

- (ii) **Unstructured:** Investigator is free to develop each situation. It is generally used in exploratory studies. Non-directive interview is an example of unstructured interview in which interviewer avoids channelling the interview in certain direction.

#### Advantages

The advantages of unstructured interviews are as follows:

- o Interviewer is able to develop new and detailed ideas about the phenomenon under investigation.
- o This technique leaves a favourable impression.

#### Limitations

The limitations are as follows:

- o The method is very slow and hence time taking.
- o Analysis is difficult.
- o This technique needs high level of competency of interviewer.

- (iii) **Semi structured:** This is known as focussed interview. In this method the interviewer, though bound by a definite framework of topics to be covered by each respondent, is more or less free to frame his questions and to decide their sequence according to the convenience of the study.

- **Observation:** Naturalistic observation provides the insight that sometimes cannot be achieved in the laboratory (Langston, 2002). Naturalistic observation is observing behaviour in real world settings (work settings, class room, etc.) without manipulation or control. To make effective observation, the investigator must have a definite goal. Hypothesis observation can be of three types. The three types are shown in Figure 1.6.

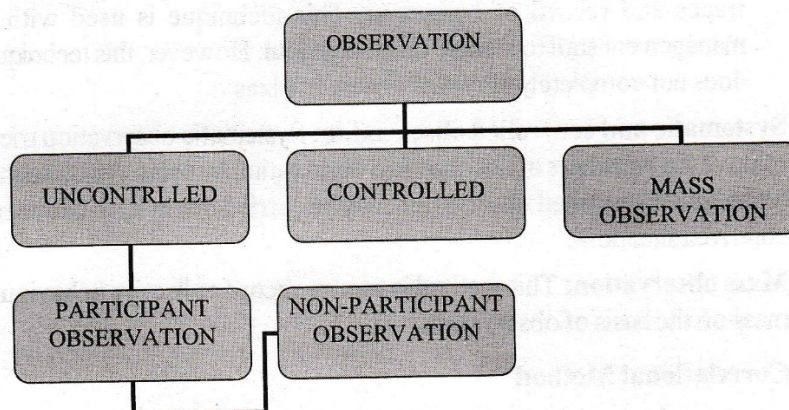


Fig. 1.6 Three Types of Hypothesis Observation

- (i) **Uncontrolled observations:** They are those which do not make use of any standardize observational techniques, such as carefully drawn out schedules and questionnaires, tests, etc. As a results, no checks on the

## NOTES

## NOTES

observer's bias and subjectivity can be maintained. There is no check on the reliability of information. This gives rise to the problem of standardization. Despite its weakness, the use of this method is very common in exploratory social investigation. It is of two types that are as follows:

**a. Participant observation:** The observer is generally involved in the group which he is studying without revealing his identity and procures certain vital information. The success of this method depends on the observer studying the group in a way that his presence does not disrupt it. He should collect as wide a range of facts as is possible. The investigator must have the skills to gain the confidence of the persons.

### **Advantages:**

The advantages of participant observation are as follows:

- o An observer gets a realistic view of natural behaviour.
- o An observer accesses secret information and becomes aware of many new things which is not possible with other methods.
- o The range of material collected is much wider.

### **Limitations**

The following are the limitations:

- o This method demands of an observer a high level of empathy.
- o This method is very time consuming.
- o Involvement with group loses the objectivity.
- o Replication studies to standardize findings cannot be easily made in this method.

**b. Non-participant observation:** One can generally observe the current behaviour directly or indirectly. Indirect observation involves physical traces and record of behaviour. This technique is used with the management staff to analyse their behaviour. However, this technique does not completely eliminate observer's bias.

**(ii) Systematic and controlled observation:** Systematic observation tries to remove the weakness of uncontrolled observation by using various control techniques. Controlled observation may be carried out in both natural and contrived situations.

**(iii) Mass observation:** This method is used to record collective behaviour of mass on the basis of observation.

### **1.7.2 Correlational Method**

The goal is to describe the strength of the relationship between two or more events or characteristics. The more strongly the two events are correlated or associated or related, the more effectively we can predict one event from the other (Vernoy and Kyle, 2003). This form of research is a key method in a key form of data analysis. The degree of relationship between two variables is expressed as a

numerical value called the correlational coefficient. The numerical value of a correlation coefficient ranges from +1.00 to -1.00. The closer the number is to 1.00, the stronger the correlation; whereas the closer the number is to 0.00, the weaker the correlation. It must be noted that negative numbers do not indicate a lower value than positive numbers. A correlation of +0.80 is as good as a correlation of -0.80. The plus and minus signs just indicate the direction of the relationship between the two variables.

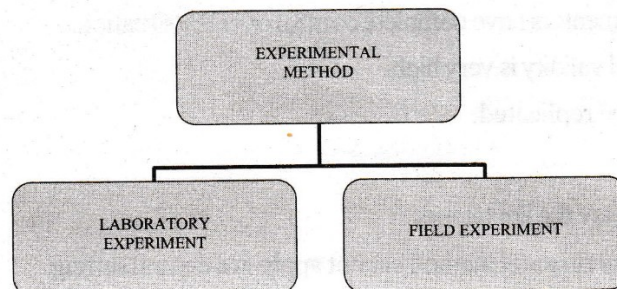
The plus and minus signs tell us the direction of the relationship between the two variables. A positive correlation is a relationship in which the two factors vary in the same direction; both the factors tend to increase or decrease together. A negative correlation is a relationship in which two factors vary in opposite direction; one factor increase the other factor decreases.

