, Stratified random sampling, Systematic sampling, etc. are the important examples of probability sampling.

In non-probability sampling, the selection of the elements is not based on probability theory but the personal judgment plays a significant role in the selection of the sample. The examples of non-probability sampling are the Judgment or Purposive sampling, Quota sampling, etc.

Stratified Random Sampling

Sometimes, a population contains highly variable material and a simple random sample fails to adequately represent the population. The population is then divided into a number of mutually exclusive groups of units in such a way that the units within each group are as similar as possible.

This process of dividing the population is called stratification, the groups are called strata. Simple random samples from each of the strata are then selected and combined into a single sample. This technique is called the Stratified random sampling.

systematic Sampling

This is a technique in which samples are drawn according to some pre-determined pattern. The units are selected by the equally spaced interval, known as sampling interval. Strictly speaking, this technique is not truly random, because the subsequent units are pre-selected by the constant sampling interval.

Cluster Sampling

This is a process of sampling in which the sampling units are to be found in "groups" of individuals. These groups are known as clusters. Each cluster is treated as a single unit in the selection process. A sample of clusters is selected at random. Sometimes, the clusters relate to geographical regions, then the sampling is known as area sampling.

Non-probability Sampling

A non-probability sample is also called a judgment sample as the personal judgment plays a significant part in the selection of the sample. The two commonly used types of judgment sampling are the Purposive sampling and the Quota sampling. They are briefly described below.

Purposive Sampling

This is a technique in which the selection of a sample is made by some purposive method. Here the investigator may give rein to his inclinations in selecting a sample.

Quota Sampling

A Quota sample is a type of non-probability or judgment sample in which the informations collected from the specified number of individuals, i.e., the quotas of the population, e.g. the quotas of old and young; urban and rural; upper, middle and lower income group, etc. Quota sampling, being a very quick form of investigation, is widely used in public opinion polls and market research survey.

3. Tools of Survey

To collect information about the problem under study different tools can be utilized. It can be the questionnaire or any other prescribed test or scale. Main task is to translate the research question into an interview or any other instrument constructed for the survey.

Selection of tool is determined according to the nature of sample. If the sample consists of illiterate persons the interview schedule or performance tests may be recommended.

Questionnaire

For a good tool of survey, questionnaire must be flawless and according to the problem under study.

In general the word questionnaire refers to a device for securing answers to questions by using a form which the respondents fill in by themselves. But when a questionnaire is asked and filled in by the interviewer in a face to face situation with subject, it is called interview schedule.

Construction of a Questionnaire Constructing a questionnaire involves deciding what information should be sought, and the type of questionnaire, writing a draft of questionnaire, pre-testing the questionnaire and concluding with specifying the procedure for its use. The wording of questionnaire should be clear and specific using simple, direct and familiar vocabulary.

The order in which questions are asked on a questionnaire needs to be considered seriously, because the order can affect respondents answer.

Usually two general types of questions are chosen.

Structured items (close ended). Unstructured items (open ended).

In open-ended items the subject is more likely to tell what is more important to him/her. Close-ended items may be more difficult to construct, but they are more readily scored. Open ended items can be prepared easily but not the scoring.

Some types of questions are automatically structured because of the categories of answer e.g. when subject is asked married, divorced, single etc.

Monthly income; 5,000-10,000 10,000-15,000 15,000-20,000 15,000-25,000

Education Metric, F.A, B.A, M.A

Number of sibling 0, 1, 2, 3, 4, 5, 6, etc.

Likewise many questions cannot be structured easily; it happens when responses to the item cannot be anticipated in detail e.g.

Due to which factors a young person should join the Party Politics?

A questionnaire must be limited in its length and scope. In general an interview should not extend much beyond half an hour. Likewise a self-administered questionnaire should not require more than 30 minutes to complete, and even shorter period is desirable.

Before formulation of a questionnaire, it is the moral obligation of researcher to learn as much as possible about the subject matter. Moreover, every item of questionnaire must be logically related to the central problem.

Researcher should also consult his colleagues and friends to get their thinking on his problem. Related literature may also be consulted. After taking all these steps a big item pool may be constructed, then each item must be judged carefully upon its own merit.

Order of questions must be observed carefully. Introducing items must be attention catching. The beginning should have the power to evoke interest, without arousing strong controversial response simpler items should be placed first and with holding the more complex one.

Respondents should never be asked to give an answer which could be embarrassing. All questions should be in logical order; respondents should be brought as smoothly as possible from one frame of reference to another.

Pilot Study: After the formulation of questionnaire pilot study or pre-test helps the researcher to remove the mistakes. If questionnaire is poorly constructed then results of survey will become useless. A questionnaire must yield reliable and valid measures of demographic variables and of individual differences on self-report scale.

4. Data Collection

Different methods can be adopted for the data collection e.g. questionnaire method, interview method including personal interviews and telephone interview. Mail survey method is also utilized.

Mail Survey

Mail surveys are used to distribute self-administered questionnaires that respondents fill out on their own.

Advantages

- ☛ One advantage of mail surveys is that they usually can be completed quickly.
- ☛ They are the best for dealing with highly personal or embarrassing topics, especially when anonymity of respondents is preserved.
- ☛ Mailed questionnaires have been very useful in social research.
- ☛ It is useful for highly selective respondents with a strong interest in the subject matter and with greater education.
- ☛ When respondents are widely widespread geographically it seems very useful.

Disadvantages

- ☛ This data collection technique has some disadvantages also.
- ☛ As the respondents are not able to ask questions, the questionnaire must be self-explanatory.



- Researcher has less control over the order in which the respondents answer the questions.
- Respondent's bias is also a serious problem with mail surveys.
- Low response rate, whether failure to complete or failure to return the survey, is major problem in mail surveys.
- Cost of mailing, waiting time and degree of response must be carefully considered.
- Mail questionnaires have serious defects that include possible lack of response and the inability to check the responses given. Responses to mail questionnaires are generally poor. As a result of low returns, valid generalizations cannot be made.

To choose between interview schedules or mail the questionnaire is highly important; their relative advantage for the purpose and conditions of the project must be considered.

The best advice would be to avoid mail questionnaire if a better method can possibly be used. In this method, every effort should be made to obtain returns of at least 80 to 90 percent or more. Then its results can be reliable.

Interview Schedule

When personal interviews are used to collect survey data, respondents are usually contacted in their homes or in a shopping mall. Trained interviewers administer the questionnaire. The personal interview allows greater flexibility in asking questions than does the mail survey.

In a personal interview the respondent can obtain clarification, when questions are unclear and the trained interviewer can follow up incomplete or ambiguous answers to open ended questions. Interviewers are oriented, trained and sent out with complete instructions as to whom to interview and how the interview is to be handled.

The interviewer controls the order of questions and can ensure that all respondents complete the questions in the same order.

The personal interview can be very helpful in learning a respondent's own estimate of his reasons for doing or believing something. When asked reasons for his actions, intentions or attitudes, a person may say he has done something, intends to do something, or feels a certain way about something. He may specify the details.

A significant disadvantage of conducting personal interviews is the cost. The use of trained interviewers is expensive in terms of both money and time. Potential for interviewer bias is most critical disadvantage in this technique. Interviewer bias occurs when the interviewer records only selected portions of the respondent's answers or tries to adjust the wording of a question to fit the respondent.

Telephone Interviews

For brief surveys telephone interviews have become the method of choice. Telephone interviewing also provide better access to dangerous neighbourhood, locked buildings and respondents available only during evening hours.

Telephone surveys have little to recommend them beyond speed and low cost; especially when the interviewer is unknown to the respondents. They are limited by possible non-response, un-cooperativeness and by reluctance to answer more than simple, superficial questions.

This technique also has some drawbacks. It is a matter of question that how long respondents are willing to stay on the phone and individuals may respond differently when talking on phone. Many people are less willing to be interviewed. Sometimes it becomes difficult to approach the people because options have made it easier for people to avoid unwanted calls.

5. Data Analysis

After data collection, next comes the step of data analysis. For this the responses to questions are coded and tabulated.

Coding is the term used to describe the translation of questions, responses and respondent information to specific categories for analysis purpose.

Tabulation is simply the recording of the numbers of types of responses in the appropriate categories, after which statistical analysis follows; percentages, averages, relational indices and appropriate tests of significance.

The analysis of data are studied, collated, assimilated and interpreted. Finally the results are reported. Data can be analyzed by computer. SPSS is commonly used in this regard.

6. Results

After the analysis results become clear whether hypothesis are supported or not. After formulation of the results, concluding note or suggestions are also written that how this survey can be improved.

Uses of Survey Method

- ▶ Survey research is used to assess people's thoughts, opinions and feelings.
- ▶ Surveys can be specific and limited in scope or more global in their goals.
- ▶ The best way to determine whether results of a survey are biased is to examine the survey procedure and analysis.
- ▶ Social scientists, psychologists and sociologists use surveys in their research for a variety of reasons.

- Surveys are also used to meet the more pragmatic needs of the media, political candidates, public health officials, professional organizations and advertising and marketing directors.
- Survey method has become so sophisticated that even using a very small sample is sufficient to infer, with great accuracy, how a large group would respond. The important thing is that sample should be chosen with care.
- Survey research is applicable in all social sciences such as anthropology, social and political sciences including psychology.
- If sample is selected carefully then its findings can be generalized.
- In survey research data can be collected from illiterate persons also.
- Survey research has the advantage of wide scope. A great deal of information can be obtained from a large population.

While surveys tend to be more expensive than laboratory and field experiments, but due to the amount and quality of information they yield, they are still economical. Efficiency is the obvious quality of survey. Questionnaires can be administered to larger number of subjects and high speed computers can analyze the data resulting in rapid data collection and treatment.

The survey method is prominently employed in public opinion polls, but the sampling is key issue in this regard.

Limitations in Survey Method

The nature of the sample determines the overall value of any survey research. If the sample is not representative, the investigator cannot draw conclusions about the large population. It becomes more difficult when members of the sample do not return the questionnaires, inventories and other attempts to gather data.

A further limitation in survey research is that the investigator observes only the marks on a questionnaire rather than the behaviour itself. It is also questionable that the responses given by the subjects actually reflect what people believe and do.

Still another problem is that respondents are not willing to admit ignorance. In one instance fictitious events were included in a questionnaire on public affairs and many people gave opinions about those events. Actually people would avoid saying, "I don't know". (Bishop, Oldendick, Bennett 1980).

People may give inaccurate information because of memory lapses and because they don't want to let the researcher know what they really believe about a particular issue.

Survey information does not penetrate very deeply below the surface. The scope of the information sought is usually emphasized at the expense of depth. Survey research is demanding of time and money also. In a large number of cases it takes months for a single hypothesis to be tested.

Survey research also requires a good deal of research knowledge and sophistication. The competent survey investigator must know sampling, questionnaire construction, interviewing, analysis of data and other technical aspects of survey. Such knowledge is hard to come by. Few investigators get this kind and amount of experience.

Sampling and the development of good schedule are major tasks. Interview requires skill, time and money. Anyhow surveys on a smaller scale can avoid these problems to some extent. Moreover, any research that uses sampling is naturally subject to sampling error, while it is true that survey information have been found to be relatively accurate.

Although survey method has some limitations, yet it is perhaps the most widely used and best known of the major methods of psychological research.

DAY BOOK METHOD

Day book method is very helpful when we have to collect the information about individual's life; especially when we want to study developmental behaviour or when we have to compare different stages of development. This technique gives information about different stages of individual's life.

Usually day book method comprises of the information collected from individual's personal diary. Often people write about their daily routine and memories in their diaries. They write about their routine matters, special events, achievements, failures, liking, disliking and even comments from others.

When parents write about the daily routine of their child, they usually include minor details e.g. when the child started sitting, standing, walking or talking etc. They also note down that when and how many times they visited to doctor; they mention the type of medicine or nature of disease and its duration. About schooling, how the child performed in class, in studies or in exams.

Information about the individual's life is compiled by this method. This technique seems very easy and convenient for data collection. But observer has to face some difficulties while collecting information from daybooks; as day books are usually written according to individual's choice and not for research purpose.

It may happen that the information which are necessary and crucial from observer's point of view are missing and minor or secondary level of information are given in detail, which are of no use.

It is difficult to claim that a particular daybook is being written for research purpose, as there is no set criterion to write a daybook. Its purpose can be different whether written by parents, teachers, and school management or by the individual himself.

Diaries or daybooks are not frequently available, and sometimes observer has no other choice. The only thing which can enhance the utility and effectiveness of day book is that the information must be verified by other sources also.

BIOGRAPHICAL METHOD

Biography means complete life history. This method is used to collect information about important personalities, such as, political leaders, govt. officials, writers, poets, players or other legends.

Sometimes such personalities write their memories after retirement and some make it from other professional writers. Some biographies are written to pay tribute by their well wishers or followers. Some biographies are written during their life time and some are written after their death. What ever may be the nature of a biography, it covers the life events of that particular person.

After reading these *biographies* we can come to know that how they had spent their *lives*, how they faced the difficulties and how they overcame the hardships which came in their way and legends became. One can make a complete picture about their *life span*, achievements, failures, likings, disliking, weaknesses, interests or other salient features.

In this technique observer has the opportunity to collect lots of information from one place. Especially when subjects are not directly available or died, our only approach can be their biography. So this method becomes the last solution.

But careful selection is still required while consulting biographies as they are written for different purposes. It is recommended that information collected from biographies must be verified by other sources, if possible.

Cautions

While consulting biographies following points must be considered;

- I. It should be noted whether it is biography or an autobiography. (Autobiography is actually written by the subject himself).
- II. If it is written by someone else, whether written during the lifetime of subject or not.
- III. In case of biography, what was the relation of writer to the subject, what was his intention. If it was written by professional writer or critic then its quality would be different.
- IV. The biases of writer must be in mind, whether he has deprived the subject from his qualities or awarded unnecessarily.

In short, *biographical method* is criticized a lot, but this source of information is matchless if written properly. It is the only source by which we can know about national or international historic figures e.g. Quaid-e-Azam, Allama Iqbal and other leaders of Pakistan movement.

Mumtaz Mufti, Ihsan Danish, Qudratullah Shahab, Benezir Bhutto, Perviaz Musharaf and Ayub Khan's autobiographies are well known and considered important.

STATISTICAL METHOD

The word statistics is derived from Latin word status and Italian word Statista, while in 1749, Gottfried Achenwall used the German word Statistik, a synonym for Status and Statista. All these words stand for political State. Zimmemann used the word that stands for political knowledge regarding civilization, industry and policies of the government.

Meaning of Statistics

This word is used to give the following three meanings.

Firstly, it is used in the plural sense to refer to numerical facts in any field of study. These facts are collected in a systematic manner with a definite purpose in view. Often we read about statistics of death and births, price statistics, agricultural statistics, etc. we also use the word data to refer to statistics in this sense. Statistics are aggregates of facts which are expressed in numerical form. We use number in statistics to express units or quantities. Further a single fact, however important, is not statistics.

Secondly, the word statistics is used in the singular sense. In this sense, it refers to the science comprising methods which are used in the collection, presentation, analysis and interpretation of numerical data. These methods are used when we want to draw conclusions about a given phenomenon from the relevant data.

Major area of statistics today is concerned with drawing conclusions about the whole from the sample and testing the reliability of the results drawn from the sample.

Thirdly, the word statistics is used in a technical sense as plural of statistic. By statistic, we mean a quantity calculated from few observations taken on sample basis. For example, if we select at random ten students from a class of fifty students, measure their heights and find the average height; this average is a statistic.

So when used as a plural, it refers to the aggregates of numerical facts. The facts expressed qualitatively, do not form a part of it. In the singular sense it stands for methods which are used in the collection, presentation, analysis and interpretation of numerical data.

Descriptive and Inferential Statistics

Descriptive or deductive statistics deals with collection of data, its presentation in various forms, such as tables, graphs and diagrams and finding averages and other measures which would describe the data. The purpose of descriptive statistics is to present the information in such a way as can readily help the decision makers. For example, educationists make use of descriptive statistics in presenting their annual results.

Inferential or inductive statistics deals with techniques used for analysis of data, making the estimates and drawing conclusions from limited information taken on sample basis and testing the reliability of the estimates.

Application of Statistics in Psychology Statistical methods are used for the study of mind and behavior. And the application has made the Psychological results more solid and reliable. While studying Intelligence quotient, Personality traits, attitude, performance, aptitude and abilities of the individual, Statistics helps in the development of various tests. Through the application of these tests, individual's aptitude, abilities and intelligence are evaluated required for various jobs and assignments. Comparative study of the performance of the employees and workers can be highlighted through the use of graphs, charts and tables. Results obtained from Psychological research are tabulated and then by the use of Statistical methods, average, and central tendency is obtained. It is the use of statistics that holds an important position for analyzing the experimental data and drawing conclusions.

Importance of Statistics

- ☛ Statistics simplifies complexities. Human mind is unable to understand large masses of facts. It is difficult to grasp the complex and large number of facts but statistics makes it simple that it is easily grasped and understood.
- ☛ Statistics enables us to study relationship and comparison among different facts. Statistics simplifies comparison of data. Significance of a series of data is better appreciated when compared with another series of the same kind.
- ☛ After the study of the trend of the given data, statistics can help to predict the future trend of the data under the same conditions.
- ☛ Statistical methods are used to collect reliable data pertaining to different fields of the state. And the collected data is essential for formulation of social, economic and business policies.
- ☛ Statistics is playing an important role in every field of human activity. Statistical methods are being used in business, banks, insurance companies, agriculture, education and for the preparation of the government budgets. Its application even in scientific field especially in physics, chemistry, Bio-Chemistry, Genetics, Astronomy, Meteorology and Economics has proved to be of immense value.
- ☛ Statistics presents facts in a definite form. Numerical facts give more precise information than facts expressed in general terms.
- ☛ Statistics studies changes in the level of a given phenomenon.
- ☛ Statistics aids forecasting. Statistics studies the trends of given data and enables us to predict the future behaviour of the data under given conditions.
- ☛ Statistics tests the laws of other sciences. Statistical data and methods are widely used in almost all the sciences.

Limitations of Statistics

Statistics is only concerned with the numerically measured average facts whereas qualitative aspects are entirely ignored, therefore, its application for individual study is not reliable. It is an aggregate of facts and as such cannot give information about a particular individual or event.

For the application of statistical methods, skill is required, a person who is not expert, can spoil the data. Only a person who has an expert knowledge of statistics can handle statistical data efficiently.

During the process of collecting data if a proper care is not exercised then the analysis and results will be misleading, therefore data should be collected in a systematic manner with a definite purpose in mind.

Whenever a problem is to be studied, it must be based on the selection of representative and unbiased samples. In short statistics has played an important role in the making of Psychology as objective and an empirical science.

Statistics deals with facts which can be numerically measured.

Statistics does not deal with qualitative aspects such as morality, character, friendship etc.

Statistics provides only the tools for analysis. It cannot, however, change the nature of causes affecting statistical data.

Statistical Data

Statistics deals with numerical data and the data are collected from the whole of the Universe if under study. But due to the limitation of resources, the conclusions are drawn about the whole by selecting only a sample from the whole. In Psychology, the data are collected from different studies, survey reports, intelligence tests, personality tests, Performance tests and experiments.

Types of Data The numerical facts acquired from any research and study carried out by some individual or organizations are classified as primary and secondary.

Primary Data The originally collected information by some individual and organization for certain purpose will form the primary data. For example, we have 20 student in a class having Intelligence quotient as 115, 109, 105, 120, 113, 110, 115, 107, 117, 119, 108, 113, 118, 112, 106, 115, 112, 116, 116, and 120 respectively, are not statistically arranged and developed will make a primary data.

Secondary Data The information or data when used by the organization other than the original one will be known as secondary data. For example the above referred data when used by some other organization will be considered secondary data. The data are arranged either in an Ascending order or Descending order.

Ascending Order While arranging the data in an ascending order the smallest digit is placed in the beginning and the series go on till the biggest

digit is put in the end. It is just like the roll call. The teacher writes the smallest role number in the beginning while the biggest role number will appear in the end. For example the role numbers of the students studying psychology will be 11, 14, 15, 20, 21, 25, 27, 35, and 38.

Descending Order In descending order the biggest digit will appear first and the size of the digit goes on decreasing till the smallest digit is placed in the end. While determining the position of the students in an examination, the name of the student securing highest marks will be written at the top. If we want to determine the first ten positions in Psychology, it will be as 88, 85, 80, 78, 67, 65, 63, 63, 60, and 58.

Classification or Tabulation of Data Classification is the process of arranging data into categories or groups according to common characteristics present in the data. Once the data is classified it is easy to understand.

When we represent our results in graphic form actually we are using statistical method. In this method different techniques can easily be used according to the requirement of our study. We can apply measures of central tendency, measures of variability, analysis of variance, correlational techniques and many others as well.

Methods of Study in a Glance

Each method has its own limitations which must be kept in mind while selecting them for study.

Experimental method is well suited to research with animals. Natural observation is also widely used for this purpose, but survey can't be employed with animals. Survey is appropriate for obtaining population data, migration counts etc.

The clinical method is impossible with animals. In natural observation, subjects are studied without any intervention. It is more suitable for exploratory work and developing hypotheses, but the lack of manipulation usually means that hypothesis cannot be tested.

In clinical method the investigator examines the subjects in a clinic, service centre, office and other institutions. In this special environment series of interviews, tests and other treatments are administered and a detailed study of the individual is possible.

In survey, investigator intrudes upon the subject's privacy to some degree, asking question by mail, telephone or personal interview. Surveys provide an efficient and relatively unobtrusive means of gathering large masses of information from many subjects.

Experimental method involves the fullest control and often the most intervention. The subject enters a lab and the experimenter manipulates the environment to a very large degree. The precise control permits the study of cause and effect relations and, therefore, is widely accepted.

But the main drawback is that the subjects, when removed from a natural setting, may not behave naturally.

Health Psychology

Health psychology is a multidimensional approach to health that emphasizes psychological factors, life styles and the nature of health care delivery system.

Many health psychologists study the roles of stress and coping in people's lives. Health psychologists may work in physical or mental health areas provide clinical services.

APPLICATION OF PSYCHOLOGY WITH SPECIAL REFERENCE TO PAKISTAN

Psychology is one of the popular subjects among students. But, still it is struggling for its due recognition. Let's have a view how it emerged in Pakistan and what is its current status.

Education and Teaching

Psychology as an independent subject was introduced in 1960s, in Pakistan, at Government College, Lahore (now GC University, Lahore) and Karachi University. Earlier it was taught as a part of philosophy.

Now there are well established departments of psychology in the colleges of every big city, such as in Islamabad, Rawalpindi, Karachi, Faisalabad, Peshawar, Quetta, Multan, Sargodha, Bahawalpur and so on.

Almost all universities offer post graduate and most of them offer doctoral degree program as well. Bachelor of Study Four year degree program (BS, FYDP), has also been launched in many cities and will be implemented on rest of colleges in coming years (as government has declared).

Psychology is also taught as compulsory subject in many professional courses and as a minor or elective subject in many other disciplines like Human Relations, Business Management, Law, Home Economics, Special Education and in all programs related to teachers' training of each level.

At intermediate and degree level it is considered hot favourite subject especially among female students. So, teaching psychology is its vast application.

Civil Services Selection Board

Selection board hires the professional psychologists for their selection program, which includes application of psychology tests, situational tests, observational methods and interview techniques for their screening. Psychological assessment is considered a necessary step. Final selection is based on interview, psychological report and the candidate's performance on the written competitive scholastic examination. Same method is used in Provincial and Judicial Civil Services. So, psychologists have a bright scope in selection board of civil service.

Army Selection Center

In armed forces psychological assessment is considered vital. Candidates have to appear before selection committee, and psychologists are also among the members of that team. Psychologists design behavioural situational tests especially for them. Projective techniques, observational techniques with interview method are applied for the selection of candidates.

Hospitals and Clinics

The formal training of clinical psychology as a specialization started at Punjab University in 1983 and in Karachi University in 1984. It is known as post master's training program for clinical psychologists.

Now many universities have introduced not only the diploma and degree program in clinical psychology but MS and doctoral degree program also. Most of the clinical psychologists and psychotherapists are practicing in clinics and in hospitals.

According to mental health ordinance, Federal Mental Health Authority has established psychiatric units in major hospitals. So, clinical psychologists have a vast field in hospitals, clinics and in private and public sectors.

Another major utility of psychotherapists is in the treatment centers for drug addicts. Drug eradication force has been formed by government and psychotherapists are joining it.

Rehabilitation Center

Many rehabilitation centers have been established for mentally retarded and physically handicapped. Psychologists are employed there as therapist instructors, teachers and as executives. Some psychologists voluntarily work in such centers also.

Non Government Organizations (NGOs)

Psychologists have formed their own organizations for social welfare, guidance and counselling of people. Role of NGO was quite prominent during the national disasters: the earth quake of 2005 and the flood of 2010. These NGOs run many schools, rehabilitation centers, drug eradication centers, and they launch many social awareness programs as well. Psychologists and social workers render their services for such organizations.

Research

In 1976, the Federal Education Ministry established a "National Institute of Psychology" (NIP) as an autonomous organization for research purpose. In 1994, NIP was renamed as "Center of Excellence Dr. Muhammad Ajmal Institute of Psychology" after its founder. Research, translation of tests, standardization and formulation of norms of foreign tests were the major goals of this institute. Still it is producing test for local use. Many of psychologists are working there.

To sum up, teaching in colleges and universities is the major application. Psychologists have been employed in other areas such as prison, industries, special education, rehabilitation centers.

