

**COURSE
GUIDE**

**EGC809
PSYCHOLOGICAL TESTING**

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Printed 2022

ISBN: 978-978-058-287-6

Introduction

The course *EGC809: Psychological Testing* is a two-credit unit course designed for Masters Students in Guidance and Counselling programme, of the National Open University of Nigeria. This course guide tells you briefly what the course is all about, the course materials you will need and how you can derive maximum benefit from the customised self-instructional materials. It also provides hints on Tutor-Marked Assignment, details of which will be given to you at your study centre. Tutorial sessions where you can seek clarifications on the course materials will be arranged for you at your centre. It is in your own interest to attend tutorial sessions! The time and venue will be made known to you at your centre.

The Course

The course is a three-module course designed to equip the prospective counsellors with the psychological testing concepts, kinds, uses and clarifications of test, test validity and reliability, standardization and basic test construction principles including objective test items and finally test administration, scoring and interpretation required to analyse, synthesise, prognose and offer effective assistance (counselling). The first module introduces you to the concept of psychology, psychological testing; kinds, uses and classifications of psychological tests, distinctions between psychological tests, educational tests and counselling tests and relevance of psychological tests to counselling were clearly discussed. The second module deals with psychological test development, test validity and reliability, types of test validity and reliability, theory of test reliability and factors that influence estimated test reliability and psychological tests interpretation and the third module deals with test standardization, uses of strong vocational interest blank, Kuder preferential blank, achievement test and intelligence test, personality tests and problems associated with personality tests, ways of overcoming problems associated with personality tests. Counsellor's ability to get the right test, select test, modify, adopt or adapt or construct the right test at the right time is seen as an essential part of the counselling process.

At the end of this course, psychological testing you will be equipped with the skills that will enable you to appropriately identify, adapt/adopt, modify, develop or construct effective tests that will help you discharge your responsibility whenever the need for test is required.

Course Aims

The aims of this course are to expose you to the details of psychological testing. Specifically, the aims of this course include the following:

- Introduction to the field of psychology, psychological testing; psychological tests, educational tests and counselling tests.
- Understand the relevance of psychological tests to counselling.
- Expose you to different kinds, types, uses and classifications of psychological tests.
- Enable you appreciate the concepts of test validity, test reliability and test standardization.
- Introduce you to the principles of test construction with emphasis on objective test items.
- Understand the nature and functions of testing with types and uses of aptitude tests, Strong Vocational Interest Blank, Kuder Preferential Blanks, Achievement tests, Intelligence tests and Personality tests, common problems associated with personality tests and how the problems can be overcome.

The Intended Learning Outcomes

By the end of the course, you will be able to:

- Define psychology and identify various branches of psychology.
- How psychological testing is linked to psychology.
- Explain the concept of psychological testing.
- Enumerate the relevance of psychological testing to counselling.
- Identify the kinds, types, uses and classifications of psychological testing.
- Discuss the concept of test validity, test reliability and test standardization.
- Outline and explain types of test validity and reliability.
- Calculate the reliability estimate of any given type of psychological test.
- Apply the principles of psychological test construction to the construction of objective test items.
- Compare psychological, educational and counselling tests.
- Discuss the uses of Aptitude tests, Strong Vocational Interest Blank, Kuder Preferential Blanks, Achievement tests, Intelligence tests and Personality tests.
- Identify problems associated with the uses of personality tests.
- List and discuss ways by which the problems associated with personality test can be overcome.

Working through the Course

It is advisable that you spend a lot of time and commitment towards studying this course; you are required to read books, journals, conference proceedings, book of readings and other materials. You will need to find out more about the examples given to illustrate certain points, as you need to spend at least three hours on each unit of the course.

We advise that you avail yourself of the opportunity to attend tutorial sessions or to form a learning group, where you benefit from clarifications from course facilitators and interactions through learning group with your colleagues.

Course Materials

The components of the course are; as you will be provided with the following materials: a. Course guide.

- b. Studying unit.
- c. Copy of course material.
- d. Presentation schedule.

Study Units

The following are the study units contained in this course:

Module 1

- Unit 1: Introduction to Psychology
- Unit 2: Overview of Psychological Testing
- Unit 3: Classification, Kinds and Uses of Psychological Tests
- Unit 4: Distinctions between Psychological, Educational and Counselling Tests
- Unit 5: Relevance of Psychological Tests to Counselling

Module 2

- Unit 1: Psychological Test Development
- Unit 2: Test Validity and Reliability
- Unit 3: Types of Test Validity and Reliability
- Unit 4: Theory of Test Reliability and Factors that Influences Estimated Test Reliability
- Unit 5: Psychological Tests Interpretation

Module 3

- Unit 1: Test Standardization.
- Unit 2: Uses of Strong Vocational Interest Blank, Kuder Preferential Blank, Achievement Test and Intelligence Test
- Unit 3: Personality Tests

Unit 4: Problems Associated with Personality Tests

Unit 5: Ways of Overcoming Problems Associated with Personality Tests

Each unit consists of three hours works and includes the specific objectives, direction for study reading materials and other sources. The units consist of self-assessment exercise questions and answers, which will assist you to test what you have read in the course materials. The self-assessment exercise helps you to assess your progress and reinforce your understanding of the material. These exercises with answers at the end of each unit together with the Tutor Marked Assignments will assist you in achieving the stated objectives at the beginning of each unit.

References/Further Readings/Web Resources

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https://medium.com/@amiable_puce_cattle_361/pdf-free-download-psychological-testing-and-assessment-by-ronald-jay-cohen-929bfaf0462e
11. Psychological Testing (7th Edition) 7th Edition by Anne Anastasi
<https://www.amazon.com/Psychological-Testing-7th-AnneAnastasi/dp/0023030852>

Presentation Schedule

Dates for prompt completion and submission of your Tutor Marked Assignments (TMAs) and attendance of tutorials along with study group with colleagues are highly recommended. **You should remember to Submit Tutor Marked Assignments at the stipulated date and time.** You should work at schedule, and do not lag behind in your work!

Assignment

There are three aspects to the assignment for this course. The first is in form of the Self-Assignment Exercises, the second are the Tutor-Marked Assignments, and the third is the written examination/end of course examination. You are advised to attempt the exercises with all sincerity as that will assist you greatly. In tackling the assignments, you are expected to apply the information, knowledge and techniques gathered during the course. The Tutor-Marked Assignments will account for 30% of the total course score. At the end of the course, you will sit for a final or end of the course examination of about three hours duration. This examination will form 70% of the total score for the course.