We can see that a correlational coefficient has two parts—the number and the sign. Let us assume an example to understand the positive and negative correlational coefficients. Suppose we have the data on the relationship between how long an instructor lectures and the number of times the students yawn. +0.80 is the correlation between the two. What does the number +0.80 tell us? These two factors happen together frequently. The plus sign indicates that the two factors vary in the same direction. As the duration of the professor's lecture increases, so does the number of yawns. An example of negative correlation could be the relationship between the duration of an instructor's lecture and the level of student's attentiveness. As the duration of the instructor's lecture increases, the level of student attentiveness decreases. The two factors vary in opposite directions and thus have a negative correlation.

An advantage of this is that it gives new insight about the phenomenon under study. However, correlational research cannot demonstrate cause and effect relationship.

### 1.7.3 Experimental Method

An experiment is a carefully regulated procedure in which one or more factors are believed to influence the behaviour being studied or manipulated and all other factors are held constant. Experimental method consists of methods like laboratory experiment and field experiment (refer Figure 1.7). Both methods have the same conditions, except natural setting, in field experiment.



*Fig. 1.7 Types of Experimental Methods*

## NOTES

## Manipulation of independent variables

A variable is any measurable attribute of objects, things or being; for example, height, weight, religion, etc. Experiments have two types of changeable variables, i.e., independent and dependent variable

### NOTES

- **Independent variable:** It is a manipulated, influential and experiential factor. It is a potential cause, e.g., impact of practice on learning performance. experimenter manipulates the variable by introducing the different methods of practice.
- **Dependent variable:** Dependent variable is a factor that can change in an experiment in response to change in the independent variable. The dependent variable is the resulting effect, such as learning performance of the student as a result of practice. While studying the effect of IV on DV, the relationship is often influenced by a number of factors present in the environment; hence, variables need to be controlled by the experimenter. An experimenter plans the experiment using two groups—experimental and control group. An experimental group is manipulated, whereas a control group is a comparison group that is supposed to be similar in all respect except in the treatment of IV.

It is also necessary to know about the following:

- **Random assignment:** According to D.W. Martin (2004), random assignment means that researchers assign participant to experimental and control group by chance. It reduces the likelihood that the experiment's result will be due to any pre-existing differences between the groups.
- **Control of extraneous variables:** There are many factors which influence our result one way or the other and they have to be controlled in order to get the authentic result. An experimenter may use many techniques to control the extraneous variables.
- **Matching:** The participants are matched on their characteristics.
- **Elimination:** We can control the experiment by eliminating extraneous variables like noise, etc.

### Advantages

The following are the advantages:

- Experimenters have complete control over the situation.
- Internal validity is very high.
- It can be replicated.

### Limitations

The following are the limitations:

- The experimental method cannot apply in a natural setting.

- It is a little difficult to study certain phenomena (for example, natural disaster and their impact, alcoholism, etc.).
- External validity is low.
- In a laboratory experiment, the situation is totally contrived.
- There are ethical and moral objections for manipulation of the variables under study.

**NOTES****CHECK YOUR PROGRESS**

7. What are the two main concepts in the conceptualization of a problem?
8. Name the two types of hypotheses.
9. What are the goals of psychological investigations?
10. The collection of data is the fundamental means of testing \_\_\_\_\_.
11. What are structured and unstructured questionnaires?
12. Define correlational coefficient.
13. What is the difference between experimental group and control group?

## 1.8 ETHICAL CONSIDERATIONS, RESEARCH AND APPLICATIONS IN PSYCHOLOGY

The American Psychological Association (APA) has developed ethical guidelines. The code of ethics instructs psychologists to protect their participants from mental and physical harm. The participant's best interest needs to be kept in the research's mind (Fisher, 2003; Rosnow, 1995). APA mentioned the following ethical guidelines:

- **Informed consent:** Participants in a study should be told beforehand about the administration of the questionnaire. After informed consent is given, participants must retain the right to withdraw from the study at any time and for any reason.
- **Confidentiality:** Researchers are responsible for keeping all the data confidential.
- **Debriefing:** After the completion of data collection, the participants should be informed about its purpose and the method that were used.
- **Deception:** There are an ethical issues that psychologists debate on extensively (Hoyle and Judd, 2002). In all cases of deception, the psychologist must ensure that the deception does not harm the participants. They are told about the complete nature of the study (debriefing) as soon as possible after the study is completed (Chastain and Landrum, 1999).
- **Assurance by the government:** The government also ensures that research involving human participants is conducted ethically. The federal office for

protection from research risk has faced with many challenging and controversial decision, such as informed consent rules for research on women and foetuses, issues regarding AIDS vaccine research, etc. Research ethics also extends to animal studies.

## NOTES

### 1.8.1 Research and Application in Psychology

#### Psychology in industry

A psychologist working in an industrial area helps industries and other organizations in personnel selection, training, solving problems related to communication, productivity, interpersonal and inter-group relations. Various interventions for organizational development (e.g., team building, development of communication skill, goal setting, job design, etc.) are currently employed to improve the conditions of work setting and enhancing the quality of products.

