
Quadrant-I (E-Text)

Details of Module and its structure

Module Detail	
Subject Name	Education
Course Name	Understanding the Learner
Course Code	EDU502
Module Name/Title	<i>Tools for assessment of individual and intra individual difference in learners: psychological test, observation schedules, inventories and checklists</i>
Module Code	UTL017
Pre-requisites
Learning Outcome	After going through this lesson, the learners will be able to <ol style="list-style-type: none">1. comprehend the concept of standardized psychological tests.2. judge the utility of standardized psychological tests.3. explore the significance of observation as the most primitive tool to understand the human nature.4. explain the nature of inventory.5. predict the educational usage of inventory.6. interpret the educational implications of using the checklist as data gathering tool.
Keywords	Psychological Test, Observation Schedule, Inventory, Checklist

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1 Introduction

Personality as a variable is too complex to be assessed by objective methods. By the assessment of the personality, the investigator tries to explore the physical, mental, social and emotional aspects of behavior of the person. The most significant aspect of personality is behavior which is the resultant manifestation of unconscious and conscious urges. Educational psychology as a science practices scientific method for tool development, administration and data collection. Keeping in view the objective nature of the behaviour, the investigator can attempt to explore it rationally. Depending upon the nature of the required data the investigator decides the tool for data collection. Some tools may be appropriate for getting the qualitative data while other tools may be suitable for collecting the quantitative data. This module discusses the tools for the assessment of an individual namely psychological tests, observation, inventory, and checklist.

2 Tools for Assessment for the individual and intra-individual level of differences

An investigator requires data gathering tools which may vary with respect to complexity, administration, design, and interpretation. Each tool is appropriate for the collection of certain types of information. The investigator has to select the tool that suits best for collecting the data in a situation. The investigator needs to familiarize him/herself with the nature, advantages, and limitations of a tool. Simultaneously, the investigator needs to develop expertise in the construction of the tools and usage of the same also. The following section discusses the various types of research tools and techniques used by the investigator for the collection of information.

2.1 Psychological tests

The psychological tests are the most widely used tools for data collection. The psychological tests consist of some series of tasks that the students have to perform. The test may be defined as a systematic way or procedure for comparing the behavior of individuals at some particular time or one person at different times. The psychological tests serve a number of purposes like the selection of the students for some activity, prediction of behavior or performance in participative situation, etc., classification of the students with

respect to some trait, guidance for some educational or vocational purposes and evaluation of an event or educational programme. The psychological tests generally measure the mental ability or the intelligence of the students, achievement, values, interests, adjustment, creativity, etc. The psychological tests yield the standardized and objective descriptions of the behavior which for analysis purposes may be quantified by numerical scores. A standardized psychological test has a manual for its administration and is widely used for the comparison of the students. The standardized psychological tests are objective and their scoring is simple and unambiguous. Psychological tests may be classified in many ways like one distinction is based on power tests and speed tests. A power test is a test in which the student has a chance to attempt every item. The test has no time limit and the student goes on attempting the items until he/she is unable to continue successfully. On the other hand, the speed test is the test in which the student has limited less time to attempt all items. This type of test limits the time in which the students have to complete the test. Another distinction may be with respect to the ways in which the psychological tests are administered with the number of the students at the same time that is group test and individual test. Group tests are useful when a large number of the students are to tested in a short span of time. Such tests are easy to administer and score. These kinds of tests may be useful for initial purposes of classification or categorization but not for obtaining accurate and in-depth information. Group tests may yield unreliable results for younger children and emotionally unstable persons. So, for obtaining the information from such persons, individual tests are preferred as these tests provide a précised and detailed information about the subjects. Another kind of classification may be as paper-pencil tests and performance tests. Paper-pencil tests require the students to respond to the test items by writing the responses. The items may be posed as sentences, designs and the student are supposed to underline, tick or circle a response or write a word or sentence, etc. to complete the sentence. In performance tests, the students are required to respond by manipulating some picture cards or figures, etc. Such tests are administered at the individual level. Another classification may teacher made non-standardized tests and

standardized tests. To assess the academic performance of the students in the class the teachers generally prepare the test items. Such tests are designed for some specific use, their reliability and validity aspects are not established by formal statistical procedures. In standardized tests, each item and total scores are carefully assessed and analyzed. The reliability and validity are firmly established by conventional statistical procedures. These tests have definite norms pertaining to various groups and age levels.

2.1.1 Selection of Test

For selecting a psychological test, the investigator should evaluate the validity, reliability, and usability of that test. These are the evaluative criteria for a psychological test that must be given due attention.

2.1.1.1 Validity of a Psychological Test

As a tool of data collection, the psychological test must provide the relevant and error free information that is valid information. A psychological test is valid if it measures what it intends to measure. A psychological test does not possess eternal and universal validity because it may be valid for use in one situation but not in another. So, specifically, a psychological test supports decision making in one situation but not in another. The validity aspect of a psychological test is of three kinds namely content validity, criterion validity and construct validity.

(i) **Content validity:** This type of validity is applied for the psychological tests measuring proficiency, academic achievement, etc. The respondents establish the content validity of psychological tests in relation to the instructional objectives. All the items should form a representative sample of the variable under study. The content validity is based upon the judgment of several specialists and experts who assess the instructional objectives and the respondents. The analysis is judgemental and hence rational. The content of the test is drawn from what has been taught and what is proposed to be taught and it acts like a blueprint from which the tester prepare the test items. There is need to determine which items discriminate between the students at upper and lower levels of the performance, determining the percentage of the students that answer each item correctly, determining the correlation between

the marks obtained in one subject with total academic achievement. So, the content validity is established by incorporation of the suggestions of the experts and then by applying the relevant statistical procedures.

(ii) **Criterion-related validity:** In academic situations when the investigator attempts to classify the students on some traits than to support the decision making, through the test, the expected future performance of the students may be rationally predicted. A psychological test which provides such kind of prediction is said to have predictive validity. This validity is an association between the present results and future behavior. The information obtained or record of the outcome may be termed as criterion-related validity.

(iii) **Construct validity:** This type of validity is concerned with the meaning and interpretation of the test scores in terms of some theoretical or psychological constructs. A construct refers to the ability, trait, attitude, etc. which is logically assumed to explain different aspects like intelligence, creativity, anxiety, etc. This type of validity is concerned with the test as well as theory which explains the outcomes. Construct validity is established through long experimentation which is based on observation, reasoning, and imagination.

2.1.1.2 Reliability of a Psychological Test

Reliability means the consistency of a test. A psychological test is said to be reliable if it consistently yields the same results on repeated measurements on the same individuals under the same conditions. To establish the reliability of a psychological test following procedures can be employed:

(i) **Test-retest method:** In this method, the same test is re-administered after two to four weeks after the earlier administration. The two sets of the scores are correlated to obtain the reliability of the psychological test. The demerit of this method is that there may be a very short time gap between the two administration of the test so the previous recall by the students may distort the results. If there is huge time lapse then growth and development aspects of the students associated with the personality may hamper the results.

(ii) **The equivalent or parallel forms method:** In this method, two parallel or equivalent forms of a psychological test are prepared and administered to the same group of students. The results of both sets are correlated and reliability is computed. The two parallel sets of the test must be matching with respect to difficulty level, content, and form, etc. But the items in two sets should not be too similar as the validity will be too high. However, this method of establishing the reliability suffers from the influence of practice effect but still, it is widely used.

(iii) **The split-half method:** In this method, the test is divided into two equivalent halves and the scores of half test are correlated with the scores of the other half test. From the reliability of the half test, the self-correlation of the whole test is computed by the Spearman Brown Prophecy formula. This method of establishing the reliability measures the internal reliability of the test. If the two halves do not correlate significantly then it shows that the test is not measuring appropriately. This method has the merit of controlling the practice and fatigue effects.

2.1.1.3 Usability of a Psychological Test

The usability aspect of the psychological test includes objectivity, the economy with respect to effort, cost and time, ease of administration, scoring and interpretation, simplicity, etc. The results obtained should be objective in the sense that the results are independent of the personal judgments. The psychological tests that require less time for administration are likely to gain support and cooperation from the students.

2.2 Observation Schedule

The behavior of an individual is the apparent manifestation of his/her mental urges so the most reliable mean for its assessment is observation. It is the most objective method of the assessment of behaviour of an individual. Observation means careful seeing as it is a purposive activity. Observation is the oldest technique used by psychologists to observe the talk, expressions, and gestures of clients. Observation is an instrument without an instrument. However, observation suffers from the subjectivity. So, to eliminate this the observer should make a larger number of observations to eliminate the chance

factor pertaining to the happening of an event. Observation as a tool requires the whole situation that is it does not work sound for situations in segments. The subjects should be observed in their regular activities or behavior. The range of observation may vary from some broad platform to a narrow one. Observation requires proper planning, execution, recording, and interpretation of activities or events. The following subsection explores these requisites for a reliable observation:

2.2.1 Planning

As observation is not a haphazard activity so the units/aspects of behavior and specific activities that are to be observed must be well defined. An appropriate and genuine group of subjects should be selected for observation. The scope of observation, must be decided well in advance. The type of observation (participant/non-participant) should also be planned according to the requirement. The observer should demarcate his/her position for the recording. Also, the length of observation must be decided that is the number of periods and days, etc.

2.2.2 Execution

This phase of observation requires resourcefulness and skills on the part of the observer. The proper arrangement of working conditions for the subjects must be ensured. The observer must focus on the units of behavior during some specific activity under observation. The observer should try to have some sets of observation to deduce objectively.

2.2.3 Recording

Here, the observer may record the behavior simultaneously to avoid time gap effect on the recording. It may distract the subjects also and they may not truly assert themselves. The observer may record soon after the observation is over. It is advantageous in the sense that the subjects are not disturbed but the observer may not be able to recall every bit of the facts accurately. The observer must be cautious in minimizing the influence of any pre notion, bias, perceptions, etc. The observer should be well aware of what he/she is looking for and recording.

2.2.4 Interpretation

The recordings of the observation should be properly, judiciously and cautiously interpreted. The limitations of sampling, planning, and number of observations should be duly weighed.

2.2.5 Types of Observation

Observation is of two types that is the participant and non-participant observation. This subsection discusses these types of observation in detail:

2.2.5.1 Participant and Non-participant Observation

In this type of observation, the observer plays a dual role by becoming a member of the group of learners under observation. The observer shares the situation as a visiting resource or learner. This observation is more reliable and flexible. It explores the facts even at the micro level. But it is time-consuming and the presence of the observer is likely to influence the natural behavior of the learners. The non-participant observation is used with groups like infants or young children etc. The position of the observer is least likely to influence the behavior of the learners. It permits the usage of recording devices and supports the gathering of large data.

2.2.5.2 Structured and Unstructured Observation

In structured observation, the observer focuses on specific formulations and there is little freedom with respect to the content. The observer decides the frame of reference for the problem under consideration. The time limit is also decided in advance. This type of observation is too formal in nature. It provides a systematic description of the phenomena under consideration. Structured observations are conducted in controlled situations like classrooms, laboratories, libraries etc. In unstructured observation, the observer is a member of the group. It mainly works like participant observation because it focuses to explore as a primary mean. Here for the observer, it is not possible to categorize the behavior well in advance so he/she probes the behavior in context.

2.2.6 Advantages of Observation

(i) It generally studies the individual in a natural setting so its findings are more useful than the restricted study of the same in controlled situations.

- (ii) It is adaptable at the individual and group levels.
- (iii) It does not require special training or any instrument.
- (iv) It is a record of the actual behavior of an individual. So, it is more reliable and objective.
- (v) It is more useful for younger children as it is somewhat difficult to interview them or obtain responses through a questionnaire from them.
- (vi) It can be used in any kind of situations like inside and outside the classrooms etc.

2.2.7 Limitations of Observation

- (i) It probes the overt behavior only and it does not take into account what is going on within an individual.
- (ii) The subjectivity of an observer may interfere in the process.
- (iii) There may not be so precision in the recording of observation if it is recorded after the action or event.
- (iv) The subjects may intentionally exhibit behavior when they come to know that they are being recorded.

2.3 Inventory

An inventory is a self-reporting instrument. The investigator checks the responses to certain items. Through inventory, the investigator attempts to obtain the responses directly from the students which are assumed to reflect certain traits. The investigator provides some set of questions to the students for getting categorical responses. An inventory is a sort of standardized questionnaire in which the response to the items may be in yes or no form. Inventory helps in assessing the traits like resourcefulness, emotionality, sociability, honesty, interest, suggestibility, truthfulness, etc. For example, through interest inventory, the respondents mark the responses as per their likes and dislikes. In interest inventory, there may be direct questioning like “Do you like to watch movies?”. In the tested inventory, the respondent is exposed to various experiences that are related to a variety of interest. Then the area in which the respondent is showing more interest is identified. The

personality inventory attempts to measure certain personality traits like anxiety, adjustment, and need, etc. The items are posed in yes and no format.

2.3.1 Advantages of Inventory

(i) Inventories support the teachers to identify the gaps and help in providing the educational facilities to the students according to their needs and interests.

(ii) Inventories are helpful in providing educational and vocational guidance to the students.

(iv) Inventories can be administered at individual and group levels.

(v) It is not so much time bound data collection device.

(vi) Personality inventories support in working the remedial measures for the clients.

2.3.2 Limitations of Inventory

As the individuals may be reluctant to report their own reactions precisely then inventory is of little value.

2.4 Checklist

To probe the problem under consideration, the investigator prepares a list of relevant items or behavior that is a checklist. Generally, the checklist is like a laundry list in which the investigator ensures that nothing is overlooked and marks the presence or absence of the aspect under study. In the checklist, after each item, space is provided where the investigator marks the presence or absence of that particular item. The items of the checklist should be phrased with the aim that these items are able to discriminate. It increases the validity of the checklist. Before the administration of the checklist, the preliminary try out may enhance the objectivity of the checklist. The marking of presence is reflected as yes and absence by no. Also, the presence is confirmed by marking the number of the same. The functional status of the item may also be shown by the number. For example, if an investigator desires to record the working number of ceiling fans in a classroom then he/she will first record whether there are ceiling fans in the classroom – yes or no. If yes,

then what is the number of them. Then how many of them are working properly and non-working.

Checklist supports the investigator in recording the data systematically and quickly. So, data collection is not a process of judgment but fact. Sometimes, the checklist is completed by the respondents, not by the investigator. For preparing a checklist the investigator should examine what is desired that is what data is to be collected? Then he/she should frame the items for that data. The items framed may be arranged in some order. Following are the ways through which the investigator may use the checklist for data collection:

(i) The checklist where the items are to be marked, underlined or circled in yes or no format. For example, does your class visit the science museum?
Yes/No

(ii) The checklist in which the students are asked to put a tick mark (✓) in the space provided for the item concerned. For example, What Games and Sports facilities are available in your school?

*Cricket.....

*Football.....

*Hockey.....

*Badminton.....

(iii) The checklist in which the students are provided with positive items and they are asked to put a tick mark (✓) in the space provided. For example, the school has a student canteen. ().

(vii) The checklist in which the students are asked to underline or encircle the most appropriate word(s). For example, the school organizes in-house activities weekly, fortnightly, monthly and annually.

2.4.1 Uses of Checklist

A checklist is a tool that is generally used in educational surveys and observational studies of behavior. The checklist is used with respect to classroom instructional activities also. The personality of the students may

also be assessed through the checklist. After recording the information, the checklist responses are tabulated, quantified and interpreted. The totals are converted into percentages or proportions for drawing inferences.

3 Summary

In order to get appropriate information, the investigator is required to develop reliable tools. The data gathering devices used by the investigators include psychological tests, observation, inventories, and checklist. An investigator depending upon the nature of research may select any one or combination of these tools for data collection. Besides this, the investigator is also supposed to develop skills in constructing these tools and using them judiciously.

Quadrant: III

Subject Name: Education

Course name/Title: Understanding the Learner

Module Code: UTL017

Module: Tools for assessment of individual and intra individual difference in learners: psychological test, observation schedules, inventories and checklists

References:

*Best, J.W.; Kahn, J.V.; & Jha, A. (2005). Research in Education (10th ed.). New Delhi: Pearson Publications.

*Cohen, L. & Lawrence, M. (2011). Research Methods in Education (7th ed.). India: Routledge.

*Kaul, L. (2009). Methodology of Educational Research (4th ed.). New Delhi: Vikas Publications.

*Kerlinger, F.N. (1986). Foundations of Behavioural Research. Fort Worth, TX: Harcourt BMCE Jovanovich.

*Keeves, J.P. (1990). Educational Research Methodology and Measurement: An International Handbook. New York: Pergamo Press.

*Travers, R.M.W. (1978). An Introduction to Educational Research. Thousand Oaks: C.A.: Sage.

Glossary:

***Psychological test:** the tool developed to evaluate or measure the behaviour in standardized way for the purpose of classification, prediction, selection, guidance and evaluation.

***Individual test:** The test that deals with the person to be tested at individual level.

***Group test:** The test which tests many persons at a time.

***Observation:** The process in which the observer sees what is happening in a situation and records the happenings according to some planned scheme.

***Inventory:** An inventory is a sort of standardized questionnaire in which the response to the items may be in yes or no form.

Checklist: a device that consists of a prepared list of items which are assumed to be relevant to the problem under investigation.

Quadrant: IV

Subject Name: Education

Course name/Title: Understanding the Learner

Module Code: UTL017

Module: Tools for assessment of individual and intra individual difference in learners: psychological test, observation schedules, inventories and checklists

***Instructions: Q. nos. from 1-5 are multiple choice in nature. Select the best option to complete the statement given.**

Q.1 A psychological test measures what it intends to measure. This is known as the

- (a) validity of the test
- (b) reliability of the test
- (c) usability of the test
- (d) objectivity of the test

Answer: (a)

Q.2 Through a psychological test, an investigator attempts to classify the students on some traits. To support the decision making the expected future performance of the students, through that test, may be rationally predicted. This is known as

- (a) construct validity
- (b) content validity
- (c) predictive validity
- (d) reliability

Answer: (c)

Q.3. A psychological test consistently yields the same results on repeated measurements. This is known as

- (a) validity of the test
- (b) reliability of the test
- (c) usability of the test
- (d) objectivity of the test

Answer: (b)

Q.4 The method of establishing reliability in which the same test is re-administered shortly after the earlier administration is known as

- (a) test-retest method

- (b) equivalent forms method
- (c) split-half method
- (d) parallel forms method

Answer: (a)

Q.5 The most primitive tool for recoding human behaviour is

- (a) inventory
- (b) checklist
- (c) psychological test
- (d) observation

Answer: (d)

*Instructions: For the Q. nos. 6-10 state whether the statements are true or false. If false, write the correct statement also.

Q.6 In non-participant observation, the observer becomes a regular member of the group.

Answer: False. In participant observation, the observer becomes a regular member of the group.

Q.7 In non-structured observation, the observer focuses on specific formulations and there is little freedom with respect to the content.

Answer: False. In structured observation, the observer focuses on specific formulations and there is little freedom with respect to the content.

Q.8 Checklist is a self-reporting instrument.

Answer. False. An inventory is a self-reporting instrument.

Q.9 Generally, the inventory is like a laundry list.

Answer. False. Generally, the checklist is like a laundry list.

Q. 10 Checklist as a tool requires proper planning, execution, recording and interpretation.

Answer: False. Observation as a tool requires proper planning, execution, recording and interpretation.