- Cluster Investigations: It is a descriptive study involving a review of an unusual number of spatially and temporally grouped health events (e.g., sudden rise in malaria reports).

Blind Experiment

To prevent bias effects in an experiment following techniques are used.

Double-Blind Experiment

If critical aspects of experiment is not known by participants or experimenter, it is double-blind experiment. It protects from experimenter biasness and placebo effects.

Single-Blind Experiment

Experiments where information causing biasness or skewness is withheld from participants, but experimenter is in full control of the facts.

Non-Blind Experiment

In this technique, both experimenter and participants are in full control of the facts.

Pre-Experimental Design

These follow basic experimental steps but do not include a control group. Study of one single group is made but no comparison between equivalent non-treatment groups is done.

- **One Shot Case Study**: Subjects are presented with some type of treatment, e.g. semester of college work experience, and then applied outcome is measured e.g. college grades. Like other designs, determining effect of treatment on outcome is main goal. With a comparison group, one could have determined whether outcome scores are any higher than without treatment. However, in this study only a cursory measurement of outcome after treatment is made to satisfy the researcher that there has been some effect of the treatment.
- **One Group Pretest Posttest Study**: To make the study better, change within group can be determined by the use of a pre-test score. Inclusion of pretest provides baseline scores. E.g., to study effect of work experience on college performance, comparison of college grades prior to work experience and after work experience is made. This determines changes in outcome or dependent variable (grade) based on treatment (work experience). The problem with this study is that any change in dependent variable is attributed to the treatment. This change could have occurred even without treatment or independent variable (work experience). For example, there is a chance that grade changes were caused by maturation and not work experience.
- **Static Group Comparison Study**: This design attempts to compensate for the lack of a control group but does not conclusively demonstrate that a change has occurred. In the static group comparison study, two groups are chosen, one of which receives the treatment and the other does not. A posttest score is then determined to measure the difference, after treatment, between the two groups. This study however, does not include any pre-testing and therefore any difference between the two groups prior to the study is unknown. Thus, any difference between the groups after the treatment cannot be attributed strictly to treatment.

Figure 20: Explanation of pre-experimental design

One Shot Case Study

$$X \quad O_2$$

One Group Pretest Posttest Study

$$O_1 \quad X \quad O_2$$

Static Group Comparison Study

$$X \quad O_2$$

$$O_2$$

Key: X = Treatment, O_1 = Pretest, O_2 = Posttest, R = Randomization

Quasi-Experimental Design

These are better than pre-experimental studies as they employ a means to compare groups. However, these do not include randomization.

- **Pretest-Posttest Nonequivalent Group**: With this design, both control and experimental groups are compared. Convenience and not randomization is the theme for choosing groups. This might be the method of choice for example to study work experience, as it would be difficult to choose students in a college setting at random. They students can be placed in specific groups and classes and then asked to participate in one-semester work-experience program. Then students' grades prior to program start and after program are measured. Participating students form the treatment group and non-participating ones form the control group.
- **Nonequivalent Before-After Design**: It compares 2 probably different groups even before study begins. To understand how new treatment affects people with different psychological disorders; disorders themselves would create two or more nonequivalent groups. Number of pretests and posttests can vary from one each to many more.

Figure 21: Explanation of quasi-experimental design

Pretest Posttest Nonequivalent Groups

$$O_1 \quad X \quad O_2$$

Time Series Designs

$$O_1 \quad O_1 \quad X \quad O_2 \quad O_2$$

Non-Equivalent Before-After Group

$$O_1 \quad O_1 \quad X \quad O_2 \quad O_2$$

$$O_1 \quad O_1 \quad X \quad O_2 \quad O_2$$

Key: X = Treatment, O_1 = Pretest, O_2 = Posttest, R = Randomization

- **Time Series Designs**: These use the pretest and posttest analysis of subjects at different intervals.