#### Psychology in community

Community psychology is not only a professional and scientific discipline, it is also an intellectual value orientation that is applicable to virtually any field or profession. The community perspective challenges traditional modes of thought. It looks at the entire ecological systems including political, cultural, and environmental influences, as well as focussing on institutional and organizational factors. It realizes that the 'interaction' between a person and the environment may have as important an effect on his or her behaviour as the effect each factor has separately. The community approach also emphasizes the effects of stress and social support, and the practicality of prevention and self-help. Furthermore, it recognizes the demand for local empowerment and bureaucratic decentralization (and anti-professionalism) and the importance of cultural relativity and diversity. The community perspective simultaneously stresses the utility of research, not only for theory development, but for program evaluation and policy analysis, and the omni presence of values (implicitly or explicitly) throughout society and even science. An important aspect of the community orientation is its appreciation of the authority of historical and structural contexts.

#### Psychology in family

Families coping with issues, such as domestic conflict, tension and anxiety sometimes need outside help to improve communication and relationship dynamics. This is where a family psychology professional can step in and make a difference. Working with families to achieve healthy interactions makes working as a family psychologist an intense, but highly rewarding experience.

As a family psychologist, one will create programmes for diverse purposes, such as helping engaged couples prepare for marriage, strengthening married couples' relationships, and assisting parents and children deal with challenging issues. Research is also important in family psychology, because family psychologists need to understand how factors, such as lifestyle and work stress can affect relationships. Family psychology includes research in the following areas:

- Couple interaction
- The role of relational quality in managing physical illness
- Child abuse
- Family communications
- Effects of divorce and remarriage
- Coping with stress after relationship

## NOTES

### Psychology in education

Educational psychologists tackle the problems encountered by young people in education, which may involve learning difficulties and social or emotional problems. They carry out a wide range of tasks with the aim of enhancing children's learning and enabling teachers to become more aware of the social factors affecting teaching and learning. The work of an educational psychologist can either be directly with a child (assessing progress, giving counseling) or indirectly (through their work with parents, teachers and other professionals). Direct work involves some form of assessment to uncover the problem through consultation with professional colleagues, observation, interview, or use of test materials. Interventions might plan learning programmes and collaborative work with a teacher. Recommendations are then made to determine the most appropriate education provision for children experiencing educational difficulties

### Psychology in health

Health psychology focusses on the relationship of human behaviour pattern and stress reaction to physical health with the goal of improving and promoting the status of health. In the present scenario the number of health hazards (e.g., stresses, pollution, frustration, etc.) is increasing. In order to cope with them successfully we need to adopt pattern of health behaviour, such as exercise, meditation, proper diet, physical activity, etc. Health psychologist examines the role of these behaviours in promotion of physical and mental health. It also tries to solve the problem and find the ways to modify inappropriate behaviours.

### Psychology in self-development

Self-development is a field of practice and research. As a field of practice it includes personal development methods, learning programmes, assessment systems, tools and techniques. As a field of research, self-development topics increasingly appear in scientific journals, higher education reviews, management journals and business books. Personal development is a process of individual self-development and the development of others. At the level of the individual, personal development includes goals, plans or actions oriented towards one or more of the following aims:

- Improving self-awareness
- Improving self-knowledge
- Building or renewing identity
- Developing strengths or talents

**NOTES**

- Identifying or improving potential
- Building employability or human capital
- Enhancing lifestyle or the quality of life
- Fulfilling aspirations
- Defining and executing personal development plans

Psychology became linked to personal development starting with Alfred Adler (1870–1937) and Carl Jung (1875–1961). Adler refused to limit psychology to analysis, making the important point that aspirations look forward and do not limit themselves to unconscious drives or to childhood experiences (Ansbacher and Ansbacher, 1964). He also originated the concepts of lifestyle (1929) and defined ‘lifestyle’ as an individual’s characteristic approach to life, in facing problems and of self image, a concept that influenced management under the heading of work-life balance.

Carl Gustav Jung (1978) further made contributions to personal development with his concept of individuation, which he saw as the drive of the individual to achieve the wholeness and balance of the self.

Levinson (1920–94) developed Jung’s early concept of ‘life stages’ and included a sociological perspective. Levinson proposed that personal development come under the influence—throughout life—of aspirations, which he called ‘the Dream’.

Research on success in reaching goals, as undertaken by Albert Bandura (born in 1925), suggested that self-efficacy (Bandura, 1997) best explains why people with the same level of knowledge and skills get very different results. According to Bandura, self-confidence functions as a powerful predictor of success because of the following (Bandura, 1998):

- It makes you expect succeed.
- It allows you take risks and set challenging goals.
- It helps you keep trying if at first you do not succeed.
- It helps you control emotions and fears when the going gets rough.

In 1998, personal development moved from the fringes of psychology to a more central position when Martin Seligman won election to a one-year term as President of the American Psychological Association and proposed a new focus on healthy individuals rather than on pathology. He stated, ‘We have discovered that there is a set of human strengths that are the most likely buffers against mental illness: courage, optimism, interpersonal skill, work ethic, hope, honesty and perseverance.’ Much of the task of prevention will be to create a science of human strength whose mission will be to foster these virtues in young people.



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## 1.9 PSYCHOLOGY IN THE 21ST CENTURY

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The cross area and interdisciplinary approaches of psychology have gained considerable movement in the 21st century. Many of the new approaches to 21st century psychology integrate divergent perspectives or fill prior gaps in the field. The most important fields are as follows:

### NOTES

- **Cognitive neuroscience:** Cognitive neuroscience focusses on cognitive processes (the branch of biology that deals with the brain and nervous system). The key idea is that cognitive psychology provides hypothesis about specific cognitive capacities, such as recognizing faces and neuroscience explain about how these specific functions might be executed in the brain. It applies new techniques for studying the brain of normal participants while they are performing a cognitive task. The neuro imaging or brain scanning techniques create visual images of brain in action indicating which region of the brain shows the most neural activity during a particular task; for example, the study of how people remember information for long periods.

When they are asked to remember information for a few seconds, neuro imaging results show increase in neural activity in regions in the front of the brain. Whereas, during a long period of time, there is activity in an entire different region, one closer to the middle of the brain. Thus, different mechanism seems to used for the short-term and long-term storage of information (Edward E. Smith and John Jonides, 1994; L. Squire, B. Knowlton and G. Musen, 1993).

Psychologists have also initiated affective neuroscience (J. Panksepp, 1998) to discover how emotional phenomena are executed in the brain; as well as social cognitive neuroscience (K.N. Ochsner and M.D. Lieberman, 2001) to discover how stereotyping, attitude, person, perception and self knowledge are executed in the brain.

- **Evolutionary psychology:** With the biological origin of psychological mechanism, evolutionary psychology emerged and it was thought that psychological mechanism have a genetic basis. The past increased our ancestors' chances of surviving and reproducing. Topics related to survival and successful reproduction have great importance; for example, how we select our mates, how we think and behave when experiencing particular emotion (D.M. Buss, 1991).
- **Cultural psychology:** It is concerned with how the culture in which an individual lives, its tradition, language and worldview influences person's mental representation and psychological process. The divergent social system in fact creates and reinforces distinct systems of thought (R.E. Nisbett, K. Peng, I. Choi and A. Norenzayan, 2001). East-West differences in ways of thinking are now taken as evidence that East Asians engage in more holistic

## NOTES

thinking, where as West Asians engage in more analytic thinking (R.E. Nisbett). The way we use our brains is not universal or dictated by biology. Rather, our styles of thinking are malleable, shaped by those in our culture who came millennia before us, and reinforced by contemporary social practices.

- **Positive psychology:** Although positive psychology shares earlier with the humanistic psychology a concern with people's development towards their full potential, it departs from humanistic psychology by relying heavily on empirical methods. Positive psychology targets psychological phenomenon at levels ranging from the study of positive subjective experiences, such as happiness and optimism. It studies positive personality traits such as courage, wisdom and positive institutions. (Seligman and Csikszentmihalyi, 2000).

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## 1.10 HUMAN RELATIONS

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Human Relations Movement refers to those researchers of organizational development who study the behaviour of people in groups, particularly at the workplace. It originated in the 1930s (Hawthorn studies), which examined the effects of social relations, motivation and employee satisfaction on factory productivity. The movement viewed workers in terms of their psychology and fit with companies, rather than as interchangeable parts. Important theoretical advancements in the human relations approach include the famous Hawthorne experiments conducted by Elton Mayo, Chester Barnard's cooperative system, Abraham Maslow's 'Hierarchy of Needs', Douglas McGregor's 'Theory X-Theory Y', and Warren Bennis' 'The Coming Death of Bureaucracy'. It has now become a concern of many companies to improve the job-oriented interpersonal skills of employees. The teaching of these skills to employees is called 'soft skills' training. Companies need their employees to be successful communicator, good interpreters to interpret others' emotions, to be open to others' feelings, and to be able to solve conflicts and arrive at resolutions. By acquiring these skills, the employees and the customer can maintain more compatible relationships. Despite these intellectual advancements, the human relations school remained operationally weak until the 1950s and 1960s when the advent of the job design movement offered operational guidelines to organizations.

### 1.10.1 Psychology and the Reduction of Violence

Psychologists have been interested in psychological aspects of war and peace since the beginning of modern psychology. Early in the 20th century, William James challenged the overly simplistic and misguided view that war was an inevitable result of human nature (William James, 1910). In 1986, Ralph K. White published

an important volume *Psychology and the Prevention of Nuclear War*, which helped to identify some of the content of peace psychology.

The destructive consequences of mutual enemy images were the focus of the book and approaches to peace emphasized tension-reduction strategies. In 1990, institutional support was forthcoming when the American Psychological Association recognized a new division, the Division of Peace Psychology (Division 48).

Peace psychology covers a wide range of issues, such as ethnic conflict, family violence, hate, crimes, militarism, conflict management, social justice, non-violent approaches to peace, and peace education in addition to providing a useful resource that integrates current research and practices for scholars and practitioners. As psychologists and peace activists carry out peace work in the midst of social conflict, they confront the invisible danger of prematurely restoring structural equilibrium, even when peace building requires precisely the opposite, systemic disequilibrium. The production of non-violent strain includes at least three psychological ingredients: a sense of sacrifice and shared spirituality among participants, practical politico-organizational tactics while facing a militarized enemy, and leadership which is ascetic, pragmatic, and decentralized.

## NOTES

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### 1.11 WEB SURVEY

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Web surveys are done with the help of email. In it a link is sent that takes the respondents to a HTML form, which is to be completed and submitted through the computer. Information is collected quickly because as soon as respondents have finished taking the survey, their responses are immediately submitted. Web surveys can also be embedded on the website using an IFrame. An IFrame is an HTML element that makes it possible to embed a HTML document inside another HTML document. We can also create a Pop-Up survey on our website so that when a site visitor visits a page the HTML form pops up from their web site. If they have pop-up blockers enabled then this method will prevent them from taking survey so one can also create a link to the survey which can display on web site.

The web survey is a cost-effective way of administering a survey that allows investigator to collect large amounts of information without having to pay for interviewers, paper supplies or postage, and does not require separate data entry for responses to be processed. Particularly in organizational or professional settings, the ability to receive a questionnaire and complete it at home or in the office on a computer is very convenient for most people. Information can be collected and processed in just a few days. It also allows respondents ample time to carefully consider response selection and an to answer open-ended questions. If factual information is required then the respondent has enough time to consult their records.