Tutor-Marked Assignment

The Tutor-Marked Assignments (TMAs) are the continuous assessment component of the course. You are required to submit at least four TMAs before you are allowed to sit for the end of course examination. The TMAs would be sent to you through email via your university's email, and would be graded with your obtained scores in the TMAs instantly.

End of Course Examination and Grading

The end of course examination for this course will be about three hours, and it will account for 70% of the total course score. The examination questions will be fashioned after the self-testing, practice exercise and tutor-marked assignments that you have previously encountered during your course. All areas of the course will be examined. The time for the examination is not fixed, but you will be given adequate notice of the examination.

Course Marking Scheme Assessment

Marks

Assignment 1-4

The best three (3) of Four assignments will be rated based on 10% each making a total of 30% of the course marks.

End of Course Examination
70% of overall

Course Marks
100%

How to Derive Maximum Benefit from this Course

1. In distance learning, the study units replace the university lectures. This is one of the great advantages of distance learning; you can read and work through specially designed study materials at your own space, and at a time and place that suits you. Realize the fact that you are reading the lectures instead of listening to the lecturer. The study units tell you when to read your text materials and the recommended books for your further reading. You are provided exercise to attempt at appropriate point in time, just as a lecturer might give in a classroom situation.
2. Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit, and how a particular unit is integrated with other units, and the course as whole. Next to this is a set of learning outcomes. These learning outcomes states the mental tasks you should be able to accomplish by the time you have completed the unit. These learning outcomes are therefore, meant to guide your study. The moment a unit is finished, you go back and check whether you have achieved the learning outcomes. If this is made a habit, you will significantly improve your chances of passing and transferring the course.

3. The main body of the unit guides you through the required reading from other sources; this either from your references or a reading section.
4. The following is a practical strategy for working through the course: if you run into any trouble, telephone your tutor or visit the study centre nearest to you. Remember, your tutor's job is to help you. When you need assistance, do, not hesitate to ask your tutor to provide it.
5. Read this course guide thoroughly, this is your first assignment.
6. Organise a study schedule; design a "Course Overview" to guide you through the course. Note the time you are expected to spend on each unit and how assignments relate to the units. Important information, e.g., details of your tutorials and the date of the first of the semester is available at the study centre. You need to gather all the information into one place, such as your diary or a wall calendar. Decide on whatever method you choose, and write in your own dates and schedule of work for each unit.
7. Once you have created your own study schedule, do everything to stay faithful to it. The major reason why students fail is that they lag behind in their course work. If you get into difficulties with your schedule, please, let your student counsellor at the study centre know before it is too late for help.
8. Turn to unit 1 and read the instruction with the learning outcomes for the unit.
9. Assemble the study materials. You will need your references and the unit you are studying at any point in time.
10. As you work through the unit, you will know what sources to consult for further information.
11. Visit your Study Centre whenever you need up-to-date information.
12. Before the relevant due dates (about four weeks before due dates), visit your study centre for your next your update on TMAs. Keep in **Mind** that you will learn a lot by personally doing the TMAs carefully. The TMAs have been designed to help you meet the learning outcomes of the course, and therefore, will help you pass the examination. Submit all the TMAs as at when due.
13. Review the learning outcomes for each study unit to confirm that you have achieved them. If you are not sure of any of the learning outcomes, you can move to the next study unit. Study unit by unit through the course, and try to space your study so that you can keep to the schedule.
14. After completing the last unit, review the course and prepare yourself for the final examination. Check that you achieved the unit learning outcomes (listed at the beginning of each unit), and the course learning outcomes (listed in the Course Guides).

Tutor and Tutorials

There are 15 hours online tutorials provided in support of this course. You will be notified of the dates and times, as well as the name, and phone number of your facilitator, as soon as you are fixed in a tutorial group.

Do not hesitate to contact your facilitator by phone, email, and discuss your problems for necessary assistance.

The following might be circumstances in which you would find help necessary. Contact your facilitator if:

- You do not understand any part of course study units of the assigned readings.
- You have difficulty with the self-test or exercises.
- You have a question or problem with the TMAs or with the grading of the TMAs.

You should try your best to participate in the tutorials. This is the only chance for a face-t-face contact with your course facilitator, and to ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To derive maximum benefit from course tutorials, prepare a list of questions before the tutorial sessions. You will learn a lot by your active participation in the discussions during tutorial sessions.

Summary and Conclusion

This course is expected to enrich your scholarship in psychological testing in terms of concept of psychological testing, relevance of psychological testing to counselling, kinds, uses and classifications of psychological tests, test validity, test reliability and test standardization, principles and processes involved in psychological test construction. The modules and units have been carefully arranged to enable you achieve the course objectives and it is hoped that the various assessment and self-exercises will provide the necessary support you need for a successful completion of this course. It is expected that you find this course motivating as we wish you success as you begin your relationship with **NOUN**.

**MAIN
COURSE**

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Module 1

- Unit 1 Introduction to Psychology
- Unit 2 Overview of Psychological Testing
- Unit 3 Classification, Kinds and Uses of Psychological Tests
- Unit 4 Distinctions between Psychological, Educational and Counselling Tests
- Unit 5 Relevance of Psychological Tests to Counselling
- Glossary
- End of the Module Questions

Unit 1: Introduction to Psychology

Unit Structure

- 1.1 Introduction
- 1.2. Intended Learning Outcomes
- 1.3. Introduction to Psychology
- 1.4 Meaning of Psychology
 - 1.4.1 Branches of Psychology
 - 1.4.2 Methods of Scientific Investigation in psychology
- 1.5 Relevance of psychology to guidance and counselling
- 1.6 Summary
- 1.7 References/Further Readings/Web Resources
- 1.8 Possible Answers to Self-Assessment Exercises



1.1 Introduction

Counselling process is more than providing assistance to clients but it is a process that expects the counsellor in training to be effective and have an up-to-date knowledge of the areas in which counselling as a discipline relates its knowledge to. Among the disciplines in which counselling connected to be psychology, psychology provides some of the basis for counselling; as counselling is also a branch of psychology with provision of psychological testing toward diagnosing the varying issues and problems to presented by clients. This brief description will lead us to the concept of becoming “effective counsellor” therefore, effectiveness of a counsellor demand acquisition of broad knowledge and skills so as to achieve behavioural change and healthy life among diverse clients they are providing counselling services to.

