

# **BA PSYCHOLOGY**

## **BPCC 105 Psychological Research Guidelines on Practicum**

(2 Credits)



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THE PEOPLE'S  
UNIVERSITY



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## 1.0 INTRODUCTION

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The BA Programme offered by the University will introduce you to the laboratory component in the courses offered by the Discipline of Psychology. To complete the course BPCC 101 General Psychology, you must complete one Tutor Marked Assignment, attend practicum sessions (sessions are mandatory), write the term end examination for theory and practical components separately.

Laboratory component is of 2 Credits. In this, you will learn how to administer tests and conduct experiments in a controlled condition, that is in a laboratory setup at your Study Centre. The test and experiments will be carried out on a human participant and you will be the experimenter or test administrator. At times, this situation may also be reversed as during the course you will carry out practicals amongst your classmates. The tests and experiments are related to various topics that you have read or about to read in the theory component of BPCC 101. While doing lab work, you will be directly supervised by your academic counsellor. You will follow a standard procedure for administration, scoring and interpretation of the result and findings. You will also learn about ethical issues as they apply in laboratory work.

As you must have learned that psychology is a science of human behaviour. It aims at understanding various phenomena of human mind and behaviour. The purpose of understanding is description, explanation, prediction and control of behaviour, and the application of various techniques for the betterment of life. But how these goals are achieved? These goals are achieved through scientific research as a first step and then the research results are applied in real life settings. Psychologists have developed certain methods and procedures over the years to understand behaviour. These methods are studied in the branches of psychology especially devoted to the experiments, methods and research in psychology. The first such branch is Psychometrics which literally means measurement of psychological variables. It includes everything related to the measurement of psychological constructs. The more specific branches are Experimental Psychology and Psychological Testing. Experimental psychology, as the name suggests, is focused more on experimentation in psychology. Psychological testing is more focused on psychological tests developed to study various mental abilities, personality traits, and other related aspects of behaviours. Psychological tests are scientifically designed instruments for psychological measurement of constructs.

Experiments in psychology make use of different instruments/apparatus to study different cognitive, affective or behavioural aspects such as sensation, perception, attention, memory, learning and other such processes. They mainly focus on studying the cause and effect relationship between independent and dependent variable. Experiments mainly focus on studying cause and effect relationship between independent and dependent variables. The participant has to be active during the experiment as she/he not only performs on a task but is also vigilant in observing one's own mental activities while performing the task and reporting it to the experimenter. This is also known as 'introspective report'.

On the other hand, psychological tests can be classified into various types on the basis of administration, time limit, nature of items. This will be described in detail in later section. Psychological tests can be used in different settings like schools, hospitals, organisations and welfare organisations. They can also be used for research purpose. They are not only used to diagnose mental disorders, but may also be used to select individuals for different jobs, to determine career choice and grades, etc. Tests are also used to assess personality and adjustment pattern. Tests are administered in a standardized manner and includes assessment of some mental process, trait or characteristic. The main characteristics of a good test are that it should be reliable, valid, possess good norms and should be appropriate for the persons's age, cultural, linguistic and social

background. A good psychological test is always a standardized test, which means that the test follows a uniform and systematic procedure of administration and scoring. It also has a manual in which the reliability, validity and the norms are provided.

As part of this course, you will learn the administration of tests related to personality and also experiments based on cognitive processes, like perception and learning. As an experimenter/test administrator, you will make use of different apparatus and test materials (test booklet, manual, and scoring keys) to study different aspects of human behaviour.

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## **2.0 PRACTICAL IN BPC 101 (2 CREDITS)**

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Any two standardized tools for measuring:

1. Aptitude (e.g. Differential aptitude test)
2. Interest (e.g. Vocational Interest Inventory)
3. Attitude (e.g. social distance)

Two practicals are to be conducted in the psychology laboratory. From the above three, any two needs to be conducted and written in proper format (as mentioned in the guidelines) in the Practicum Notebook. The Practicum Notebook should include a title page (format given in Appendix I) and a certificate (Appendix II). This notebook is to be assessed by the concerned academic counselor. Actual conduction of practicals and reporting it in practical note book (internal assessment) carries 50% weightage and the Term End Examination of Practical including viva-voce (external assessment) carries 50% weightage.

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## **3.0 PROCEDURE TO BE FOLLOWED BY ACADEMIC COUNSELLOR**

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### **For Experiments in Psychology**

- 1) You may refer to some of the books given as follows:
  - Experimental Psychology by L. Postman & J. P. Egan
  - Experiments in Psychology by S. M. Mohsin
  - Experimental Psychology with Advanced Experiments (2Vols.) by M. Rajamanickam
- 2) Explain the experiment in detail to the learners.
- 3) Introduce the experiment in terms of:
  - Historical background

- Hypothesis/es
  - Independent and dependent variables
  - Control and experimental conditions
  - Administration
  - Scoring
- 4) After the introduction of the experiment, demonstrate to the learners how to conduct the experiment.
  - 5) The demonstration will include the following:
    - Preparation for the experiment, for instance, keeping the material (instrument/ apparatus, stimulus words/ list, stopwatch) ready.
    - Establishing rapport with the participant, making him/her feel comfortable
    - Explaining the experiment (procedure, time limit, precautions)
    - Taking informed consent for undergoing the experiment and informing the participant that the experiment findings will remain confidential.
    - Taking permission to record the session, wherever applicable.
    - Explaining the instructions to the learners.
    - Clearing all doubts in the mind of the participant about the experiment.
    - The experiment is conducted on the participant.
  - 6) Explain the scoring procedure to the learners.
  - 7) Explain how to discuss the data.
  - 8) Ask learners to conduct the experiment on each other in pairs and monitor the same.
  - 9) The learners will now conduct the experiment and do the scoring.
  - 10) The learners will have to write a report of the experiment in the practicum notebook which will be evaluated by the academic counsellors.

### **For Psychological Tests**

- 1) Go through the manual of the test thoroughly.
- 2) Explain the test in detail to the learners in the class.
- 3) Introduce the test in terms of:

- History of the Test
  - Author
  - Development of the test
  - Features of the test (e.g. no. of items, dimensions, reliability, validity)
  - Administration
  - Scoring
  - Interpretation
- 4) After the introduction of the test, demonstrate to the learners how to administer the test.
  - 5) The demonstration of administration will include the following:
    - a) Preparation for the test, for instance, keeping the test material (test booklet, answer sheet, stopwatch) ready.
    - b) Establishing rapport with the participant, making him/her feel comfortable
    - c) Explaining the test ( procedure, time limit, precautions)
    - d) Taking informed consent for undergoing the test and informing the participant that the test findings will remain confidential.
    - e) Taking permission to record the session, wherever applicable.
    - f) Reading the instructions for test administration from the manual and showing it to learners as to from where they have to read the instructions.
    - g) Clearing all doubts in the mind of the subject about the test administration.
    - h) The participant takes the test.
    - i) Taking the answer sheet from the participant after completion of the test. .
  - 6) Explain the scoring procedure (as given in the manual) to the learners.
  - 7) Explain how to interpret the data.
  - 8) Ask learners to administer the test on each other in pairs and monitor the same.
  - 9) The learners will then administer, score and the results.
  - 10) The learners will have to write a report of the experiment in the practicum notebook which will be evaluated by the academic counsellors.

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#### **4.0 IMPORTANT INFORMATION FOR THE LEARNER**

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- 1) **Practicum Counselling Sessions:** You are advised to contact your Study Centre with regard to schedule of counseling sessions for the Practicum Course. You may also visit the website of your Regional Centre, where the schedule of sessions is displayed. Unlike counseling sessions of other courses in the programme, the sessions organized for this course are mandatory. Thus, you should attend all the sessions and, in these sessions, your academic counselor will teach you how to conduct and administer experiments and tests. You will clarify all your doubts arising while pursuing this course from your academic counselor. There is weightage given to attendance in evaluation also (refer to evaluation scheme, under 'Evaluation'). The number of counselling sessions allocated for practicum course are 02 sessions (01 session is of 03 Hours duration).
- 2) **Writing of Practicum Notebook:** As mentioned above, you will be conducting and administering experiments and test in the Practicum course. You will thus, record the procedure of two practicals in the practical notebook. The notebook should be handwritten, in the format mentioned at point No.3, and checked by the academic counselor under whose guidance you have conducted practicals.

### 3) Format for Writing Practical Notebook

The academic counsellor will introduce the following format which you have to follow while preparing the practicum notebook.

- **Title:** This heading will mention the 'title' or 'name' of the practical e.g: 16 PF / Muller-Lyre Illusion.
- **Aims/ Objectives:** This section will consist of the main objectives or purpose of the practical. For example, if you are performing a test on '16 PF' then the basic objective of the test will be: 'To assess the personality of the participant using 16 PF'.
- **Hypothesis/es (written in case of experiments only):** A tentative statement about the cause and effect relationship between the independent and dependent variables, is to be mentioned.
- **Introduction:** Here, the historical background of the test/ experiment is mentioned. The concept is defined and discussed. For example, in case of 16 PF, the historical background of 16 PF is described. The concept of personality is defined and the theories related to it are discussed, with a special focus on Cattell's personality theory.
- **Description of the Test/ Experiment:** Under this, the details with regard to the test experiments are mentioned, like author of the test, basic purpose of the test, number of items, dimensions/ factors included in the test, time limit, reliability, validity, and scoring.
- **Material Required:** The material required for the administration of the test (or experiment) is mentioned. For example, in case of 16 PF, the test booklet, answer sheet, scoring key, pencil, eraser are required.
- **Participant's Profile:** This will consist of all the detailed information about the participant, like, name of the participant (optional), age, gender, educational qualification and occupation.
- **Procedure and Administration:** The following sub headings are included here;

**Preparation:** The material required for conduction of the test/ experiment, like, test booklet, apparatus or instrument, answer sheet, stopwatch are kept ready.

**Rapport:** You have to mention that rapport was created with the participant and that she/he was well informed about the details of the test/ experiment.

**Instructions:** Instruction as given in the test manual/ experiment are included here.

**Precautions:** Precautions, if any, to be considered while administration of the test/ experiment are mentioned under this sub-heading.

**Introspective Report:** After completion of the test/ experiment by the participant, an introspective report is to be taken, that is, the participant's feeling and constraints faced by him/her while undergoing the test/ experiment is mentioned under this sub-heading in first person.

**Scoring and Interpretation:** After the participant completes the test, the answer sheet is to be scored with the help of the scoring key and the data is to be interpreted with the help of the norms given in the manual. The scores can then be mentioned and interpreted under this heading. For experiments, the findings are to be analysed and mentioned here.

**Discussion:** You have to discuss the result based on the interpretation. It may be further analysed in the light of the introspective report. In case of experiments, the results may be supported by existing studies conducted in the field.

**Conclusion:** Under this heading, you have to conclude the findings of the test or the experiment.

## References

The books, websites and the manual referred to by the learner are mentioned in American Psychological Association (APA) format.

### References (APA Style)

References have to be written in APA format. These should be alphabetically listed.

#### Books

Anastasi, A. (1968). *Psychological Testing*. London: MacMillan Company.

#### Journal Article

Dennision, B. (1984). Bringing corporate culture to the bottomline. *Organizational Dynamics*, 13,22-24.

#### Book Chapter

Khan, A.W. (2005). Distance Education for Development. In: Garg, S. et.al. (Eds.) *Open and Distance Education in Global Environment: Opportunities for collaboration*. New Delhi: Viva Books.

#### Websites

<http://www.mcb.co.uk/apmfirum> (accessed on 2.3.2011)

- 4) You will keep the photocopy of the practicum notebook before submitting it at the study centre. Acknowledgement (Appendix 3) may also be taken while submitting the notebook.

## 5.0 EVALUATION

- 1) **Term End Examination (TEE) Form and Exam Fee:** You will have to deposit separate exam fee for the TEE of Practicum Course. The exam fee is Rs.120. Kindly check the latest fee amount applicable from [www.ignou.ac.in](http://www.ignou.ac.in) (it is subject to revision).
- 2) **TEE:** Total marks for Practicum Examination will be 100 marks (Internal assessment is 50 marks and External assessment is 50 Marks). Internal assessment refers to actual conduction of Practicals and reporting them in the practical notebook in the prescribed format. External Assessment refers to conduction/ administration of Practicum on exam day and appearing in Viva- Voce. TEE for the course will be organized at the Study Centre.
- 3) **Conduction of TEE:** You will conduct the practicals and submit practicum notebook to the academic counsellor and get it corrected before the Practicum Term End Examination. You will bring notebook at the time of examination. The examination will be conducted at the respective study centres. The duration of the examination will be of 3 hours. During the examination, you will conduct the practical and submit the answer sheet. The practical will be allotted to you by the way of lottery system. You will then collect the test material and start conducting the practical. You need to bring one participant on the day of exam, on whom the test/ experiment will be conducted. Once you finish conducting the practical, write the findings in the answer sheet. This will be followed by viva-voce. The participants may leave after the conduction of practical is over.

The practicum answer sheets will be corrected by the external examiner and the viva-voce will also be conducted by the external examiner.

### Dates for Term End Examination of Practicum

Admission Cycle	Date Range for TEE of BPCC 105
<b>June TEE</b>	<b>1 July to 14 August</b>
<b>December TEE</b>	<b>1 January to 15 February</b>

**The dates for TEE of BPCC101 will not appear in the datesheet provided by SED, IGNOU. For this, please contact your respective study centres.**

- 4) **Passing Marks for Practicum:** Minimum passing marks in the course is 35. There is no re-evaluation in TEE of Practicum.

- 5) **Scheme of Evaluation:** The following evaluation methodology will be followed for TEE:

INTERNAL	Marks	EXTERNAL	Marks
Attendance	05	Conduction	20
Conduction of test/experiment	30	Evaluation of answer script	10
Practicum Notebook	15	Viva-Voce	20

<b>TOTAL</b>	<b>50</b>	<b>TOTAL</b>	<b>50</b>
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External evaluation will carry **30% weightage** and internal evaluation will carry **70% weightage**.

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## 6.0 A BRIEF GUIDE TO PRACTICALS

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### Principles of psychological testing

We all are familiar with the term testing. We grow up taking various tests at our school, tests for our physical fitness, or tests for our selection in sport teams or tests for recruitment, and the like. You must have also attempted tests in some magazine or newspaper which rates you on friendship scale – how friendly you are to others or an interest test – what do you want to do in leisure time or what do you want to be in life, or how active you are in taking initiatives etc. the list can go on. One very common example of test is appearing for examination in school. This type of test is called achievement test. In achievement test previous learning or what has been learnt is measured. This is only one type of various tests under the umbrella of testing. But if you think about psychological testing, your mind will take you to the topics like intelligence, personality, attitude, creativity, learning, and memory etc.

Here, we will briefly explain what a psychological test is and its types; and then we will discuss principles related to administration, scoring, interpretation and report writing.

#### Psychological test

In general terms test is any procedure used to measure a factor or assess some ability. Included in this are intelligence test, which yields IQ (Intelligence Quotient) measures, aptitude test, which measure potential in some area, various personality tests which assess aspects of personality style, belief systems and attitudes. More specifically, a psychological test can be defined as ‘a standardized instrument designed to measure objectively one or more aspects of a total personality by means of samples of verbal or nonverbal responses, or by means of other behaviours’ (Freeman 1965: 46).

Thus, a psychological test

- Is a standardized instrument
- Objectivity is one of the characteristics of a standardized instrument.
- Measures one or many psychological attributes- mental ability, personality, interest, attitude, aptitude, etc.
- Measurement is done through verbal or non-verbal responses.
- Sample of behaviour may be observed or studied through psychological tests.
- The test results are given in terms of scores or categories.

#### A brief overview of the early developments in testing:

Scholars date the history of testing back to 2200 BCE with the examination of Chinese officials to determine their fitness for office. This rudimentary type of testing was refined during Han Dynasty around 202 BCE - 200 CE. Five topics were tested: civil law, military affairs, agriculture,

revenue and geography. The system of Chinese examination took its final shape in 1370 when proficiency in the Confucian classics was emphasized. But the established system was abolished in 1906. Psychological testing is believed to have started with the work of Francis Galton on individual differences. The concept of individual differences is a basic concept underlying psychological testing. Francis Galton (1822-1911) was the first scientist to undertake systematic and statistical investigation of individual differences. He demonstrated that individual differences exist in human sensory and motor functioning, such as reaction time, visual acuity and physical strength. James McKeen Cattell extended Galton's work. Cattell also coined the term mental test in 1890. Before Galton, there were other important works in the history of psychology, but difference in human abilities was not focused upon until the work of Galton. Weber (1795-1878) experimented on weight discrimination, vision, hearing and the two point-point threshold. Fechner (1801-07) contributed significantly in the understanding of relation of mental processes to physical phenomena (for example, how the change in the intensity of sound will affect the auditory perception). Wilhelm Wundt (1832-1920) who established the first psychological laboratory in 1879 in Leipzig, Germany, was working on the measurement of mental processes years before. In 1862 he experimented with thought meter to measure the speed of thought.

Thus, psychological testing developed from two lines of enquiry:

- One based on the measurement of individual differences by Darwin, Galton and Cattell
- The other, based on the work of the German psychophysicists – Weber, Fechner and Wundt.

Modern psychological tests were constructed in response to the needs of classifying the mentally and emotionally handicapped. The Seguin Form Board Test (1866) was developed by O. Edward Seguin (1812-1880) to educate and evaluate the mentally disabled. An important breakthrough in the creation of modern tests came at the turn of the twentieth century with the publication of intelligence test by Alfred Binet and T. Simon in 1905. With the time more developments were seen in the field of testing with a range of testing devices like personality tests, performance tests, aptitude tests, interest inventories, educational achievement and multifactor tests etc.

As a learner of psychology, are suggested to read more on the development of psychological testing—how it was started, what were the landmarks in the history of psychological testing. Here, we are giving a brief overview of the early developments:

**Table 1: A Summary of Early Landmarks in the History of Testing**

2200 B.C.	Chinese begin civil service examination
A.D. 1862	Wilhelm Wundt uses a calibrated pendulum to measure the 'speed of thought'
1884	Francis Galton administers the first test battery to thousands of citizens at the International Health Exhibit
1890	James Mckeen Cattell uses the term mental test in announcing the agenda for his Galtonian test battery
1905	Binet and Simon constructed the first intelligence test

1914	Stern introduces the concept of IQ or intelligence quotient- the mental age divided by chronological age
1916	Lewis Terman revises the Binet-Simon scales, publishes the Stanford-Binet.
1917	Revisions appear in 1937, 1960, and 1986. Robert Yerkes spearheads the development of the Army Alpha and Beta examinations used for testing World War I recruits
1917	Robert Woodworth develops the Personal Data Sheet, the first personality Test
1920	Rorschach Inkblot test published
1921	Psychological Corporation- the first major test publisher-founded by Cattell, Thorndike and Woodworth
1927	The first edition of the Strong Vocational Interest Blank published
1939	Wechsler-Bellevue Intelligence Scale published. Revisions published in 1955, 1981 and 1997.
1942	Minnesota Multiphasic Personality Inventory published
1949	Wechsler Intelligence Scale for Children published. Revisions published in 1974, 1991

Adapted from: Psychological Testing by R J Gregory 2004: 51

### Types of Tests

Tests can be categorized on the basis of administration, the behaviour they measure, mode of response and on the basis of the structure of the test. On the basis of test administration, there are two types of tests: Individual tests and Group tests. The tests which can be given to one person at a time are known as **individual tests**. **Group tests** can be administered to more than one person at a time by a single examiner. If we categorize tests according to the type they measure, these tests are put under a broad category: ability tests. **Ability test** measure skills in terms of speed, accuracy or both. For example, in the test of mathematical ability, the more problems you solve accurately within the time limit, the more will be your score. Ability is a broad term which encompasses aptitude tests, intelligence tests and achievement tests. **Achievement tests** measure previous learning, like how much has been learnt in English in one year by six grade learners can be measured by term end examination. **Aptitude tests** measure potential for acquiring a specific skill, for example how much can be learnt by a person in music if s/he is given specific training is the person's musical aptitude. **Intelligence tests** measure a person's general potential to solve problems, to adapt to changing circumstances and to benefit from experience. All the above

three types of tests are inter related; sometimes these tests are included under the tests of human ability. Personality tests measure traits, temperaments and dispositions. **Personality tests** can be categorized on the basis of the structure of the test. Whether the test is clearly structured like a questionnaire or it is semi-structured or uses unstructured stimulus. Unstructured or semi-structured tests are commonly known as **projective tests**. The test stimulus in projective tests is ambiguous, like ink-blot in Rorschach inkblot test.

On the basis of time constraint in the test, if the test has simple items and has a time limit, then it is a **speed test**. On the other hand, a **power test** may have a generous time limit but with difficult items. Tests may also be classified on the basis of nature of items or content of items used. In this category, a test may be a verbal test, nonverbal test, performance test, or non-language test. A verbal test is a paper-pencil test. In non-verbal test, language is only used in instructions, figures and symbols are used in items. In a performance test, the human participant performs on a task rather than answering questions. Such tests do not use language in the test, but instructions may be given by using language, gestures, or pantomime. In non-language test, the test does not use any form of written, spoken or reading communication. Instructions are usually given through gestures and pantomimes. Such tests are administered to people or children who cannot communicate in any language. Test may also be objective and subjective. In objective test there is a specific response to be given (True/False) and the scoring process is free of personal judgement or bias. Subjective test consists of items such as essay questions or responding to inkblots, where there is less specific response. The scoring may thereby, be influenced by personal attitude of the scorer. Tests can also be classified as achievement tests, attitude tests, interest tests and personality tests.

We will discuss some tests in later sections. It should be clear to you by now, that psychological tests are mainly used to assess individual differences in various human abilities and personality. The most common uses of tests are classification, diagnosis and treatment planning, self-knowledge, program evaluation and research.

### **Basic Principles of Psychological Testing**

By principles of psychological testing we mean the basic concepts and fundamental ideas that underlie all psychological tests. Reliability, validity, test administration and standardization are some of the fundamental concepts, that we will discuss here.

#### **a) Reliability**

Reliability is consistency. The reliability of a test is its ability to yield consistent results. A good test should be reliable – that is, it should give similar results whenever a person takes it. It should give similar results even if different persons administer and score it. Reliability is not an all or none matter, it is a matter of degree. ‘In more technical terms, reliability refers to the degree to which test scores are free of measurement errors’ (Kaplan and Saccuzzo 2009: 22). The British Psychological Society Steering Committee on Test Standards says that reliability is a reflection of ‘how accurate or precise a test score is’ (1999: 4).

Measures of reliability are usually based on correlation coefficients. A correlation coefficient ranges from +1.0 to -1.0. It is the measure of the strength of association or similarity between two sets of scores obtained by the same person or group. In psychological tests, perfect reliability does not exist usually.

There are several different ways of assessing reliability: item-total correlations, test-retest reliability, split half reliability, factor and principal component analysis and inter-rater reliability. The choice of method depends on the needs of the investigator. In test-retest reliability method, the same test is administered twice to the same group and coefficient correlation is calculated for the scores on both the test. Alternate forms reliability is estimated with the help of alternate form of the same test. The investigators sometimes develop alternate form of the test which has same content and covers the same range and level of difficulty. Both forms of the test are administered on the same group and the test scores are correlated to find out the reliability of the test. It is also called equivalent or parallel forms reliability. Split half reliability is estimated by correlating the scores obtained from equivalent halves of a test administered once to a representative group. In the item total correlations the investigator calculates the correlation between scores on each item of the test and the total score on the test. Inter-rater reliability is calculated when the measured behaviour is rated by observers. Ratings of different observers are correlated to measure the correlation coefficient. The Table 1.2 gives a brief overview of the methods of reliability.

Method	No. of Forms	No. of Sessions	Sources of error variance
Test-Retest	1	2	Changes over time
Alternate forms (immediate)	2	1	Item sampling
Alternate Forms (delayed)	2	2	Item sampling Changes over time
Split Half	1	1	Item sampling Nature of split
Item total	1	1	Item sampling Test heterogeneity
Interscorer	1	1	Scorer differences

*Source: Robert J Gregory (2004: 111)*

There are different statistical methods used to assess reliability: Cronbach's alpha, Kuder-Richardson (KR-20), Pearson correlation and Guttman's coefficient and factor analysis. Readers can read more about reliability and validity on <http://psychology.wadsworth.com/book/gravetterwallnau5e/index.html>

What should be the accepted level of test reliability or when do we say that the particular test should be used as it has good reliability index? There is no such fixed criterion for a good psychological test. Some authors suggest that reliability should be at least .95. But in the words of Guilford and Fruchter (1978), 'There has been some consensus that to be a very accurate measure of individual differences in some characteristics, the reliability should be above .90. The truth is, however, that many standard tests with reliabilities as low as .70 prove to be very useful. And tests with reliabilities lower than that can be useful in research.'

## b) Validity

A valid test is one that measures what it is supposed to measure. 'A test is valid to the extent that inferences made from it are appropriate, meaningful and useful.' (Standards for Educational and

Psychological Testing, 1999). The first essential quality of a valid test is that it should be highly reliable. If a test yields inconsistent results, (i.e. it is not reliable) it can not be correlated with any criterion (some behaviour or personal accomplishment etc.). But high reliability does not guarantee high validity of the test. The relation between reliability and validity can be discussed with the following example: ‘Sir Francis Galton’s sensory and motor measures could never have been valid if they had not been reliable.... Yet even though some of Galton’s measures turned out to be very reliable, later evidence showed that they were not valid measures of intelligence. The measures yielded similar scores time after time, but those scores were poorly correlated with validity criteria such as school grades and teacher ratings of intelligence.’ (Morgan, King, Weisz and Schoplar, 1997: 520).

There are several different types of validity. One or more methods can be selected depending on the needs of the measure. Different ways of measuring validity have been grouped into three categories: Content validity, Criterion-related validity, Construct validity. Content validity is ‘an estimate of validity of a testing instrument based on a detailed examination of the contents of the test items; contents here means the actual constituent material of the test item’ (Reber and Reber 2001: 781). Content validity depends on the judgment of experts on the relevance of the items used in the instrument. Criterion related validity is assessed by determining the relationship between test scores and some independent criterion. Gregory has included two different approaches under criterion related validity- concurrent validity and predictive validity (2004: 124):

- In concurrent validity, the criterion measures are obtained at approximately the same time as the test scores. For example, the current psychiatric diagnosis of a patient would be an appropriate measure to provide validation evidence for a paper-and-pencil psychodiagnostic test.
- In predictive validity, the criterion measures are obtained in future, usually months or years after the test scores are obtained. For example, a college entrance exam that is accurate in predicting the subsequent grade point average of examinees would possess criterion related validity.

Construct validity is ‘a set of procedures for evaluating the validity of a testing instrument based on the determination of the degree to which the test items capture the hypothetical quality or trait (i.e. the construct) it was designed to measure. For example, if a test is supposed to provide a measure of intelligence one should ask: what traits or qualities (or constructs) actually characterize intelligence? Do the test items actually tap such constructs?’ (Reber and Reber 2001: 781). Face validity is dependent on whether the test looks valid to test users, examiners and examinees. Gregory comments that face validity is important for social acceptability of the test but is irrelevant for psychometric purposes.

### c) Norms

Suppose someone gets 50 marks on an intelligence test. This score has no meaning in itself. In psychological testing the scores obtained first from a test are called raw scores. These scores are simply overall score of the performance on the test, like the number of problems solved in an intelligence test. These initial scores are converted to some form of standard scores based on a norm group. ‘A norm group consists of a sample of examinees who are representatives of the population for whom the test is intended’ (Gregory 2004: 81). For example, if a test is designed to study the value system of twelfth graders, the test will be given to large number of such age group (rural- urban, rich – middle class – poor etc.) to determine the distribution of raw scores. On the basis of collection of scores, the test developer will provide derived scores. These scores are known as norms. Norms can be in the form of percentiles ranks, stanines, stens, age norm, grade norms or standard scores.

A percentile expresses the percentage of scores in a sample that fall below it. A score at 50th percentile indicates that 50% of the scores fall below it. Percentile should not be confused with percent correct. Percentile is a comparative score. It tells where your scores places you in particular sample (norm group) whereas percent tells the number of questions answered correctly. 50% expresses how much was attempted correctly on an intelligence test and this 50 percent can be placed at the percentile of 50, 90, or 80 depending on the performance of the sample. Percentile 1 is the lowest rank and 100 percentile is the highest rank.

Standard score is any derived score based on standard deviation. It is more commonly known as z-score. It expresses the distance from mean in standard deviation units. T-score is a variant of standard score. It was suggested by McCall (1922). In case of standard score, the value of mean is taken zero whereas in a T-score the value of mean is 50 and standard deviation of 10.

Stanine (or standard nine) scale was developed by the United States Air Force during World War II. In stanine scale all raw scores are converted to single digit system ranging from 1 to 9. Sten scale (standard ten) was proposed by Canfield (1951). It is a ten unit scale with 5 units above and 5 units below the mean. Age norms express the level of performance with reference to age. Grade norms express the level of performance with reference to grade level.

There are many such norms developed for different tests, as mental age and I.Q. Learners will know more about them while using various tests with different norms.

### **Test Administration and Scoring**

Test administration can be either individual or group. The administration of a test should be according to a uniform and specified set of instructions. This is the first principle of test administration. 'A test is considered standardized if the procedures for administering it are uniform from one examiner and setting to another' (Gregory 2004: 54). If a test is not administered according to the specified set of instructions, there will be no uniformity in the administration of the test. The result of such a test will not be reliable. Test administration should follow the guidelines given in the manual. Some important points that the investigator should know before administering a test are given below:

- Every psychological testing procedure, as we already said, has a purpose and rationale. Before using a test, tester should see whether the test fulfills the purpose at hand. The question that one needs to ask is, why do I use this test, what is the purpose of using this test? If all the questions are satisfactorily answered, then one should proceed and use the particular test. But if the use of the test is not rationalized on any ground - purpose, population, or context of using the test - the test should not be used.
- Before using a test, examiner must be familiar with the materials, instructions and the procedure to be followed in the test.
- An examiner should be sensitive to disabilities in the examinees. Disabilities related to hearing, vision, speech or motor control may affect test performance. In case of unrecognized disabilities, serious errors of interpretation may occur.
- Examiners should allot proper time for the entire testing process: setup, reading instructions and actual test taking by the examinees. Allowing too much time for a test is equally erroneous as allowing less time.
- Instructions should be read out in a clear and loud voice. Examiners must stop to answer the questions if the instructions are not clear to examinees.

- The physical conditions (testing room) should be suitable for the test. The conditions such as illumination, temperature and humidity should be taken into consideration before the test. The testing environment should be pleasant, quiet and well illuminated with proper writing desk (in case of a test where answer sheet is required to be filled up).
- Establishing rapport is the first thing that examiners are advised to do when giving a test to an individual or a group. 'Rapport is a comfortable, relaxed, unconstrained, mutually accepting interaction between persons' (Reber and Reber 2001: 597), especially between an examinee and an examiner. It is essential requirement to motivate examinees to cooperate during testing. It is more important in individual testing and particularly when examinees are children. Failure in establishing rapport may cause anxiety, hostility, and uncooperative behaviour in examinees.
- The scoring of the test should follow the pattern as specified in the test manual. If scoring is not numerical, the method of interpretation should also follow the guidelines as given in the test manual.

Thus, a psychological test is a standardized instrument in the sense that it provides well defined procedure and instructions, the items used in the test are reliable and valid and the test depicts scores in terms of standardized scores. At present, when we have access to computer assisted test administration and scoring, the accuracy and precision in administration will require proper training and practice of the examiner both on technical and human grounds.

### **Report Writing**

After administration of a psychological test, the findings are to be presented in the form of a report. Report should be written clearly. The report should be properly divided into sections and subsections and the findings should be tabulated wherever required.

The report should be written in passive voice. For example, instead of writing 'I gave the test booklet to the examinee', one should write, 'the test booklet was given to the examinee'. The report should be written in a standard format.

### **Being Qualified and Trained in Psychological Testing**

There are two aspects of being trained in psychological testing:

- Having technical and theoretical knowledge of psychological testing and its applications
- Having skills necessary for the application of psychological testing, for example communication skills, being a good observer and empathetic listener, etc.

The above aspects are briefly discussed as follows:

#### **a) Technical and Theoretical Knowledge**

Some basic components of this knowledge are:

- i) Knowledge of test construction
- ii) Efficiency in application
- iii) Knowledge and efficiency in scoring and interpretation i)

#### **Knowledge of test construction**

Today testing is required in every field: schools, industries, selection agencies, hospitals, special education centers, rehabilitation centers and various other organisations. A psychologist may

face the task of choosing a test from the available tests or developing a test as the situation demands. In both the situations knowledge of test construction is mandatory. If one needs to select a test, one should have the knowledge of basics of test construction. How the test is developed? Whether it has proper norms or it is standardized, what is the method of scoring, etc. All this information requires technical knowledge about the test construction process. Otherwise, decision of choosing will be fraught with biased assumptions. The theoretical knowledge pertains not only to the selection of test, but also to the construction of tests. One might face such a situation when no test is available, or the available test is outdated, or not suitable culturally. Suppose you are required to make an index of happiness of people in your country or your state or city. How to prepare such an index? You come to know that one such procedure is available in some other country. But the definition of happiness may differ from one country to the other. At one place, it may be family which is primary source of happiness to persons, but at the other, it may be secure future and material prosperity. Thus, one might decide to prepare a questionnaire to study the level of happiness.

### ii) **Efficiency in application**

Which measure one should choose if one is find out whether a child has learning disability or not. One might need a range of procedures – paper pencil test (test of learning and intelligence), observations, interviews with the child, parents and teachers. Which test one should choose - verbal or non-verbal, some qualitative approach or quantitative or both, whether the test is fit for the cultural background. These decisions need not only theoretical knowledge but insight on the part of the investigator which comes with knowledge, practice and experience.

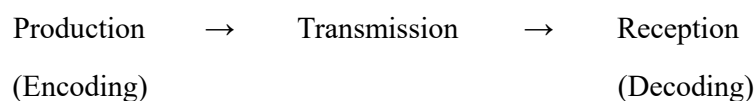
### iii) **Efficiency in Scoring and Interpretation**

Scoring procedures in testing are developed through rigorous statistical procedures. While using psychological tests, one is required to have sound knowledge of statistical principles applied in psychological testing. How the reliability and the validity of the test has been calculated? How the norms of the test have been developed? Knowledge of these technical aspects helps both in construction, selection, revision and adaptation of a test. Interpretation is an essential aspect after scoring which also involves explaining the significance of the scores. What does it mean for a person who gets IQ score of 94? To fulfill all these purposes, an appropriate explanation is an essential requirement from the part of the investigator.

### b) **Developing Skills**

The work of a psychologist is more like an artist. S/he needs to observe, listen, feel and then say something as less as possible. Observation here is not only a method used to study a specific problem. It should be developed as a habit. How to see things: people talking to each other in buses, trains, or offices; youngsters chatting outside a mall, people writing their views in newspapers and magazines, people behaving with each other- in families, in offices, in traffic, nothing should go unnoticed. It need not be a deliberate exercise once it is developed as a habit.

‘A psychologist should be a good writer’, said a wise man. Yes, whatever you observe pen it down. Psychology is a science in the methods it uses, but it is essentially an art in its application. This art will develop gradually when you observe and contemplate and develop the habit of writing things systematically. After observation, another important skill is communication skills. Psychologists working as therapists, counsellors, trainers or psychometricians require communication with others. Communication is a chain of events from the speaker to the Listener. The chain of events involves



Thus, communication involves other mind, a message (information) a code (language) and a channel (written-visual, spoken-auditory) through which information is transmitted. A psychologist should learn to be a good listener before learning to be a good speaker. S/he should learn where and when to speak and where not to. Being just a listener is not sufficient; a psychologist should be an empathetic listener. S/he should feel what others are feeling.

Psychologists should be sensitive to the cultural differences. Various behaviours have their roots in the cultural milieu of a person. The way people talk, greet, their eating habits and sometimes their sensitivity to their surroundings is affected by the environment they live in. If a psychologist is not sensitive to the cultural and environmental factors, there will be no meaning of the inferences drawn from observations and testing, and ultimately will be harmful for the individuals and society at large.

Knowledge of ethical principles during testing is also expected from a trained psychologist. Ethical guidelines for testing issued from time to time are called ethical principles and code of conduct. Psychologist should comply with these principles to avoid any mistake in research and testing. In general, we can phrase principles of ethical treatment as,

- 1) Right to safety
- 2) Right to respectful treatment
- 3) Right to confidentiality
- 4) Right to be informed – technically called informed consent – an examinee should be informed about the nature of the test, risk involved, purpose, and use of information of the test beforehand and only if s/he agrees the examiner should proceed with testing. Examinee should also get informed about the results of the study and use of the test findings.

All the above rights of examinees should be respected during testing and research. In a nutshell, a psychologist should take responsibility of working with humans or animals very honestly that will serve the purpose well for both the examiner and the examinee.

### **Experiments in Psychology**

The first psychology laboratory was established in 1879 by Wilhelm Wundt at Leipzig. In a way, experimental psychology as a formal discipline may be said to be more than hundred and thirty years old. Over the years, experimental psychology has expanded to a large extent. Psychologists have been able to develop precise methods, techniques and procedures of observation and analysis. With the help of experiments, psychologists have also successfully investigated complex behaviour of both human and animals, predict behaviour with a good deal of accuracy, and have been able to improve behaviour in real life situations.

Experimental psychology had its roots in philosophy and subsequently emerged as an independent discipline. Growth of Experimental Psychology has been possible not because psychologists themselves made all the contributions but also because of their ability to assimilate and adapt the findings of other sciences like physiology, chemistry, astronomy, sociology, etc.

Among the philosophical writings which gave a prominent place for matters of psychological interest were those of **Descartes, Leibnitz, and the British Associationists**. These writers gave importance to issues like acquisition and growth of knowledge, memory, etc. which were directly related to an understanding of human behaviour. **Locke, Berkeley, Hume, Brown**, gave the

earliest scientific principles of psychology, known as the Laws of Association, which were derived through intellectual analysis and not experimentation.

The mid 19th century witnessed significant developments in the field of biology and physics. The most important was the theory of organic evolution, propounded by **Charles Darwin**. Since, early psychologists had a close association with religion, theology, and philosophy, Darwin's theory gave a new outlook of establishing psychology as an independent experimental science. This paved the way to take help from developments in other areas like physiology, neurology, medicine, etc. in explaining behaviour. Attempts were made to design and carry out experiments on human behaviour.

In the meantime, the physicist-physiologist **Helmholtz** made an attempt to study the speed of reaction in frogs. Helmholtz demonstrated that the speed of nerve conduction in a frog could be measured. This gave way to study the speed of reactions in human beings. Significant contributions was made by **Donders**, a Dutch physiologist. This was the starting point of now famous 'reaction-time' experiments.

The next important development came from the work of **E.H. Weber**, a German physiologist, who experimented on sensation. Weber attempted to study the quantitative relationship between changes in physical conditions and accompanying psychological changes. Weber, called this area of experimentation as **psychophysics**. Weber's work was further developed by **G.T. Fechner**, a German physicist. The work of Weber and Fechner resulted in the formulation of Weber- Fechner law, the first quantitative law in psychology.

The problem of individual differences was addressed by **Galton**, who was mainly interested in studying and analyzing differences in human behaviour. The most important aspect studied was imagery. Galton devised a test to study the differences among people in imagery.

All these developments were taking place in Europe and this further helped in the establishment of the first psychology laboratory in Leipzig (by **Wilhelm Wundt** in 1879). After this, various other laboratories were established in places like Vienna, Berlin, Wurzburg, etc. These laboratories were carried out experiments on laws of association, reaction-time, imagery, and sensation.

Another important development in experimentation was by **Herman Ebbinghaus**, regarding the processes of memory (retention of knowledge) and forgetting (loss in knowledge). This brought 'higher mental processes' into the domain of experimental psychology.

In United States, attempt to develop experimental psychology was made by **E.L. Thorndike**. Thorndike had come out with his experiments on learning process and the unique feature in his experiments was the use of animal subjects. He was of the view that animal behaviour would provide very useful clues to study human behaviour. Thorndike's experiments on trial and error learning with cats as subjects and the 'puzzle box' as the apparatus were significant and provided the foundation for modern experimental psychology. Thorndike's work resulted in the first set of empirically derived quantitative laws in the area of learning. The introduction of animals in the laboratory helped in the development of experimental psychology, since, animal experiments provided more accurate observation, as well as, greater manipulation of experimental conditions to ensure better control.

Yet another major development was by Russian physiologists, **Bechterev** and **Pavlov**. Bechterev's 'objective reflex' and Pavlov's 'conditioned reflex' threw significant light on the origin of behaviour.

Experimental psychologists soon realised the significance of social factors, and the result was the development of experimental social psychology. Early contributions were made by **Allport**,

**Newcomb, Lippitt, Asch, Sherrif, Murphy, Lewin,** and others. Today, experimental social psychology has become an independent branch of study all together. Social psychologists have planned and carried out experiments that have helped us to understand the behaviour of human beings in different kinds of social situations. Such understanding has found application in industry, hospitals, schools and other situations where people are found to interact.

Thus, it may be concluded that experimental psychology gradually expanded to areas of learning and social behaviour. Over the years, experimental psychology also included the study of abnormal behaviour, and this resulted in the emergence of experimental clinical psychology to be an important field of application and inquiry. Experimental psychology has developed techniques of behaviour therapy and behaviour modification which may be applied in hospitals, clinics, correctional homes, prisons, etc.

The findings of experimental psychologists are applied in factories, offices, hospitals, schools, etc. There is probably no area where experimental psychology cannot make its contributions. Its area of scope and application is much wider than those of most other sciences.

### Psychophysics Experiments

Psychophysics means the relationship of the sensation (psychological effect) to the physical stimulus. The field of psychophysics was founded by **Gustav Theodore Fechner** in 1860, with the publication of his book *Elemente der Psychophysik*. The important problem of psychophysics, as seen by Fechner, was to discover the psychophysical function- the relationship between the physical intensity of a stimulus and its perceived intensity. Though, Fechner did not measure sensation(perceived intensity) directly. Instead, he used an indirect method of measuring the ability of the subject/participant to discriminate between two physical intensities a way of constructing such

function. The psychophysical function was discovered by indirect scaling to be the logarithmic function, and this function, called Fechner's Law, has been the subject of intense debate among psychophysicists ever since. Psychophysical methods developed as ways of understanding sensory experience. Whatever we know about the world comes to us through our senses. The limitations of our sense organs limit what we can know of the world directly, and bias our view of the world. Accordingly, the study of sensory limits is extremely important. Although we are limited to sensing only certain ranges of physical energies, the variety and form of sensory experience is significant. The psychophysical methods were developed for the general purpose of investigating the laws relating to sensory experience to properties of the initiating stimulus. Although a number of different psychophysical methods were developed, three methods, explored in detail by Fechner, gained particular prominence. These three classical methods are – the method of limits, the method of constant stimuli, and the method of average error- exist in one form or other to this day. One important feature of these classical methods is that they call upon the subject to make the simplest possible

judgement: to detect the presence or absence of a sensation or to decide whether two equal sensations are equal in magnitude or different. These discriminations are among the most reliable judgement of which organisms are capable. Experiments in discrimination study the question what is the minimal difference in physical energies required to discriminate between two stimuli?

Sensitivity is measured by threshold (latin form-LIMEN) – the absolute threshold for detection, and the difference threshold or just-noticeable-difference. Threshold experiments in psychophysics are primarily concerned with detection and discrimination. Experiments in detection study the question – what is the minimal amount of physical energy required to detect a stimulus?

Experiments in discrimination study the question – what is the minimal difference in physical energies required to discriminate between two stimuli?

**The guidelines for the experiments of BPC105 is given as below-**

### **1. DIFFERENTIAL APTITUDE TEST**

Aptitudes are assessed by administering Aptitude Tests. These tests usually consist of a number of subtests. The most commonly used Aptitude tests are Differential Aptitude Test (DAT), David's Battery of Differential Aptitude (DBDA), General Aptitude Test Battery (GATB) etc. Differential Aptitude Test (DAT), developed by Bennett, Seashore and Wesman (1984), consists of eight subtests. These are Verbal Reasoning, Numerical Reasoning, Abstract Reasoning, Spatial Reasoning, Clerical Speed & Accuracy, Mechanical Reasoning, Language Usage, and Spelling and Grammar. Combination of these abilities is required for success in different occupations. Administration of the whole battery may be time consuming; so combination of subtests can be used as per requirement. Aptitude test scores must be used along with previous achievement data, present interests, work preferences, general mental ability etc. in order to effectively guide the person. It may be noted that aptitude data provide only clues/suggestions to help in educational and career planning. It does not explicitly establish a fit between the individual and the job. Other factors such as interest, motivation, hard work, etc. also contribute a lot. These must be taken into account before reaching a conclusion.

#### **Name of the Test/Experiment: Differential Aptitude Test**

**Problem:** The purpose of this test is to determine the aptitude/ability of students to learn or succeed in selected areas.

**Materials Required:** Differential Aptitude Test questionnaire, paper and pencil.

**Procedure:** After the process of rapport building, the investigator has to provide the questionnaire to the learner. The fifth edition of the battery has been designed for use in educational and career counseling of students in Grades seven through twelve; organized into two levels; one for students in Grades seven to nine and the other for students in Grades ten to twelve. The DAT consists of eight independent scales:

i) Verbal Reasoning (VR) ii) Numerical Reasoning (NR) iii) Abstract Reasoning (AR) iv) Perceptual (Clerical) Speed and Accuracy (PSA) v) Mechanical Reasoning (MR) vi) Space Relations (SR) vii) Spelling (S) viii) Language Usage (LU).

All the above subtests except the Perceptual (Clerical) Speed and Accuracy are multiple choice power tests. A power test is one which allows enough time to complete the test, but some of the items are so difficult that no one can get a perfect score. On the contrary, the Clerical Speed and Accuracy is a speed test in which the items are of low difficulty level, but the time limit is too short to finish all the items. Alternate forms of the DAT are available.

**Result:** Nine scores are provided (one for each scale). Scholastic Aptitude score consists of a composite score of verbal reasoning and numerical reasoning. Manual of the test may be referred to for further scoring.

**Discussion:** Discuss the results obtained in Differential Aptitude Test. Follow the manual to analyze, interpret and discuss your score in this section.

## 2. INTEREST INVENTORY

Interest refers to one's likings and preferences. You may like to play football more than reading a story. This reflects your interests. This means you have more liking for playing football compared to reading. It does not mean that you'll not be able to do well in reading. However, it indicates your natural inclination or natural desire to undertake one activity in place of another. Thus, an interest is a tendency to become absorbed in an experience and to continue it and to enjoy it. Interest is an integral part of our personality. The development of interests depends on our environment. If a child is exposed to a family environment where everybody talks about music then there is more likelihood that the child will develop interest in music. Once an interest is developed, it may continue long term or it may even change also. Interests change depending on one's motives, experiences, exposures and emotional responses. However, many of our interests get stabilized by the age of adolescence and young adulthood. Interest may be intrinsic or extrinsic. e.g., playing hockey or tennis for the sake of it is intrinsic interest, whereas playing it for earning money is extrinsic interest. Thus extrinsic interests are connected with the pursuit of different activities which give rise to satisfaction or pleasure; intrinsic interests are those related to the pursuit of the activity itself. Super (1990) has classified interests into three groups:

- 1) Expressed Interests: These are the interest expressed or told by the individual. These reflect the subjective opinion of the individual.
- 2) Manifest or Observed Interests: These are the interests which we observe in a person by seeing that person involve in some or the other activity. However, the observation has to be on a long term basis and across different occasions to arrive at an accurate data
- 3) Measured or Tested Interests: These refer to interests found by assessing/testing the individual by using different types of Interest Inventories.

One of the example of interest inventory has been mentioned below:

**Name of the Test/Experiment:** Kuder Preference Record

**Problem:** To measure the preferences of the individual for specific activities.

**Materials Required:** Kuder Preference Record Inventory, paper and pencil.

**Procedure:** Each item in the questionnaire contains three choices. After building the rapport with the participant, the participant is instructed to select one of the three choices as his/her first choice, and another as his/her third choice. An example is given below:

- Build birdhouses
- Write articles about birds
- Draw sketches of birds

This particular item aims to assess three types of interests such as mechanical, literary and artistic interest. The tool uses a forced choice pattern type of assessment where the individual is forced to say which one of the three activities he/she likes best and which one he/she likes least, even though he/ she may not like any of these.

**Result:**

The test has about 168 items having three choices each which provides a score on total 10 dimensions (called occupational areas) - which are- artistic, clerical, mechanical, musical, computational, literary, social service, persuasive, outdoor and scientific interests. The results of the test are scored in form of percentile scores, separately for men and women. It then compares the person's scores on these scales to the manual scores. It also provides comparison between the participant's interests and the interests reported by representative sample.

**Discussion:** Use the manual score to interpret the scores of the participant. Discuss your results, findings and about the scores achieved in this section.

**3. ATTITUDE (e.g. Social Distance)**

Any test to measure attitude like social distance scale, semantic differential scale and so on can be used. An example to assess the distance in social relationships using sociometry, has been given below:

**Name of the Test/ Experiment: Sociometry**

**Problem:** To measure the degree of relatedness or affiliation amongst the members of the group, work teams, class or organisations.

**Material:** Paper, pencil, list of names of the members of the group of participants.

**Procedure:** Sociometry can be used as a scale, with the help of which choices in forming interpersonal relationships of people. It is a technique of measurement in which at least (minimum) a group consisting of 5-6 members are asked to select or choose members of the same group based on a specific criteria, as for example everyone in the group can make choices and describe why the choices were made. From these choices a description emerges of the networks inside the group. With the help of these choices or preferences a drawing, like a map, of those networks called a sociogram is developed. The data for the sociogram may also be displayed as a table or matrix of each person's choices. Such a table is called a sociometric matrix. It is also important to understand the concepts of sociometric star, mutuals, cliques/chains, isolates, sociometric matrix, and sociogram, they are explained as follows:

1) Sociometric star: Regardless of the criterion, the person whose name is selected by maximum members of the group is known as the sociometric star for that specific criterion. 2) Mutuals: where two people choose each other 3) Chains or cliques: where person A chooses person B who chooses person C who chooses person D and so on 4) Isolates: the person who has not been chosen by any one within the group 5) Sociogram: With the help of the choices or preferences a drawing, like a map, of those networks called a sociogram is developed. 6) Sociometric matrix: The data for the sociogram may also be displayed as a table or matrix of each person's choices. Such a table is called a sociomatrix. The above concepts can be clearly understood with the help of an example. Let us assume that there is group of six members, namely, 'A', 'B', 'C', 'D', 'E' & 'F'. Each member will be asked to give their choices for a set of questions. The questions asked may be as follows:

- 1) Whom do you trust amongst the members of your group?
- 2) Whose advice would you like to take regarding serious matters of your life?

- 3) Who do you think can transmit messages accurately within your group?  
 4) Who would like to work with? 5) Who would you like to spend your leisure time with?  
 6) Who would you like to seek help from to generate creative ideas for your task?

The only requirement is that, the members are required to choose only one person for each question. The sociometric matrix chart, sociogram, star, mutuals, isolates and cliques will be different for each question. Suppose the members have given their responses for the first (question no.-1) question. Let us say, the members have marked a '+' to indicate "High Trust", "M" to indicate "Moderate Trust", and "-" to indicate "Distrust/Conflict". Say for example, the member 'A' has been asked the question first and the following is his rating:

B +  
 C -  
 D M  
 E M  
 F +

This means that for the above question, 'A' highly trusts 'B', distrusts or is in conflict with 'C', has moderate trust on 'D', has moderate trust on 'E' and has high level of trust for 'F'. After obtaining the responses from everyone for the first question (Question No.-1), the next step is to prepare a sociomatrix from all the received responses which may be as following for the above example:

Table: Sociometric Chart for the Question No.- 1

	A	B	C	D	E	F
A	-----	M	+	M	+	M
B	+	-----	+	+	+	+
C	-	M	-----	-	-	-
D	M	M	+	-----	M	+
E	M	M	+	+	-----	+
F	+	+	M	+	M	-----

In the above, the first column shows the choice based ratings of 'A' for the other group members, the second row shows the ratings of 'B', third row is of 'C' and so on. The matrix clearly represents the extent to which the interpersonal relationships amongst the members of the group. The row which has a large number of '+' can be identified as the informal leader(s) of the group (member 'B' can be said to be an informal leader in the above example). Rows showing '-'s can identify those people the group may be close to rejecting (member 'C' can be said to be as rejected or least trusted member in the above example). Columns showing all M's or all +'s may highlight those members who have a fear that their responses may be disclosed to others and therefore give moderate responses.

Another important pattern to look for is what is called mutuals. A mutual occurs when I rate you at the same level as you rate me. A positive mutual is when we both rate each other +; a negative mutual is when we both rate each other -. Positive mutuals show bonding in a group. Negative mutuals show areas of conflict. The identification of negative mutuals gives the consultant or therapist insight as to where to start to repair a dysfunctional group. Here are the column totals, and mutuals for our sample group:

Table- Mutuals for the Question No.- 1

	A	B	C	D	E	F
TOTAL +	2	5	0	2	3	3
TOTAL M	3	0	1	3	2	2
TOTAL -	0	0	4	0	0	0
TOTAL CHOICES RECEIVED	5	5	5	5	5	5
NO CHOICES RECEIVED	0	0	0	0	0	0
MUTUALS:						
MUTUAL +	0	1	0	1	0	2
MUTUAL M	1	0	0	1	0	0
MUTUAL -	0	0	0	0	0	0

The sociometric thus, highlights that, the member 'C' requires to work more upon its interpersonal relationship with the other members in order to bring a better team effort. Similarly, the data of a sociomatrix can also be represented in a graphical form (called "sociogram"). The persons are represented in the form of small circles or bubbles. Say, if you are to prepare a sociogram for the above example, where the arrow  $\rightarrow$  indicates "high trust", the arrow  $--\rightarrow$  indicates "moderate level of trust" and the arrow  $\dots\dots>$  indicates distrust or "conflict". Since, all the members have high trust for the person 'B', he is at the center as a sociometric star and the relationship of each member with each other has been indicated simultaneously. If there would have been an isolate in the above example, then no arrow would have been drawn for the concerned person.

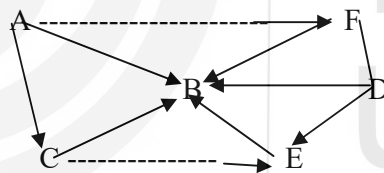


Fig: Sociogram

The learners are required to prepare and work out the sociometric, sociogram, sociometric star, mutuals, cliques and isolates for all the rest of criterion based responses in a similar pattern.

The following instructions should be given, "The following are some of the questions, on the basis of which you have to prepare a sociometric chart, sociogram and then you are required to find out the sociometric star, isolates, mutuals, and cliques for each of the following criteria You have to select only one person for each mentioned question".

Some of the questions are given below: Whom in this room would you choose...

- 1) for advice on the best suited mobile phone for you?
- 2) to generate creative ideas for your tasks?
- 3) for support in taking risks?
- 4) to transmit messages accurately?
- 5) for help in dealing with a difficult situations?
- 6) to work with you?

7) to get reliable information on top management decisions?

8) to keep a confidence?

9) who would recognize your effort and your job? 10) who has shown the most growth in the past year?

**Discussion:** In this section you are supposed to discuss about the star, isolates, mutuals and cliques, on the basis of the responses of the participants. He/ she has to then prepare a sociometric chart and sociogram and discuss accordingly.



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**APPENDIX – I**

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**TITLE PAGE FOR PRACTICUM NOTEBOOK****IGNOU****BA PSYCHOLOGY****Programme Code:** BA**Course Code:** BPCC 101**Title of the Course:** Foundations of Psychology**Name & Enrolment of the Learner:****Address:****Phone No.:****Email:****Study Centre Name/Code/Address:****Regional Centre:****Date:**

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**Signature of the Learner****APPENDIX-II**

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## *CERTIFICATE*

This is to certify that Ms/ Mr. \_\_\_\_\_

of BA Psychology Ist Semester has conducted and successfully completed the practical work in BPCC 131 Practicum: Foundations of Psychology.

### **Signature of the Learner**

Name:

Enrolment No.:

Name of the Study Centre:

Regional Centre:

Place:

Date:

### **Signature of Academic Counsellor**

Name:

Designation:

Place:

Date:

## ACKNOWLEDGEMENT

This is to acknowledge that Ms./Mr. ....

Enrollment No. .... of BA (1<sup>st</sup> Semester) has submitted the

Practicum Notebook at the study centre ....., Regional

Centre .....

**Date:**

**Signature (with stamp)**  
(Coordinator, Study Centre)

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UNIVERSITY

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