One can increase the response rate of web surveys by sending respondents a pre-notification of the intent of the survey. Also, one can send follow-up reminders

**NOTES**

to respondents that have not completed the survey. This can be used in a situation where a respondent must complete the survey within a given date range. The technical nature of online surveys make them ideal for specialized or well-defined populations that have access to an email account and/or a computer. Coverage bias may result while targeting populations where computers or Internet access are not widespread. Determining an appropriate type of survey to administer to one's respondents must take the population that is being measured into consideration.

**CHECK YOUR PROGRESS**

14. What is personal development?
15. What are the important fields of psychology in the 21st century?
16. What is Human Relations Movement?

**1.12 SUMMARY**

- Psychology is the scientific study of mental and behavioral functioning in a systematic manner.
- It describes, predicts and controls processes like perception, motivation, cognition memory, learning, etc.
- There are different schools of thought around which psychology is organized; these are structuralism, functionalism, behaviourism, gestalt and psychoanalysis.
- Psychology is the subject that not only helps us to understand why other people do the things they do, but it also helps us in understanding ourselves and our own reactions to others.
- Scientific research is a systematic controlled, empirical and critical investigator of hypotheses about the presumed relation among natural phenomena.
- Generating theory and hypotheses are the two most important concepts in conceptualization of a problem.
- In psychology the goal is to study mysteries of human and animal behaviour. Description involves observing behaviour and noting everything about it— what is happening, where it happens, to whom it happens and in what circumstances it seems to happen.
- The collection of data is the fundamental means of testing hypotheses. Methods of data collection can be classified into three basic categories, viz., descriptive method, correlation method and experimental method.

- The Descriptive method serves the purpose of observing and recording behaviour and mental states. Descriptive methods include observation, survey, interviews, standardized tests, case studies, etc.
- The goal of correlational method is to describe the strength of the relationship between two or more events or characteristics. The more strongly the two events are correlated or associated or related, the more effectively we can predict one event from the other (Vernoy and Kyle, 2003).
- An experiment is a carefully regulated procedure in which one or more factors are believed to influence the behaviour being studied or manipulated and all other factors are held constant.
- The American Psychological Association (APA) has developed ethical guidelines. The code of ethics instructs psychologists to protect their participants from mental and physical harm.
- Psychologists are required in various fields like in industries, community, family, education, health and self-development.
- As a growing discipline, psychology is expanding across various new branches like neurobehavioural, positive psychology, cultural psychology, etc.
- Human Relations Movement refers to those researchers of organizational development who study the behaviour of people in groups, particularly at the workplace.
- Psychologists have been interested in psychological aspects of war and peace since the beginning of modern psychology.
- Peace psychology covers a wide range of topics, such as ethnic conflict, family violence, hate, crimes, militarism, conflict management, social justice, non-violent approaches to peace, and peace education in addition to providing a useful resource that integrates current research and practices for scholars and practitioners.
- Web surveys are done with the help of e-mails. In it a link is sent that takes the respondents to a HTML form, which is to be completed and submitted through the computer.

## NOTES

### 1.13 KEY TERMS

- **Gestalt:** Developed by Max Wertheimer, Wolfgang Kohler and Kurt Koffka (1886–1941); referred to how a thing had been ‘put together’ (*Gestalt*) and often translated as ‘pattern’ or ‘configuration’ in psychology
- **Psychoanalysis:** Both a theory of personality and method of psychotherapy originated by Sigmund Freud (1856–1939) around the turn of 20th century
- **Scientific research:** A systematic controlled, empirical and critical investigator of hypotheses about the presumed relation among natural phenomena

## NOTES

- **Theory:** A set of closely related ideas that attempts to explain certain observations
- **Standardized test:** Requires people to answer a series of written or oral questions or sometimes both
- **Questionnaire:** A set of questions filled by the respondents themselves
- **Naturalistic observation:** Observing behaviour in real world setting; for example, work settings, class room and so on, without manipulation or control

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### 1.14 ANSWERS TO 'CHECK YOUR PROGRESS'

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1. natural selection
2. (a) Freud
3. Psychologists are now seen working not only in academic institutions for research and teaching, but also in institutions like hospitals, schools, industries, sports complexes, military establishment, community centres, etc.
4. The behavioural approach focusses on human interaction with the environment that can be seen and measured.
5. The psychotherapy approach proposed unconscious thought, attitude, impulse, wishes, motivation and emotions of which we were unaware.
6. The humanistic movement was really a reaction to both psychodynamic theory and behaviour, often called the third force in psychology.
7. Generating theory and hypotheses are the two most important concepts in the conceptualization of a problem.
8. The two types of hypotheses are descriptive and relational.
9. There are four goals of psychological investigations; these are description, explanation, prediction and control.
10. hypotheses
11. Structured questionnaire maximizes standardization. However, they make responses inflexible. Whereas, in an unstructured questionnaire respondents are free to respond to the questions in their own way. Flexibility is the important merit of this questionnaire. However, it is difficult to judge the reliability of information.
12. The degree of relationship between two variables is expressed as a numerical value called the correlational coefficient.
13. An experimental group is manipulated; whereas, control group is a comparison group that is supposed to be similar in all respect except the treatment of IV.

14. Personal development is a process of individual self-development and the development of others.
15. The important fields of psychology in the 21st century are cognitive neuroscience, evolutionary psychology, cultural psychology, positive psychology.
16. Human Relations Movement refers to those researchers of organizational development who study the behavior of people in groups, particularly at the workplace.

## NOTES

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### 1.15 REFERENCES

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#### Short-Answer Questions

1. List the various schools of thoughts around which the study of psychology is organized.
2. Define psychology. What are the mental factors and behaviours in psychology?
3. What can psychology do for us?
4. Explain briefly the humanistic perspective in psychology.
5. What are the important criteria for formulating a problem?
6. Describe briefly the two types of hypotheses. Also, mention the advantages and criteria for a good hypothesis.
7. Discuss briefly the goals of psychological inquiry.
8. What are the advantages and disadvantages of structured and unstructured interview methods?
9. Write notes on the following:
  - (i) Correlational method
  - (ii) Experimental method
10. What do you understand by neurobehavioural approach?
11. Write brief note on human relation.

#### Long-Answer Questions

1. Describe the nature of psychology in light of the historical perspective.
2. What are the aims of psychology?
3. Explain behaviourism and Gestalt psychology.
4. Discuss the scientific methods in psychology.
5. Describe the types of descriptive statistics.
6. Explain the various descriptive methods.

**NOTES**

7. Discuss the various ethical considerations. Also explain the APA ethical guidelines.
8. Analyse the relationship between psychology and self development.
9. Describe your understanding of psychology in 21st century?
10. Highlight the relationship between psychology and violence.

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## NOTES



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## UNIT 2 BIOLOGICAL AND SOCIO- CULTURAL SHAPING OF BEHAVIOUR

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### NOTES

#### Structure

- 2.0 Introduction
- 2.1 Unit Objectives
- 2.2 Heredity and Environment
  - 2.2.1 Evolutionary Perspective; 2.2.2 Biological and Cultural Root
  - 2.2.3 Socio-Culture Shaping of Behaviour
- 2.3 Growth and Maturation
  - 2.3.1 Growth Curve
- 2.4 Social Maturity Related to Mental and Physical Growth
- 2.5 Physiological Basis of Behaviour
  - 2.5.1 The Brain and the Nervous System; 2.5.2 Central Nervous System
  - 2.5.3 Peripheral Nervous System
- 2.6 The Sensory Process
  - 2.6.1 General Characteristics of Sense (Sensory Modalities)
  - 2.6.2 The Five Senses
- 2.7 Perception
  - 2.7.1 Perceptual Organization; 2.7.2 The Role of Learning in Perception
  - 2.7.3 Perceptual Illusion
- 2.8 Determinants of Perception
  - 2.8.1 Attention
- 2.9 States of Consciousness
  - 2.9.1 Sleep and Dream; 2.9.2 Sleep Disorders; 2.9.3 Dreams
  - 2.9.4 Hypnosis and Meditation
- 2.10 Drug Use: The Highs and Lows of Consciousness
  - 2.10.1 Stimulants
- 2.11 Summary
- 2.12 Key Terms
- 2.13 Answers to 'Check Your Progress'
- 2.14 Questions and Exercises
- 2.15 References

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### 2.0 INTRODUCTION

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This unit will discuss the concept of heredity and environment. You will learn about the relation between heredity, evolution and environment, neurons, and the nervous system. In this unit, you will be familiarized with the various functions of different sense organs, nature and functions of attention. The unit will also highlight the process of perception and the concept of development. You will learn about the process of development and growth. Finally, the unit will discuss the nature of consciousness with special reference to sleep, dream, hypnosis, meditation and drug use.

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### 2.1 UNIT OBJECTIVES

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After going through this unit, you will be able to:

- Explain the connection between evolution, heredity and environment
- Describe the structure and functions of neurons and the nervous system
- Discuss the structure and functions of different sense organs
- Explain the nature and functions of attention
- Highlight the process of perception
- Learn about the important determinants of attention and perception
- Understand the concept of development
- Differentiate between growth and development
- Discuss the nature of consciousness with special reference to sleep, dream, hypnosis, meditation and drug use

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### 2.2 HEREDITY AND ENVIRONMENT

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Nature refers to heredity, the influence of inherited characteristics on personality, physical growth, intellectual growth and social interaction. Nurturing refers to an organism's environmental experiences that include parenting styles, physical surroundings social conditions, etc. The interaction of nature and nurture influences every aspect of mind and behaviour to a degree. Neither of the two factors operates alone (Sylvia S. Mader, 2003). Heredity or environment operate together to produce temperament, height, weight, ability to pitch a baseball, reading ability and so on. Now a question before us is that if Zhang Liyin becomes an Olympic champion in gymnastics, will it be because of her heredity or environment. The answer is both. According to William Greenough (2001) the interaction of heredity and environment is so extensive that to ask, which is more important—nature or nurture—is like asking which is more important to a rectangle, height or width. People who are more successful at constructing optimal life experiences than others are the ones who looked for and found meaningful life theme as they developed. Their lives were not restricted to simple biological survival and passive acceptance of environmental dictates. Psychologists agreed that much complex behaviours have some genetic loading that makes people likely to develop in a particular way. However, our actual development also depends on what we experience in our environment (J. Gottlieb, 2004). The influence of the environment ranges from the things that are lumped together under nurture (like peer relations, family dynamics, neighbourhood quality, parenting and schooling) to biological encounters (like cellular activities, complications in birth, and viruses).

Some psychologists, however, believe that we can develop beyond what our genetic inheritance and our environment give us. They argue that a key aspect of development involves seeking optimal experiences in life (M. Massimini and A. Delle Fave, 2000). They cite examples of people who go beyond simple biological adaptation to actively choose from the environment the things that serve their purposes. These individuals build and construct their own lives, authoring a unique developmental path.

The social and the physical surrounding in which a person lives, conducts himself or herself, grows, is called the environment. Environment also includes the context of school, family and community within which a person lives and interacts with the genetic characterization. By studying the identical and fraternal twins, the influence of environment heredity can be sorted out. Identical twins have more similarity in intelligence than fraternal twins, even when they are separated at birth and reared in different homes. They are also similar when it comes to susceptibility to schizophrenia and some personality characteristic. Recent studies shows that intelligence as well as the amount of grey matter is more correlated in identical twins than in fraternal twins (Thompson et al, 2001). Intelligent people have more grey matter and the amount of grey matter appears to be strongly related to genetic factors.

### **Behaviour genetics**

Behaviour genetics is the study of the degree and nature of heredity's influence on behaviour. Twin studies and behaviour genetics examine the extent to which individuals are shaped by their heredity and their environmental experiences (D. Wahlsten, 2000). The behavioural similarities of identical twin are compared with fraternal.

### **Experiment**

In a twin study, 7000 paired identical and fraternal twins were compared on the personality test of extraversion and neuroticism (Rose and others, 1988). The identical twins had more similarity than the fraternal twins on both the personality traits, suggesting that gene influences both traits.

In another type of twin study, researchers evaluate identical twins that have been reared in separate environments. If their behaviour is similar, the assumption is that heredity has played an important role in shaping their behaviour. This strategy is based on the Minnesota Study of Twins Reared Apart, directed by Thomas Bouchard and his colleagues (1996). They bring identical twins who have been reared apart to Minneapolis from all over the world to study their behaviour. They ask many questions about their vocational orientation, childhood environment and family, values and personal interests. Also, their medical history along with information about their exercise habits, diet and smoking are obtained.

Critics argue that some of the separated twins in the Minnesota study had been together several months prior to their adoption, that some had been reunited

## **NOTES**

## NOTES

prior to their testing (in some cases, for a number of years), that adoption agencies often put identical twins in similar homes, and that even strangers who spend several hours together are likely to come up with some coincidental similarities (L.E. Adler, 1991).

Behaviour genetics also use adoption studies to try to determine whether the behaviour of adopted children is more like that of their biological parents or their adopted parents. Another type of adoption study compares biological and adopted siblings. In one study, the educational levels attained by biological parents were better predictors of the adopted children's IQ scores than were the IQs of the children's adoptive parents (Scarr and Weinberg, 1983). Because of the stronger genetic link between the adopted children and their biological parents, the implication is that heredity plays an important role in intelligence. However, numerous studies document the critical role of environment in intelligence as well (R.J. Sternberg and E.L. Grigorenko, 2001).

Behaviour genetics is the science of heredity which studies the origins of behaviour that determine how much of the behaviour is the result of genetic inheritance and how much due to person's experience. DNA (deoxyribonucleic acid) is a very special kind of molecule (the smallest particle of a substance) that still has all the properties of the substances. DNA consists of two strands, each composed of certain sugars and phosphates. Due to the unique shapes of DNA each molecule of DNA is linked end to end with the others, forming a very long strand, sections of this DNA strand are linked by the amines, which are usually referred to by letters A, T, G and C. Amines are organic structures that contain the genetic codes for building the proteins that make up organic life chain colouring, muscles and skin. It controls the life of each cell. Each section of DNA containing a certain sequence of these amines is called a gene. Genes are located on rod-shaped structures called chromosomes, which are found in the nucleolus of a cell. Humans have a total of forty-six chromosomes in each cell of their bodies (with the exception of the egg and the sperm. Twenty-three of these chromosomes come from the mother's egg and the other 23 from the father's sperm. Most characteristics are determined by twenty-two such pairs, called the autosomes. The last pair determines the sex of the person. These two chromosomes are called the sex chromosomes. There is a gene for hair colour on each chromosome. The actual colour of the person's hair will be determined by those two genes, one gene from each parent. Some genes that are more active in influencing the trait are called dominant. A dominant gene will always be expressed in the actual trait. A person with a dominant brown hair colour gene will have brown hair, no matter what the other gene is.

Some genes are less active in influencing the trait and will only be expressed in the actual trait if they are paired with another less active gene. These genes tend to recede, or fade into the background when paired with a more dominant gene. These are called recessive. Several genetic disorders are carried by recessive genes. Diseases carried by recessive genes are inherited when a child inherits two

recessive genes, one from each parent. Disorders inherited in this manner are cystic fibrosis (a disease of the respiratory and digestive tracts, sickle cell anaemia (a blood disorder), etc. Each cell and each sperm are supposed to have twenty-three chromosomes. In the creation of these cells a chromosome can end up in the wrong cell, leaving one cell with only twenty-two and the other with twenty-four. If either of these cells survives to mate, the missing or extra chromosome can cause mild to severe problems in development (American Academy of Paediatrics, 1995; Barnes and Carey, 2002; Gardner and Sutherland, 1996). Down syndrome is a disorder in which there is an extra chromosome in what would normally be the twenty-first pair. Symptoms include almond-shaped, wide-set eyes and mental retardation (Baren and Carey, 2002; Hernandez and Fisher, 1996). Klinefelter's syndrome is a disorder in which the twenty-three set of sex chromosomes is XXY with the extra X producing a male with reduced masculine characteristics enlarge breast, obesity and excessive height (Bock, 1993) and Turner's Syndrome is a disorder in females in which the twenty-third pair is actually missing on X, so that the result is a lone X chromosome (Rauke and W. Saenger, 2001). These females *tend to be very short infertile and sexually under developed* (American Academy of Paediatrics, 1995; Rover 1993).

## NOTES

### 2.2.1 Evolutionary Perspective

Natural selection, the process described by Charles Darwin to account for evolutionary change, plays an important role in shaping both behaviour and brain. Evolutionary psychology is focussed on the study of how evolution explains physiological processes. Psychologists and researchers take the basic principles of evolution, including natural selection, and apply them to psychological phenomena. This perspective suggests that these mental processes exist because they serve an evolutionary purpose—they aid in survival and reproduction.

### 2.2.2 Biological and Cultural Root

In the evolutionary scheme, some individuals are more successful at solving problems and adapting effectively than others (Crawford and Salmon, 2004; Goldsmith and Zimmerman, 2001). Those who are successful pass on their genes to the next generation; those who are less successful do not.

In this evolutionary psychology view, psychological functions have become more specialized over human history (David Buss, 2000, 2004; L. Cosmides and others, 2003). Following are among the specialized psychological functions that evolutionary psychologists study:

- Development of a fear of strangers between 3 and 24 months of age, as well as very common fears of snakes, spiders, heights, open spaces and darkness (Marks, 1987).
- Perceptual adaptations for tracking motion (Ashida, Seiffert, and Osaka, 2001).

## NOTES

- Children imitate high-status models and not low-status models (A. Bandura, 1977).

Throughout the world, kind, intelligent, and dependable mates are preferred (David Buss and others, 1990). Evolutionary psychologists believe that these specialized functions developed because they helped humans adapt and solve problems in past environments (S.J.C. Gaulin and D.H. McBurney, 2004). Some critics caution that evolutionary psychology places too much emphasis on the biological foundations of behaviour. For example, Albert Bandura (1998), whose social cognitive theory acknowledges the importance of human adaptation and change. However, he rejects what he calls 'one-sided evolutionism', in which social behaviour is considered to be solely the product of evolved biology. Bandura recommends a bidirectional view: Evolutionary pressures created changes in biological structures facilitating the use of tools, which enabled organisms to manipulate, alter and construct new environmental conditions. Environmental innovations of increasing complexity, in turn, produced new pressures for the evolution of specialized biological systems facilitating consciousness, thought, and language.

Scientists such as Steven Jay Gould (1981) agree that human evolution gave us body structure and biological potentialities, not behavioural dictates. The advanced biological capacities that evolved can be instrumental in producing diverse cultures; for example, aggressive or peaceful. Russian American scientist Theodore Dobzhansky (1977) reminds us that the human species has evolved the capacity for learnability and plasticity, which allows us to adapt to diverse contexts. Most psychologists would agree that the interaction of biology and environment is the basis for own development as human beings (C.G. Coll, E.L. Bearer and R.M. Lerner, 2004).

### 2.2.3 Socio-Culture Shaping of Behaviour

The behaviour of human beings is meaningful in its cultural context. In terms of shared practices and meaning, different cultures guide us in choosing our goals. Different patterns of behaviour are found in different cultures which emerge in the context of interaction of the people which are encoded in different forms. Various customs, traditions and cultural artifacts display these codes. It has both material and subjective aspects. Culture flows from one generation to another. The subjective part includes roles, norms, values, etc.; whereas the material part includes different artefacts, sculptures, tools, etc. Culture works in different ways, on one side it provides us with opportunities and on the other side it constrains us. Different skills and behaviour patterns are discouraged and encouraged depending on the particular cultural context. Different demands are put by an extended family and a nuclear family, in the same way, schools in remote villages and cities differ in their functioning; for example, interaction pattern, classroom organization, etc. Every culture tries to maintain its identity.



## 2.3 GROWTH AND MATURATION

### Growth

The meaning of words growth and development is understood interchangeably. The term 'growth' is used in the physical sense. It generally refers to increase in size, length, height and weight. Changes in. Growth is one of the components of developmental process. In a sense development in its quantitative aspect is termed as growth.

### Characteristics of growth

The following are the characteristics of growth:

- (i) Hereditary factor is the cause.
- (ii) Physical factors play a dominant role.
- (iii) Expansion in height and weight is its apparent result.
- (iv) It is quantitative, additive and augmentative.
- (v) Growth stops at a particular point of life.
- (vi) Growth need not necessarily cause development in all the cases.
- (vii) Rate of growth is distinct and unique.
- (viii) Individual difference in growth is apparent and obvious.

### Development

Development is a qualitative and integral change occurring at physical and mental levels improving the efficiency or functional ability. Development means a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience—E.B. Hurlock. Development means whole sequence of life from conception to death. Thus, development could be understood as follows:

- It consists of orderly, coherent and progressive changes.
- The changes lead forward and have a definite direction.
- The changes are not random, there exists a definite relationship between what exist and what will come after (next stage).
- It must be understood that development results in new abilities and characteristics in an individual. There exists a shift to higher levels from lower stages of functioning.

All developmental changes are not the same, they can be of different types; for example, proportional changes (baby to adult), changes in features (disappearance of baby teeth), changes in size (physical growth) and acquiring new features are all developments of different types. Such changes which are clearly definable are which can be identified specifically as show growth. A differentiation between development and growth is important at this stage. Often,

### NOTES