Pertinent to note is that psychologists and counsellors are interested in achieving the same goal; the two (both counsellors and psychologists) are after behaviour and changes in behaviour for the positive mental health of their clients. Counsellors deal with behaviour in the counseling

process, attempting to understand behaviour and bring about changes in behaviour are in accordance with counselling goals; immediate, long-range or process goals. This ascertains makes the introduction of psychology to be part of this course.



1.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- Define psychology
- Identify the branches of psychology
- Describe methods of scientific investigation in psychology
- Explain the relevance of psychology to guidance and counseling



1.3 Introduction to Psychology/Meaning of Psychology

There are many attempts that were made toward defining psychology. Let us look at some of these definitions:

Psychology was earlier defined as the study of the mind and behavior. This definition was used at the early development of psychology as body of knowledge or discipline when psychology was studied as a branch within philosophy and it was from philosophy that psychology later originated. Psychology has now become a diverse scientific discipline with several major branches of research such as; school and educational psychology, counseling psychology, experimental psychology, biological, cognitive, lifespan developmental psychology, personality psychology, social, abnormal, applied psychology, clinical, industrial/organisational, human factors, health, neuropsychology, cross-cultural.

Psychology as a scientific discipline involves psychological researches such as observation, testing, experimentation and analysis to identify/discover the biological, cognitive, emotional, personal, and social processes or stimuli underlying human and animal behavior. The practice of psychology involves the use of psychological knowledge for any of several purposes such as; to understand and treat mental, emotional, physical, and social dysfunction, to understand and enhance behavior in various settings of human activity (e.g., school, workplace, courtroom, sports arena, and battlefield), and to improve machine and building design for human use.

Another definition by Oxford Dictionary of Psychology (2015), describes psychology as the science concerned with the study of

behaviour and its related mental processes, the study of the nature, functions, and phenomena of behaviour and mental experience. In recent years, modern psychologists have moved from the study of the mind and focuses on behaviour rather than the mind, and some aspects of psychology have little to do with the mind. Therefore, many modern or current textbooks define psychology simply as the study of behaviour, or the science of behaviour.

Psychology has also been defined as a branch of applied psychology that concerned with the application of psychological principles and research to counselling (US Counselling Psychology, 2015).

Psychology is an umbrella term covering various branches of psychology in which research findings are applied to practical problems. Example: clinical psychology and counselling psychology, research into mental disorders is applied with the ultimate aim of helping people with those disorders. In educational psychology and school psychology, research into problems of learning, adjustment, and behaviour among school children is applied in an effort to provide practical help to children, their parents, and their teachers.

Question: Define psychology in any two ways?

1.4.1 Branches of Psychology

Psychology in a sense appears to be an umbrella word because, psychology is used in almost all spheres of human life to understand and improve the existing conditions. There are many branches of psychology. For example, if psychology turns its attention to human, we have human psychology; to business we have business psychology. These examples draw our attention to how different branches of psychology come into play. However, some of the applied branches of psychology include:

1. Counselling psychology
2. Industrial psychology
3. Developmental psychology
4. Physiological psychology
5. Social psychology
6. Clinical psychology
7. Military psychology
8. Experimental psychology
9. Genetic psychology
10. Community psychology
11. Abnormal psychology
12. Educational psychology

13. Animal psychology
14. General psychology
15. Sport psychology
16. Occupational psychology

Question: Discuss how the branches of psychology are related to specified content behaviour?

1.4.2 Methods of Scientific Investigation in Psychology

Having discussed the definitions of psychology in which it was claimed to use scientific methods to investigate behaviour; the question that follows is what types of scientific methods does psychology use to investigate behaviour? The answer will be that psychology did not emerge as a science until the later part of the nineteenth century (Rosser, 1986). Prior to that time, psychological questions were considered the province of philosophy. However, philosophy and psychology still have a close link as both focus on the same general issues that is, the nature of man. Presently however, the two disciplines have come to use different methods toward their investigations. Philosophy uses logical methods while, psychology uses scientific method. The scientific methods adopted by psychologists is toward answering of questions, gathering of information, and drawing of conclusions. The scientific methods were borrowed from the older sciences, it has proven to be a useful technique, one, based on demonstration and second, testing of phenomenon.

Specifically, scientific methods used in the study of psychology are:

- Case history or case study method
- Experimentation
- Longitudinal and cross-sectional method
- Observation
- Correlational etc. All these methods follow a laid down steps of:
 - Awareness of the problem
 - Location and definition of the problem
 - Collection of data
 - Formulation of hypotheses
 - Testing the hypotheses
 - Verification of the hypotheses
 - Making a valid conclusion. These follow the strategies of professional counselors in many situations.

Question: Why does psychology use scientific methods to study human and animal behaviours?

1.5 Relevance of Psychology to Counselling

Contributions of psychology to counselling can be seen in the relevance of psychology to counselling. However, the following are relevance of psychology to counselling:

1. Psychology provides the counsellor with the technique of understanding human behaviour. This understanding is used by the counsellor to help clients solve their problems presented to the counsellor. For example, if a brilliant and well-behaved child suddenly begins to perform poorly in his academic work and becomes defiant, an investigation by the counsellor may reveal that the strange behaviour is meant to achieve some goal which may not be known even to the child himself.
2. Psychologists have made important contributions to counseling in the form theories such as, behavioural and cognitive theories
3. Psychotherapy researches are in line with and applied to counseling practices and processes which many counselling applied in many groups or individual guidance and counselling.
4. Psychology also assists the counsellor to understand developmental characteristics of different categories of learners. Example, the pre-school child behaves differently from the child in lower or upper school level. The major characteristics, needs, tasks and accomplishments of the different stages are utilised for counselling delivery.
5. Psychology provides tools for the assessment of abilities and progress of clients.
6. Psychological testing is used in many counseling processes to diagnose, prognose, predict and so on of client related problems.

Self-Assessment Exercises 1

Attempt the following exercises to measure what you have learnt from this unit. This should not take you more than 15 minutes:

1. Define psychology in your own understanding?
 - i. Identify any five branches of psychology?
 - ii. Discuss any five relevance of psychology to the counsellor?



1.6 Summary

At this unit, we are able to define and present many definitions of psychology; branches of psychology as it includes counselling psychology. Also, scientific methods used in the study of psychology for testing and application of psychological testing. Relevance of psychology to counseling was also discussed.

It may therefore be said that psychology is to the counsellor what physiology and anatomy are to the physician. Practicing counsellors need an understanding of the psychology before comprehending the concept of psychological testing. Without it counseling treatment may be superficial.



1.7 References/Further Readings/Web Resources

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1.8 Possible Answers to Self-Assessment Exercises

Question 1: Define psychology in your own understanding?

Answer

Psychology is a scientific discipline that uses psychological researches such as observation, testing, experimentation and analysis to identify/discover the biological, cognitive, emotional, personal, and social processes or stimuli underlying human and animal behavior.

Psychology involves the use of psychological knowledge for any of several purposes such as to understand and treat mental, emotional, physical, and social dysfunction; to understand and enhance behavior in various settings of human activity (e.g., school, workplace, courtroom, sports arena, and battlefield); and to improve machine and building design for human use.

Psychology as a science concerned with the study of behaviour and its related mental processes, the study of the nature, functions, and phenomena of behaviour and mental experience. Psychology is study of behaviour, or the science of behaviour.

Question 2: Identify any five branches of psychology?

Answer

- Counselling psychology
- Industrial psychology
- Developmental psychology
- Physiological psychology
- Social psychology
- Clinical psychology
- Military psychology
- Experimental psychology
- Genetic psychology
- Community psychology □ Abnormal psychology
- Educational psychology
- Animal psychology
- General psychology
- Sport psychology

Question 3: Discuss any five relevance of psychology to the counsellor?

- Psychology provides the counselor with the technique of understanding clients' behaviour. This understanding is used by the counsellor to assist counsees solve their problems. For example, if a brilliant and well-behaved child suddenly begins to perform poorly in his academic work and becomes defiant, an investigation by the counsellor may reveal that the strange

behaviour is meant to achieve some goal which may not be known even to the child himself.

- Psychologists provides the counsellors with different but related theories such as behavioural and cognitive theories
- Psychology also assists the counsellor to understand developmental needs of individual at different stage of life development. Example, the pre-school child behaves differently from the child in lower or upper school level due to developmental characteristics and needs.
- Psychologists construct and designs different psychological tests for assessment of human functioning.
- Psychology serves as the basic foundation for counselling thereby making counselling to be part of the branches of psychology.

Unit 2 Overview of Psychological Testing

Unit Structure

- 2.1 Introduction
- 2.2 Intended Learning Outcomes
- 2.3 Psychological Testing
 - 2.4.1 An overview of Psychological Testing
 - 2.4.2 Meaning of Psychological Test
 - 2.4.3 Principles of psychological Testing
- 2.5 Psychological Test Security
- 2.6 Summary
- 2.7 References/Further Readings/Web Resources
- 2.8 Possible Answers to Self-Assessment Exercises



2.1 Introduction

The history of psychological test can be traced to the imperial examination system in China. The imperial examination is an early form of psychological testing; it was used to assess candidates based on their proficiency in topics such as civil law and fiscal policies. The ancient Chinese game known in the Western countries as the tangram was used to evaluate a person's intelligence, along with the game Jiulian huan or nine linked rings. The game being one of the earliest psychological tests in the world was used to assess a person's flexibility and creativity of thinking.

Modern psychological testing began in France in the 19th century. It assisted in separating mental retardation from mental illness and reducing the neglect, torture, and ridicule heaped on both mentally retarded and mentally illness persons. For counsellors therefore, psychological testing can be used and it is being used for many similar psychological or personality problems.



2.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- explain the meaning of psychological testing
- identify any three principles guiding the development uses of psychological tests
- discuss the rationale for inclusion of security in availability of psychological tests.



2.3 An Overview of Psychological Testing

Among the contribution of psychology to the counselling processes is the development of psychological test that is, processes of measuring clients' life dispositions through assessment which is also known as "psychometric procedures". Psychological tests were invented and refined by psychologists for assessing different varieties of traits and issues presented by clients. Clients' traits and issues were turned into breathtakingly wide array of constructs. The constructs may include, academic achievement, intelligent; IQ, mental status, neuropsychological functioning, self-esteem, depression, memory, language, adaptive behaviour, psychopathology and problem solving.

The roles of psychological testing in counselling process have made many counsellors, regardless of their orientation and affiliation refers to psychological assessment (testing) as important activity in relation to diverse clientele they interact with. In a national survey of American Psychological Association members, the survey discovered that among the activities carried out by counselling psychologists include; 80.3% of collecting information about their clients, 76.6% of identifying and diagnosing their clients' problems, 20% of their total professional time is devoted to assessment and diagnosis. Also added by Rene & David (2020), was that psychological tests serve the same function as the microscope to microbiologists and the telescope to astronomers.

Psychological testing contributes significant data to the understanding of individual or group of client characteristics and potentials, when the data/information are comprehensively collected, integrated and interpreted, it assists, guide and use to counsel the client by the counsellor. Individual or group client information or data can be obtained through different measures, techniques, methods and strategies depending on the nature of clients' problems and the specific purposes to which the counsellor intends to use the data and information for, such as evaluation of the client's nature of problem. Data in this process may mean the age, educational background, blood group and others, while, information in the context of psychological testing may include; marital status, family background, place of work, career and educational experiences.

Sources of information or where counsellors can obtain information for the process of psychological testing include records such as legal document, medical information, educational records, school environment, teachers, friends, family members, direct or indirect historical information, occupational and career information and

experiences. The counsellor may also obtain records from government and nongovernmental agencies and organisations, such as law enforcement agencies; police, state security services, traffic regulators, drug enforcement, court registries, statutory agencies and others.

Sources of information and or with data to the counsellor is not limited, it also includes organisations and agencies which the counsellor may identify as potentially relevant and useful for psychological testing such as, interviews and behavioural observations as the client is being examined during the process of interviews. Comprehensive information and data from different and relevant sources about the client toward a specific problem under examination assists the counsellor to have better and clearer understanding of the individual or group of clients being examined thereby, making the decision or advice of the counsellor accurate in terms of diagnosis, prognosis, treatment planning and recommendations, and in developing or selecting items for construction of psychological tests. Counsellor's interviewing the client; (whether structured, semi structured or unstructured interviewees) and behaviour observations (whether over or uncover) are said to remain the foundations of many psychological, personality and neuropsychological assessments (Overview of Psychological Testing, Institute of Medicine, 2015).

Generally, among counsellors, the goal of interviews include; identifying the nature of the client's presenting issues, obtain client's historical information regarding the issues presented by the client and to explore historical variables such as personal, family, group or individual experiences that may be relevant to the client presented issues or problems. More so, during the process of interviews counsellor can gain insight to client's behavioural dispositions that are useful in describing the nature of the client's problems or issues as well as discerning the convergence with known diagnoses.

Interviews provided information, data and observations can be used by the counsellor to select appropriate psychological test instruments, aid informants identified, and other historical records, interviews and observations gained in the process can also be used for referral, better understanding of the client's presented issues, formulation of hypotheses that will be tested; methods to be used in testing the formulated hypotheses and assist in accurate test interpretations. Example: Personality test is one of the types of psychological test that assists the counsellor to know who the client is and the strengths of the client. Personality test provides valuable information for choosing a career and how to develop individual or group of clients' personal growth with their core personality type (s) and how that interacts with life functioning, career and personal success. Through proper interpretation

of psychological tests, clients learn what to pursue, what to avoid and how their behaviour differs from that of others.

The field or scope of psychological testing is characterized by the use of samples of behaviour. The samples of behaviour are used to assess psychological construct(s). Examples of psychological constructs used in psychological testing include cognitive and emotional functioning of a given individual or client.

Part of our discussions on psychological testing is that we need to know that psychometrics is the technical term for the science behind psychological testing. It was Francis Galton that coined the terms psychometrics and also developed a method for measuring intelligence based on nonverbal sensory – motor tests. However, when we referred to samples of behaviour in the context of psychological testing, it means observations of an individual performing task that have usually been prescribed beforehand, which often means scores on a test. These responses are often meaning scores on a test and the responses are often compiled into statistical tables that allow the evaluator or guidance counsellor to compare the behaviour of the individual being tested to the responses of a ‘norm group’. The understanding of psychological testing must be based on strong formulation of the discipline of psychology (for further discussion on psychological testing: Definition, Types & Examples you can visit:

<https://study.com/academy/lesson/psychological-test-definition-types-examples.html> & Types and Examples of Psychological Tests: <https://www.scribd.com/doc/52166024/CLASSIFICATION-OF-PSYCHOLOGICAL-TESTS-2>

Question: Justify with three (3) reasons why psychologists made psychological tests to be parts of psychology?

2.4.1 Meaning of Psychological Test

Some of the meaning or definitions of psychological tests are presented below:

Psychological tests are written, visual, or verbal evaluations administered to assess the cognitive and emotional functioning of children and adults.

(<http://www.healthofchildren.com/P/Psychological-Tests.html> <http://www.healthofchildren.com/P/Psychological-Tests.html#ixzz6PiWaHyKS>).

Psychological tests are defined as formalized measures of mental functioning.

Psychological test refers to an objective and standardized measure of an individual's mental and/or behavioural characteristics. (<http://www.healthofchildren.com/P/Psychological-Tests.html>).

A psychological test is also an instrument designed to measure unobserved constructs known as latent variables.

In nature, psychological tests are typically, but not necessarily, a series of tasks or problems that the client has to solve.

Psychological tests can strongly resemble questionnaires that are also designed to measure unobserved constructs, but differ in that psychological test ask for a respondent's maximum performance. For psychological test to be useful, it must be both valid and reliable (validity and reliability are discussed in module 2 of this course material).

In many situations, psychological assessment is similar to psychological testing but psychological assessment usually involves a more comprehensive assessment of the individual. Psychological assessment is a process that involves checking the integration of information from multiple sources, such as tests of normal and abnormal personality, test of ability or intelligence, tests of interests or attitudes, information from interviews, occupation and so on, before psychologists can make a valid and reliable judgment about the individual.

Question: Briefly define psychological test based on your personal understanding?

2.4.2 Principles of Psychological Testing

The following are some of the principles of psychological testing:

1. **Standardization:** All steps involved in psychological testing including procedures in conducting psychological tests must be based on consistency and under the same environment so as to achieve the same results from the same group persons or individuals being tested.
2. **Objectivity:** Psychological tests scoring must be objective that is free from subjective judgments, free from all biases and based on the fact that the same results or performance can be obtained on the test by anybody.
3. **Test Norms:** Psychological tests must have the norms that specify the average test score within a large group of people where the individual or group scores can be compare to the results of others by establishing a point of comparison or frame of reference.
4. **Reliability:** Psychological tests results must be the same results that will be obtained after multiple testing.

5. Validity: A psychological test being designed and administered must measure what it is intended to measure.

(You can contact here for further reading:

<https://www.psychologydiscussion.net/notes/developing-psychological-tests-5-principles/736> <https://www.psychologydiscussion.net/notes/developing-psychological-tests-5-principles/736>).

Question: Write short notes on the following:

1. Standardization
2. Objectivity
3. Test Norms
4. Validity
5. Reliability

2.5 Psychological Tests Security

In practical terms, a lot of psychological tests are generally not available to the public users including the counsellors, but rather, bears restrictions that come from publishers of the tests and from psychological test licensing boards that prevent the disclosure of the tests with the information about the interpretation of the results.

Publishers of many of psychological tests also consider both copyright and matters of professional ethics to be involved in protecting the secrecy of their tests, and they sell tests only to people who have proved their education and professional qualifications to the test developer's satisfaction.

Sometimes purchasers are legally bound from giving test answers or the tests themselves out to the public unless permitted under the test developer's standard conditions for administration of the tests.

The International Test Commission (ITC) is an international association of national psychological societies and test publishers. This association publishes the international guidelines for psychological test use, which prescribes to "protect the integrity" of the tests by not publicly describing test techniques and by not "coaching individuals" so that they might unfairly influence their test performance or outcome. The implication of this is that counsellors who are interested after coming across an interested psychological test must legally obtain permission from the publisher of such test for their use.



Self-Assessment Exercises 2

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 15 minutes.

1. What is psychological test?
2. Explain briefly the roles of the following toward the uses of psychological tests:
 - i. Objectivity, ii. Standardization and iii. Test Norms.

2.6 Summary

A psychological test is an objective and standardized measure of an individual's mental and/or behavioural characteristics. The field of psychological testing is characterized by the use of samples of behaviour that is used to assess psychological construct(s). Examples of psychological constructs used in psychological testing include cognitive and emotional functioning of a given individual or client. There are principles underlying the use of psychological tests, these principles are standardization, objectivity, test norms, reliability and validity. In addition, most of the psychological tests are not generally available to the public users except through legal permission from the test developer and regulated by the international association of national psychological test societies.

Knowledge of the discipline of psychology is crucial for the student counsellors toward effective understanding, selection, uses, application and interpretation of psychological tests for the benefits of their clientele.



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2.8 Possible Answers to SAEs

Question 1: What is psychological test?

Answer:

Psychological tests are written, visual, or verbal evaluations administered to assess the cognitive and emotional functioning of children and adults.

Psychological tests are formalized measures of mental functioning.

Psychological test refers to an objective and standardized measure of an individual's mental and/or behavioural characteristics,

Question 2: Identify and discuss any three principles guiding the uses of psychological tests?

Answer:

1. Explain briefly the roles of the following toward the uses of psychological tests:
 - i. Objectivity, ii. Standardization and iii. Test Norms.

Standardization: This suggests that all steps in the psychological testing including procedures in conducting psychological tests must be based on

consistency and under the same environment so as to achieve the same testing performance or results from group or individuals being tested.

Objectivity: Psychological tests scoring must be objective that is free from subjective, free from all biases and based on the fact that the same results or performance can be obtained on the test by an interest individual or group.

Test Norms: Psychological tests must have the norms that specify the average test score within a large group of people which can be compare to the results of others by establishing a point of comparison or frame of reference.

Unit 3: Classification, Kinds and Uses of Psychological Tests

Unit Structure

- 3.1 Introduction
- 3.2 Intended Learning Outcomes
- 3.3 Classification, Kinds and Uses of Psychological Tests
- 3.4 Classification of Psychological tests
 - 3.5.1 Kinds of Psychological tests
 - 3.5.2 Uses of Psychological tests
- 3.6 Summary
- 3.7 References/Further Readings/Web Resources
- 3.8 Possible Answers to Self-Assessment Exercises



3.1 Introduction

One of the major instruments used in counselling process is psychological test. Psychological test is also the most formal instrument for measuring individual or group of clients' psychological traits or life functioning. Psychological tests can be group into two broad categories and the categories are: 1. Psychological tests based on the nature of testing and 2. Psychological tests based on the functions to which the psychological tests perform. This unit thereby presents the classifications, kinds, and uses of psychological tests.



3.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- distinguish between various classification of psychological tests
- identify kinds of psychological test
- discuss the uses of psychological tests.



3.3 Classification of Psychological Tests

Psychological tests can be classified into two categories and the categories are:

1. Psychological tests based on the nature of testing.
2. Psychological tests based on the nature of functions to which the tests perform.
3. Let us look at the description of these two categories:

Psychological Tests based on the Nature of Testing

All individual or group of individuals' behaviours may be impossible to test. Individual or group presented for counselling have different difficulties such as being too young or having language difficulties that proves difficult during testing situation. However, this has led to the development of different psychological tests so as to meet different situation and clients. Any type of psychological test may employ different methods and the method adopted by any given psychological test can be grouped into:

1. Standardized testing method and non-standardized testing method.

Standardized Testing method: These are psychological tests designed by standardized test agencies and organisations with standard procedures, instructions and manual. Standardized tests may be used by different people by simply following the test instructions given in the manual. Most of the standardized tests are objective tests. For a test to be called objective tests it must have power of given reliable and valid result or objective results without being bias or influenced. Under this category of test method, we have:

- Tests of maximum performance. Under this classification psychological test attempt to determine just how well a person can perform in a specified task. During the testing situation, the person is encouraged to do his best and his response is compared with a key prepared by experts which distinguishes between correct and incorrect responses. Examples of test of maximum performance are: (i) aptitude tests (ii) ability tests, and (iii) achievement tests.
- Tests of typical performance. This classification of tests tries to get an index of an individual's usual or typical behaviour as he goes about his day-to-day life. In this case, instead of encouraging the individual to do his best, he is expected to report how he would normally behave in a specified situation. The individual's responses are not judged right or wrong, but interpreted as truly or not. Test of typical performance include personality tests and interest inventories

Non-standardized Testing method: These groups of psychological tests use no standardized or rigid testing procedures. Psychological test under non-standardized testing methods include; case study approach, anecdotal method, behaviour analysis, observations, interviews, cumulative records study, sociometry, rating scale. Under this category of testing method, we have:

- Objective vs. Subjective (Essay) tests

- Paper and Pencil vs. Performance tests
- Speed vs. Power test
- Individual vs. Group tests
- Language vs. Non-language nor verbal vs. non-verbal tests
- Teacher-made tests vs. Standardized tests

Objectives tests are tests that cover a wide area of content and are structured in such a way that they can easily be scored, even by machines. There are different forms of objective tests such as multiple-choices, true-false, short-answer matching. The objective tests are also classified into supply types (short answer, completion) tests and selection types (True-False, Matching and Multiple choices) tests, on the other hand the essay type tests, these tests try to measure a candidate knowledge, analysis and organisational ability. Essay type tests are not difficult to set. Example of essay type tests include extended response and restricted response type tests. Both objective and essay type tests are examples of paper and pencil tests.

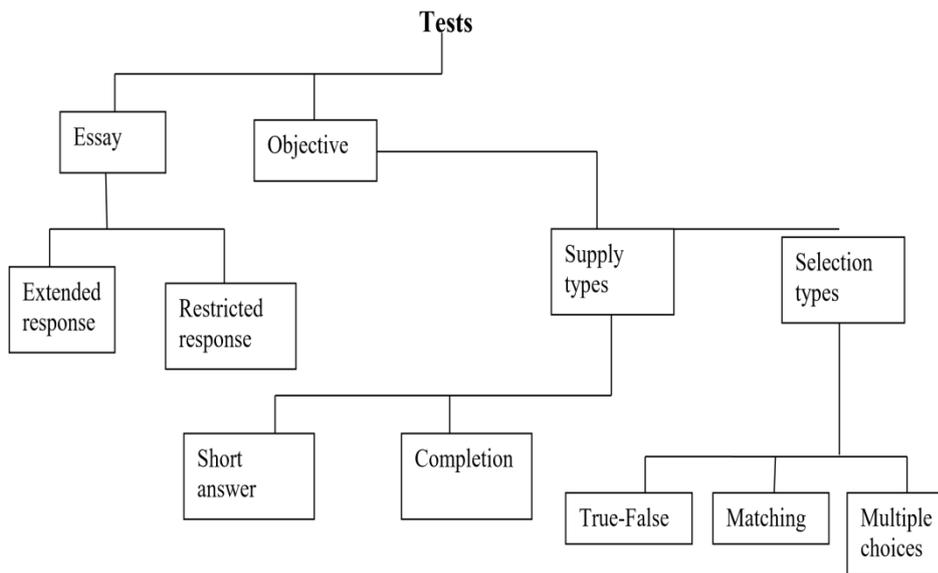
Psychological Tests based on the Nature of functions to which the Tests Performs

This consisted of large number of psychological tests that were designed or developed by psychologists due to variation and comprehensiveness of human psyche or traits. Counsellors are usually presented with issues or problems by their clients who are influenced by many underlying factors such as; age, sex, need of the tester, and purpose of testing. Hence, different psychological tests are needed to assess all these factors. Among the notable psychological tests based on the nature of functions they perform include:

- Attitude tests
- Educational achievement tests
- Value tests
- Aptitude tests
- Interest tests
- Personality tests
- Intelligence tests
- Adaptive Behaviour Testing
- Affect (Mood States) Assessment
- Behaviour Assessment System for Children
- Behaviour Rating Scales
- Behavioural Observation Methods
- Clinical Interview
- Cognition/Intelligence Assessment
- Computer-Assisted Testing
- Conners' Rating Scales-Revised
- Continuous Performance Tests

- Culture-Free Testing
- Functional Behavioural Assessment
- Language Difficulties Assessment
- Memory Assessment
- Self-Esteem Assessment

Let us take a look at the table below; it may give us some clue to understanding several ways of classifying psychological tests; as psychological tests can be classified on a number of continuums:



Source: Muhammed Y. B. (2015, 3rd Edition). Measurement and

Table 1: Schematic representation of Essay and Objective Type Tests

Evaluation in Education.

- a. Paper and pencil tests are meant to be answered using paper and pencil while performance tests are tests that requires the candidate to physically demonstrate certain abilities and skills
- b. Speed tests are tests that measures a candidate's ability to think fast and accurately while power tests allow candidates to be given enough time to complete all the items on the test before judgment
- c. Individual tests are tests administered to candidates individually but group tests are administered to a number of candidates in a group form testing situation.
- d. Language or verbal tests are tests that measure language fluency and require the candidate to speak-out while non language or non-verbal tests require non-verbal responses or answers from the candidates.
- e. Teacher-made and standardized tests.

Question: Briefly discuss classification of psychological tests that are standardized and those that are not standardized citing relevant examples for each classification?

3.4.1 Kinds of Psychological Test

There are several kinds of psychological test, namely:

- Achievement tests
 - Aptitude tests
 - Intelligence tests
 - Diagnostic tests
 - Performance tests
 - Public safety employment tests
 - Sexological tests
 - Interest tests
 - Direct observation tests
 - Personality tests
 - Attitude tests
 - Neuropsychological tests
 - Infant and preschool assessment
1. **Achievement Test:** These are tests constructed for the purposes of measuring how much learning of a course objective has taken place or achieved by the group or individual after a given time.
 2. **Aptitude Test:** They are tests constructed for the purposes of measuring the potential or ability of the individual or group to attain or achieve certain attribute or learning at a later stage. Aptitude tests are psychological tests designed to measure specific abilities, such as mechanical or clerical skills. Sometimes these tests must be specially designed for a particular job, but there are also aptitude tests available that measure general and mechanical aptitudes. Such as Minnesota Clerical Test.
 3. **Intelligence Tests:** These tests may be aptitude tests or achievement tests. For example, IQ achievement tests purport to be measures of intelligence, while achievement tests are measures of the use and level of development of use of the ability. IQ (or cognitive) tests and achievement tests are common norm-referenced tests.
 4. **Diagnostic Tests:** These tests are commonly constructed and administered on individual or group for the purposes of investigating or identifying certain personality problem areas in order to determine needed remedial or counselling intervention.
 5. **Performance Tests:** These tests are designed to measure individual or group physical demonstration of certain abilities

and skills. It is an ongoing performance assessment of abilities and skills in a given task

6. **Public Safety Employment Tests:** These tests are constructed for vocations within the public safety i.e., fire service, law enforcement, and correctional, emergency, medical services. Industrial and organisational psychology tests are used for initial employment and advancement throughout the ranks; these categories of test include, the National Firefighter Selection Inventory – NES and the Integrity Inventory – IT
7. **Sexological Tests:** The field of sexology provides different psychological evaluation devices in order to examine the various aspects of the discomfort, problem or dysfunction regardless of whether they are individual or relational ones. Although, there are limited number of tests that are specifically meant for the field of sexology.
8. **Interest Tests:** These tests are psychological tests designed to measure a person's interests and preferences. The tests are used primarily for career counselling, interest tests may include items on daily activities from among which applicants select their preferences. The rationale is that if a person exhibits the same pattern of interests and preferences as people who are successful in a given occupation, then the chances are high that the person taking the test will find satisfaction in that occupation.
9. **Direct Observation Tests:** These types of tests are usually constructed and conducted with families in laboratory settings, home, or with children in a classroom. In most cases, the purposes of these tests are clinical for example, to establish a pre-intervention baseline of a client aggressive behaviour or to observe the nature of a parent child interaction in order to understand a relational disorder. Example of Direct observational tests are the Parent-Child Interaction Assessment – 1 (PCIA) and the Mac-Arthur Story Stern Battery (MSSB).
10. **Personality Test:** These types of tests are constructed to measure personality attributes or traits. The tests are commonly described as either objective tests or projective tests. Although, the terms “objective test” and “projective tests” have come under criticism such as in the Journal of Personality Assessment. The recent descriptive are “rating scale or self-report measures of personality” and “free response measures of personality”.
11. **Attitude Tests:** Attitude tests measure an individual or group feelings about an event, person or object. Typically used attitude tests are Thurstone Scale or Likert Scale; to measure specific attitudinal items.
12. **Neuropsychological Tests:** These tests consist of specifically designed tasks used to measure a psychological function known to be linked to a particular brain structure or pathway. These tests

can be used in a clinical context to assess impairment after an injury or illness known to affect neuro-cognitive functioning. In research, neuro-psychological tests can be used to contrast neuropsychological abilities across experimental groups.

- 13. Infant and Preschool Assessment:** These tests are designed for children ages from birth to six years of age. The tests measure reflexes developmental milestones to sensory and motor skills, language skills, and simple cognitive skills. The assumption behind the tests is that infant and preschool aged children have limited capacities of communication. Examples of these tests include standard – Benet Intelligence Scales, for Early Childhood, McCarthy Scales of Children’s Abilities, Infant Ability Preschool Intelligence and School Readiness, Gesell Developmental Schedules etc.

Question: In what ways does Infant and preschool assessment test differs from personality test?

3.5 Uses of Psychological Tests

Uses of Psychological Tests

At the beginning of this module, we are able to explain some of the definitions of psychological test. Another description of psychological test is that the tests may be written, visual, or verbal evaluations administered to individual or group of clients to assess the emotional or cognitive functioning either in young or adults, school or out of school individual or client. Example, school clients may be assessed with academic achievement, intelligence, and ability psychological tests. The purpose may vary from individual or group to school or clients. The administration of the psychological test may to determine the presence of a learning disability or a developmental delay, identification of giftedness, or in tracking intellectual development. In this unit, we are going to discuss further some of the uses of psychological tests:

1. Psychological tests are used to obtain information that can be used to guide the important decisions psychologists and examinees makes about students, group of students, clients or group of clients. That means the information obtained from tests must be useful in predicting important real-world phenomena. The issue that individuals present to the counsellor may require predictions. Example: whether to get married or divorced, which course of study or job to pursue, whether an incarcerated individual should be permitted to rejoin the community, and what approach will most effectively treat the symptoms that interfere with an individual’s ability to function in society. In short, the

- usefulness of test scores lies in the real-life criteria that they predict.
2. Some of the psychological tests are used to derive inference about client behaviour on the basis of test results.
 3. Psychological tests are used to judge the level of attributes such as intelligence, self-esteem, aptitude, attitude of an individual client.
 4. Personality tests and inventories are used to evaluate the thoughts, emotions and attitudes and behavioural traits that comprise client's personality.
 5. Results derived from personality tests are used to determine the personality strengths and weaknesses of clients.
 6. Personality tests results are used to identify certain disturbances in client's personality or psychopathology.
 7. Rating scale as a kind of personality test is used to assess the magnitude or severity of a psychological construct or disorder.
 8. Rating scale as a form of personality test aids in counselling research and clinical practice, such data provided or derived from psychological test results are important for evaluation, documentation, decision-making, and or analysis of counselling services and outcomes.
 9. Psychological tests assist in clinical diagnosis; example: Rosehach Inkblot test.
 10. Psychological tests provide information about client easier than through clinical interviews.
 11. Psychological tests are used to formulate psychopathology and identify areas of stress and conflict in individual life circle. Example: Thematic appreciation test.
 12. Psychological tests are used to determine the nature of deficit present in the client. Example: cognitive neuropsychological assessments.
 13. Psychological tests are used in assessing severity of psychopathology and responses to treatment. Example: Hamilton rating scale for depression, brief psychiatric rating scale.
 14. Psychological tests are used in assessing the general characteristics of individual. Example: assessment of intelligence and assessment of personality.
 15. Psychological tests are used for forensic evaluations regarding litigation. Example: family court issues or criminal charges.
 16. Psychological tests are used in assessing level of functioning or disability, help in direct treatment and assess treatment outcome.

Self-Assessment Exercises 3

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

1. Identify the major classifications of psychological tests?
2. Discuss any five uses of psychological tests to the counselling profession?



3.6 Summary

Different types of psychological tests were identified and discussed. Uses of psychological tests in line with psychological test types were also discussed. The unit also outlined and discussed various classifications of tests as with nature of trait being measured; how the trait is measured and the functions of the trait being measured.

Guidance counsellors should realize that knowledge of the kinds, uses and classification of psychological tests will assist them greatly in the selection and utilisation of different types of psychological tests.



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3.8 Possible Answers to Self-Assessment Exercises

Question 1: Identify the major classifications of tests according to your own experience?

Answer:

- A. Standardized testing methods
- B. Non-standardized testing methods.

The Standardized Testing methods are tests designed by standardized test agencies and organisations following standard procedures, instructions and manual. Standardized tests may be used by different people by following the test instructions given in the manual. Most of the standardized tests are objective tests. For a test to be called objective tests it must have power of given reliable and valid result or objective results without being bias or influenced. Under this category of test methods, we have:

- Tests of maximum performance: Tests under this classification attempt to determine how well a person can perform in a specified task. The client is encouraged to do his best and his response is compared with a key prepared by test constructors which distinguishes between correct and incorrect responses. Examples of test of maximum performance are: (i) aptitude tests (ii) ability tests, and (iii) achievement tests.
- Tests of typical performance: tests under this classification try to get an index of an individual client usual or typical behaviour as he goes about his day-to-day life. In this case, instead of encouraging the individual or client to do his best, he is expected to report how he would normally behave in a specified situation. The client responses are not judged right or wrong, but interpreted as truly or not. Test of typical performance include personality tests and interest inventories

Non-standardized Testing methods: This group of test uses no standardized or rigid testing procedures. Tests under non-standardized testing methods include; case study approach, anecdotal method, behaviour analysis, observations, interviews, cumulative records, sociometry, rating scale. Under this category of testing method, we have:

- Objective vs. Subjective (Essay) tests
- Paper and Pencil vs. Performance tests

- Speed vs. Power test
- Individual vs. Group tests
- Language vs. Non-language nor verbal vs. non-verbal tests
- Teacher-made tests vs. Standardized tests

Question 2: Discuss any five uses of psychological tests to the counselling profession?

Answer:

Five uses of psychological tests are discussed as follows:

1. Psychological tests are used to obtain information that can be used to guide important decisions that counsellors make. This means the information obtained from tests must be useful in predicting important real-world phenomena with the issue that individuals present to the counsellor and require predictions. Example: whether to get married or divorced, which course of study or job to pursue, whether an incarcerated individual should be permitted to rejoin the community, and what approach will most effectively treat the symptoms that interfere with an individual's ability to function in society. In short, the usefulness of test scores lies in the real-life criteria that they predict.
2. Psychological tests are used to derive inference about client behaviour or disposition on the basis of test results.
3. Psychological tests are used to judge the level of attributes such as intelligence, self-esteem, aptitude, attitude of an individual client.
4. Test results derived from psychological personality tests are used to determine the personality strengths and weaknesses of any given client.
5. Personality test results are used to identify certain disturbances in client's personality or psychopathology.

Unit 4: Distinctions Between Psychological, Educational and Counselling Tests

Unit Structure

- 4.1 Introduction
- 4.2 Intended Learning Outcomes
- 4.3 Psychological, Educational and Counselling Tests
- 4.4 Description of psychological, Educational and Counselling Tests.
- 4.5 Distinctions between psychological, educational and counselling tests.
- 4.6 Summary
- 4.7 References/Further Readings/Web Resources
- 4.8 Possible Answers to Self-Assessment Exercises



4.1 Introduction

Psychological tests are mostly developed, constructed or designed by test experts, teachers and counsellors for different uses. Counsellors may adopt, adapt or modify the intended test or may develop their own but in so doing all processes for developing a standard test must be followed. However, counsellor must note that differences exist between psychological, educational and counselling tests. This unit explains by description of psychological, educational and counselling tests, and also examines the differences between the three tests.



4.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- Write short notes on the following:
 - Psychological tests
 - Educational tests
 - Counselling tests
- