1. Details of Module and its structure

Module Detail	
Subject Name	Psychology
Course Name	Psychology 01 (Class XI, Semester - 1)
Module Name/Title	Methods of Enquiry in Psychology – Part 3
Module Id	kepy_10203
Pre-requisites	Knowledge of scientific research
Objectives	After going through this lesson, the learners will be able to understand the following: 1. To understand what is psychological testing. 2. How data is analysed in psychology. 3. Differentiate between quantitative and qualitative data. 4. To understand and learn about the limitations of psychological enquiry. 5. Gain knowledge about ethical issues in psychological research.
Keywords	Objectivity, Systematic, Scientific Research, Reliability, Validity, Verbal Test, Non Verbal Test, Performance Test Speed Test, Power Test, Standardization

2. Development Team

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Psychological Testing

1. I like mechanics magazines
2. I have a good appetite
3. I wake up fresh & rested most mornings
4. I think I would like the work of a librarian
5. I am easily awakened by noise
6. I like to read newspaper articles on crime
7. My hands and feet are usually warm enough
8. My daily life is full of things that keep me interested
9. I am about as able to work as I ever was
10. There seems to be a lump in my throat much of the time

Given above are sample items from a psychological test- MMPI 2 to assess individual differences in Personality.

Assessment of individual differences has remained one of the important concerns of Psychology and thus psychologists have developed different types of tests for assessment of various human characteristics, such as intelligence, aptitude, personality, interest, attitudes, values, educational achievement, aggression and other psychological attributes.

Definition of a psychological test:

A psychological test is a standardised and objective instrument which is used to assess an individual's standing in relation to others on some mental or behavioural characteristics.

What is objectivity and standardization?

Objectivity refers to the fact that if two or more researchers administer a psychological test on the same group of people, both of them would come up with more or less the same values for each person in the group.

In order for a psychological test to become an objective measure, it is essential that items should be worded in such a manner that they communicate the same meaning to different readers.

Standardization procedures have to be followed to develop a psychological test. While constructing a test a systematic process has to be followed this involves a detailed analysis of items, and estimating reliability, validity, and norms of the test.

A test becomes a standardised test only when **norms** are developed for the test. A norm is the normal or average performance of the group. To set the norm, the test is administered on a large number of students. Their average performance standards are then set based on their age, sex, place of residence, etc.

This helps us in comparing the performance of an individual student with others of the same group. It also helps in interpreting individuals' score obtained on a test. Apart from norms the instructions to the test takers about how to answer the test items need to be specified in advance.

The procedure of administering the test such as environmental conditions, time limit, mode of administration (individual or group) has to be specified, and the procedure for scoring of the participants' responses must to be described.

Why do we need to use psychological tests?

Psychological tests are used for various purposes, such as personnel selection, placement, training, guidance, diagnosis, etc., in multiple contexts including educational institutions, guidance clinics, industries, defence establishments, and so forth.

Description of a standardization in psychology

In order to evaluate performance on a psychological test one needs to compare with others performance. Thus, in order to make meaningful comparisons test makers, first give the test to representative sample of people so that the scores may be used to establish standards for that group. This process of defining meaningful scores relative to the pretested group is called standardization

Every test contains a number of questions, called items, with their probable responses, which are related to a particular human characteristic or attribute.

It is important that the psychological attribute (eg intelligence, personality) for which a test has been developed, should be defined clearly, and all items (questions) should be related to that attribute only.

Most often a test is meant for a particular *age group*.

It may or may not have a *fixed time limit* for answering the questions.

Characteristics of a psychological test.

To be widely accepted all psychological tests need to have three criteria: standardized, reliable and valid

Reliability of the test refers to the consistency of scores obtained by an individual on the same test on two different occasions. For example, you administer the test to a group of students today and re-administer it on the same set of students after some time, let us say six months. If the test is reliable, there should not be any variation in the scores obtained by the students on the two occasions.

To check a test's reliability researchers retest people using the same test or another form of it.

a) This is called **test-retest reliability**, which indicates the temporal stability (or stability of the test scores over time).

b) Alternatively the researcher can split a test in half and see if the scores obtained from odd and even questions agree. This is another form of test reliability- called **split-half reliability**. It gives an indication about the degree of internal consistency of the test. This is based on the assumption that items of a test if they are from the same domain should correlate with each other. If they are from different domains, e.g.as are apples and oranges, then they would not correlate.

The higher the correlation between test-retest or split half scores the higher the tests' reliability.

Validity: "Does the test measure what it claims to measure"? For example, if you have constructed a test of mathematicl achievement, whether the test is measuring mathematical achievement or for example, language proficiency. The extent to which a test actually measures what it is supposed to measure or predict is its validity. eg A valid test of interest will have items which ascertain aspects related only to interest and not intelligence.

Types of Tests

Psychological tests are classified on the basis of their *language*, *mode of administration*, *and difficulty level*.

A) Depending upon the language, we have **verbal**, **non-verbal**, and **performance tests**.

a) Verbal tests:

These tests involve the use of words. Literacy is required for taking verbal tests as the items have to be written in some language.eg MPI or MMPI 2

b) Non Verbal tests:

In non-verbal tests, items are made of symbols or pictures. They can be developed for a wider age group- children and adults, even illiterates can take these tests.eg RSPM, Rorschach Ink Blot Test.

c) Performance tests

These tests requires movement/ manipulation of objects from their respective places in a particular sequence. Eg Koh's Block design Test, Segmin form Board test

These tests are relatively cuture fair tests; can be used across different age groups. But it is time consuming to conduct and prepare the tests.It cannot be administred to a large group together.

B) Depending upon the mode of administration, psychological tests are divided into individual or group tests.

i) **Individual Tests**

- An individual test is administered by the researcher to one person at a time
- In individual tests, the researcher administers the test face to face and remains seated before the test taker and notes down the responses.
- Individual tests are time consuming, but are important ways of getting responses from children, and from those who do not know the language

ii) **Group Tests**

- Group tests can be administered to large number of persons at the same time.
- In the group test, the instructions about answering the items, etc., are written on the test, which the test taker reads and answers the questions accordingly.
- The test administrator explains the instructions to the entire group.

- Group tests are easy to administer and are also less time consuming.
- However, the responses are fraught with certain limitations. The respondent may not be motivated enough to answer the questions and may give fake responses.

C) *Depending on difficulty level*.

Psychological tests are also classified into speed and power tests.

(i) Speed Tests

- In a speed test, there is a time limit within which the test taker is required to answer all the items.
- Such a test evaluates the individual on the basis of time taken to answer the items accurately.
- In a speed test, all the items are of the same degree of difficulty and the tasks are so easy that with unlimited time all subjects could deal with them successfully.
- Speed tests tend to be used in selection at the administrative and clerical level.
- Speed tests are suitable for testing visual perception, numerical facility, and other abilities related to vocational success.
- Examples: Tests of psychomotor abilities (*e.g.*, eye–hand coordination) often involve speed.

ii) Power Tests

- Power tests assess the underlying ability (or power) of the individuals by allowing them sufficient time, i.e. these tests do not have any time limit.
- In a power test, the items are generally arranged in an increasing order of difficulty.
- For example, if a person is unable to solve the 6th item, s/he will have difficulty in answering the subsequent items.
- Power tests tend to be used more at the graduate, professional or managerial level.
- The time allowed for testing is so short, however, that even the ablest subject is not expected to finish. a power test (*e.g.*, a general vocabulary test)
- Items vary in difficulty such that no subject is expected to get all items right even with unlimited time.

- Power tests tend to be more relevant to such purposes as the evaluation of academic achievement, for which the highest level of difficulty at which a person can succeed is of greater interest than his speed on easy tasks.

Speed tests contain more items than power tests although they have the same approximate time limit. It is, however, difficult to construct a pure speed or power test. Majority of the tests are a combination of both speed and power.

Evaluation of Psychological Testing

(a) Tests must be selected and used with great care.

(b) The test user or the decision maker should not rely on any single test.

(c) Test data should be combined with information about a person's background, interests, and past performance.

(d) Each method has its own limitations and advantages. Therefore, it is desirable that the researcher should not depend upon only one method. A combination of two or more methods should be used to get the real picture.

Analysis of Data

Analysis of data is necessary for the researcher to draw conclusions. Two methodological approaches are used for analysis of data:-quantitative and qualitative methods.