- Helps individual in the growth and development of personality

Stages of Problem Solving

Problem solving is a systematic process consisting of well-defined stages. Wallace in 1926 defined following four stages:

- **Preparation**: It involves choosing problem and gathering its background information
- **Incubation**: Here attention is deliberately diverted to other activities.
- **Illumination**: Here sudden solution to the problem encountered is achieved.
- **Verification**: It involves validating the solution.

This model was supported in 2006 by Vinack.

Bransford and Stein in 1984 called these stages as IDEAL that is "Identify, Define, Explore, Act, and Look."

Elliot in 2000 presented DUPE model that is "Defining just what the problem is; Understanding its nature; Plan for its solution; Evaluate your plan."

Rules in Problem Solving

- **Algorithms**: These are set of rules which if followed correctly will guarantee a correct solution for example rule of multiplication or addition if followed correctly give correct solution
- **Heuristics**: These are strategies usually based on past experience that are likely to lead to a solution but do not guarantee success.

Steps in Problem Solving

According to Bransford and Stein there are five steps coded as 'IDEAL'

I = Identifying the problem

D = Defining and representing the problem

E = Exploring possible strategies

A = Acting on strategies

L = Looking back and evaluating the effects of activities

Problem solving is an individual phenomena and involves exercise of cognitive abilities of higher order, continuous persistent & struggling on conscious as well as unconscious levels.

Major steps are:

- Problem awareness
- Problem understanding
- Collection of relevant information
- Formulation of hypothesis or hunch for possible solutions
- Selection of correct solution
- Verification of concluded solution or hypothesis

Factors Influencing Problem Solving

The following factors affect problem solving

- Sets: These are preparatory adjustments to perform a task.
- Hints: If provided at the beginning hints make it easier to solve problem.
- Priming of Solutions: Familiarity with the correct solution enhances chances of problem solving

Heuristics and Biasness in Decision Making

Biasness in decision-making is caused by

- **Representativeness**: Whether the current situation is representative of a previously encountered situation
- **Availability**: Some events are easier to remember or imagine than others
- **Adjustment**: Used for making subjective probability estimate
- **Weighing Alternatives**: It is the best form of arriving at the decisions; the decision maker first makes the list of desired attributes and then gives weightage to these attributes based on priority.

Brainstorming

Brainstorming is a technique used to gather a large quantity of ideas. The ideas generated are geared towards solving a specific problem. Brainstorming is a process for developing creative solutions to problems. Alex Faickney Osborn, an advertising manager, popularized the method in 1953 in his book, Applied Imagination. Ten years later, he proposed that teams could double their creative output with brainstorming.

Brainstorming works by focusing on a problem & then deliberately coming up with as many solutions as possible and by pushing the ideas as far as possible. One of the reasons it is so effective is that the brainstormers not only come up with new ideas in a session, but also spark off from associations with other people's ideas by developing and refining them.

Basic Rules of Brainstorming

- **Focus on Quantity**: This rule is a means of enhancing divergent production, aiming to facilitate problem solving through the maxim: quantity breeds quality. The greater the number of ideas generated, the greater the chance of producing a radical and effective solution.
- **No Criticism**: Criticism of ideas are withheld during the brainstorming session as the purpose is on generating varied and unusual ideals and extending or adding to these ideas. Criticism is reserved for the evaluation stage of the process.
- **Welcome Unusual Ideas**: Unusual ideas are welcomed and considered these may provide better solutions.
- **Combine and Improve Ideas**: Not only are a variety of ideals wanted, but also ways to combine ideas in order to make them better.
- **Consider Purpose and Audience**: Participants need to think about the parts of communication

- Creation of Slack Resources: In order to reduce exceptions, performance levels can be reduced, thus decreasing the information load on the hierarchy.
- Creation of Self-Contained Tasks: Achieving a conceptual closure of tasks is another way of reducing information processing.
- Increasing the organizational information processing capacity
- Creation of Lateral Relations: The aim is to apply a system of decision subsidiarity, i.e. to move decision power to the process, instead of moving information from the process into the hierarchy for decision-making.
- Vertical Information Systems: In this case, the information flow for a specific task (or set of tasks) is routed in accordance with the applied business logic, rather than the hierarchy of the organization.

Communication in Management of Information

Refer communication (mainly effective communication, barriers to communication and types of communication) on page - 218 -.

Figure 121: Design of MIS

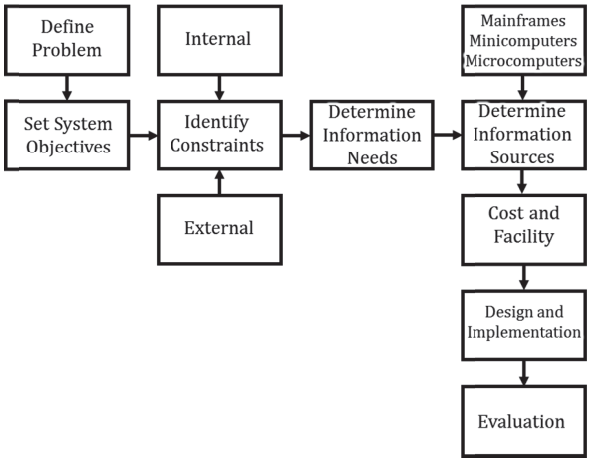
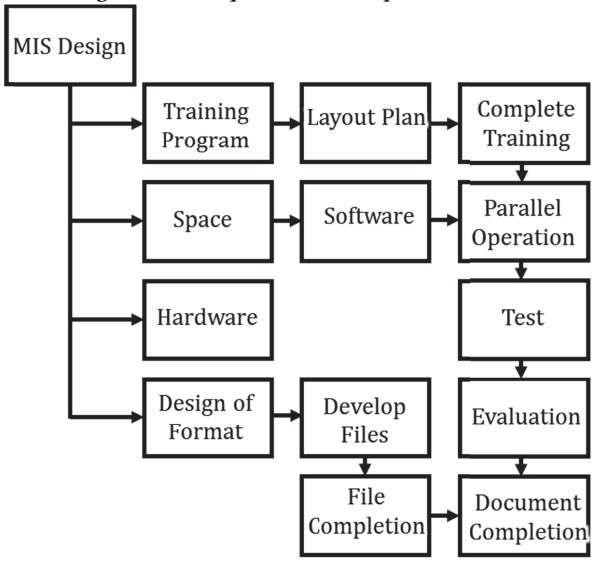


Figure 122: Implementation phase of MIS



Technology and its Impact on Human Behavior

Technologies such as internet provide highly structured stimulus, which have become significant factors in determining and setting reference points and standards for experiencing space, time, distances etc.

Some of the technologies such as internet and cell phones have made the world smaller place with instant access to all kinds of information. At the same time some technologies such as video games can severely alter the realities perceived by children, so that their behavior is not only determined by real world events but also by events in the virtual world.

Technology has helped man in highly specialized tasks. Man has become more time conscious, independent, competitive and goal oriented. On the other hand, technology has proved a bane in the sense that it has caused alienation and apathy from rest of the society leading to absenteeism, alcoholism, and drug dependence. It has led to minimization of feelings, disrespect for aged, greater self-centeredness, absence of passion and preference for hedonistic life style.

Technology Adoption in Indian Context

Impact of technology has been slow in Indian context mainly because of

- Fatalistic attitude towards technology
- Backward thinking i.e., past was good, present is bad and future will be worse
- Lack of belief in doctrine of Karma
- Widespread illiteracy
- Lack of basic infrastructure facilities to support new technological innovations, for example infrastructure for broadband internet is present only in select cities
- Widespread poverty
- Outdated school and collage curriculum not covering recent developments

Studying Impact of Technology on Human Behavior

Impact of technology on human behavior can be studied in two ways:

- By comparing typical reaction in a group before and after the technological innovation is introduced.
- By determining the reaction of groups in similar technological areas whose life-experiences differ, chiefly in terms of how closely they are in contact to modern technology and industrial centers.

Impact of Television

The process of developing television programs is based on four stages namely, production, delivery (open circuit, closed circuit, and library system), utility, and evaluation.

- Harijans suffer the most and the conflicts are mainly between middle class peasants and Harijans.
- Harijans are most aggressive in vertical political confrontation between castes within hierarchy.
- A.K. Singh found that desire for upward mobility in the caste hierarchy by up-gradation of caste status has dramatically changed into the demand for government measures for upliftment of the entire class, as was case with Dalit Panthers and OBC.
- Prasad found high caste Hindus have higher degree of caste prejudice than low caste Hindus.

Prejudice and Personality (Authoritarian Personality)

Relationship between prejudice and personality can be explained using the following concepts

- Political, social, and economic conviction of an individual often forms a broad coherent pattern as if bound together by mentality or spirit.
- This pattern is an expression of deep-seated trends in one's personality.

In other words, intergroup attitudes are part of broader ideological framework and correlated with individual beliefs, thus this correlation is caused by more basic personality factors. Some examples scales, which have been used to measure such personality factors, are:

- **Anti-Semitism Scale (A-S Scale)**: The Anti-Semitism Scale was developed to sample anti-Jewish attitudes with 23 contemporary attitude questions. The 23 questions were scored on a 5-point Likert scale so that a higher score revealed a greater amount of anti-Semitism. Responses were combined and averaged to create a composite score.
- **Ethnocentrism Scale (E Scale)**: This scale was designed to measure the extent to which individuals rigidly accepted aspects of their own culture and rejected what was different. It measures a broader form of prejudice, Ethnocentrism, than anti-Semitism. Adorno et al formulated the ethnocentrism scale, also known as the E scale. It is a series of Likert like items. It consists of three subscales, pertaining to Jews, Negroes, and other minority groups and patriotism. The general idea was to combine the scores from the three subscales and treat it as a global measure ethnocentrism. Significant inter-correlations between the three subscales indicate that a single underlying dimension of variation was being measured.
- **Political and Economic Conservatism Scale (PEC)**: This scale consists of statements designed to measure the degree to which individuals held the values of American conservative right wing. Main components of the tests measure tendencies such as keeping things as they are, resisting social change, valuing ambition, efficiency, and financial success.
- **Potential for Fascism Scale (F-Scale)**: It is also called Implicit Anti-Democratic Trends Scale. This scale is devised to measure the authoritarianism trait of the personality. It consists of nine antidemocratic statements involving conventionalism, authoritarian submission, authoritarian aggression, anti-introspection, superstition & stereotyping, power, destructiveness, projectivity and exaggerated sexual concerns.

Prejudice and Internationalist Attitude

Prejudice confines thinking and hinders adoption of an internationalist attitude. Prejudices people feel safe and secure within their ingroups. As a result, people tend to reject out-group as the ingroups satisfy various needs of the person like

- Intolerance for ambiguity
- Need to achieve superior status
- Sense of identification
- Need for security
- Satisfaction of such needs and reinforcement of behavior required to satisfy such needs by the ingroup further strengthens prejudice.

Manifestation of Prejudice

Prejudice manifests in the following ways

- Feeling of competition
- Exploitation
- Perceived belief dissimilarity
- Conformity
- Creation of social norms
- Leads to society symbolism and institutional racism
- Antilocution: Verbal remarks against a person, group, or community, which are not addressed directly to the target
- Physical attacks
- Extermination: Act of killing with the intention of eradicating a demographic within a population
- Discrimination
- Creation of social barriers
- Creation of cultural barriers
- Creation of religious barriers

Methods to Control Prejudice

Prejudice can be controlled by

- Creating a casteless and classless society
- Promoting better contact among groups
- Creating equal opportunity for all members of society
- Studying and learning lessons from previous history of prejudice
- Promoting inter-caste and interstate marriage
- Promoting visits of cultural delegations
- Imparting education for social tolerance

Factors Producing Prejudice

Prejudice is caused by the following factors

- Psychological Factors
- Abnormal personality