Quantitative Method	**Qualitative Method**
Most psychological tests, questionnaires, structured interviews, contain a series of close-ended questions.	Quantification is not possible for all human experiences/emotions.
Quantitative data is data that can be measured A painting can be evaluated in terms of cost	Qualitative data is data that can be observed but cannot be measured A painting is valued because of its content, artist and colours used.
The responses are in the form of a scale from low to highest or right and wrong. eg Does the sight of blood make you sick or dizzy? Are you happy most of the time? Responses on 5 point scale would include:	To deal with complex behaviours psychologists have developed qualitative methods eg Narrative Analysis.

not at all, slightly, moderately, very, extremely.	
A researcher assigns a number to each answer (normally “1” for right answers, and “0” for wrong answers). In doing so,	Since data are not always available in the form of scores the researcher uses the technique of content analysis.
At the end, the researcher calculates the total of all these numbers and arrives at an aggregate score, which tells about the participants’ level on that particular attribute (intelligence, academic intelligence, etc.).	When the researcher uses the method of participant observation or unstructured interview, the data are generally in a descriptive form—in participants’ own words, field notes taken by the researchers, photographs, interview responses noted by the researcher or taped/video-recorded, informal talks, etc.
The researcher converts the psychological attributes into a quantity (usually numbers).	The researcher uses thematic categories and build those categories taking examples from the data.
To draw conclusions, a researcher may compare individual’s score with that of the group, or compare the scores of two groups.	This is more descriptive in nature

Quantitative and qualitative methods are not contradictory; rather, they are complementary to each other. In order to understand a phenomenon in its totality, a suitable combination of both methods is warranted.

Limitations of Psychological Enquiry

1. Some general problems faced by psychologists:
2. *Measurements do not start from zero*.

Psychological measurements do not have a true zero point. For example, no person in this world has zero intelligence. All living beings will have some degree of intelligence. As a result, whatever scores we get in psychological studies, are not absolute in nature; rather, they have relative value.

3. *Relative Nature of Psychological Data*:

In some studies ranks are used as scores. For example, on the basis of marks obtained in some

test, the teacher arranges the students in an order — 1, 2, 3, 4, … , and so on. In such type of assessments the difference between first and second rank holders may not be the same as is the difference between the second and third rank holders.

Psychological tests are developed keeping in view the salient features of a particular context. For example, a test developed for urban students may contain items that demand familiarity with the stimuli available in the urban setting— multistoried buildings, airplanes, metro railway, etc. Such a test is not suitable for use with children living in tribal areas who would be more at ease with items that describe their flora and fauna. Similarly, a test developed in the Western countries may or may not be applicable in the Indian context. Such tests need to be properly modified and adapted keeping in view the characteristics of the context in which they are to be used.

4. *Subjective Interpretation of Qualitative Data* :

Data from qualitative studies are largely subjective since they involve interpretation on the part of the researcher as well as the person providing data. The interpretations may vary from one individual to the other. It is therefore, often suggested that in case of qualitative studies, the field work shuld be done by more than one investigator, who a the end of the day should discuss their observations and arrive at an agreement before finally giving it a meaning. In fact, one is better off, if the respondents too are involved in such meaning-making process.

ETHICAL ISSUES

Psychological research deals with human behaviour, as such the researcher must follow ethics (or moral principles) while conducting the studies.

a) ***Voluntary Participation*:** This principle states that the subjects should have the choice to decide whether to participate or not to participate in the study. The participants should have the freedom to decide about their participation without any coercion or excessive inducement, and the freedom to withdraw from the research without penalty, once it has begun.
b) ***Informed Consent:*** It is essential that the participants in a study should understand what will happen to them during the study. The potential participants must be informed before the data is collected, so that they make an informed decision about participating in the

study

c) ***Debriefing*:** Once the study is over, the participants are provided with necessary information to complete their understanding of research. Debriefing ensures that participants leave the study in the same physical and mental state as when they entered.. The researcher should make efforts to remove any anxiety or other adverse effects that participants may have felt as a result of being deceived in the course of the study.

d) ***Sharing the Results of the Study*:** It is obligatory for the researcher to go back to the participants and share the results of the study with them. As a researcher, it is necessary to go back to the participants to share the details of the study.. There are two advantages. One, to fulfill the expectations of the participants, second, the participants may tell the researcher their opinion about the results, which may help develop new insights.

e) ***Confidentiality of Data Source*:** The participants in a study have the right to privacy. The researcher must safeguard their privacy by keeping the information provided by them in strict confidence. The information should only be used for research purposes and under no circumstances, it should be passed on to other interested parties.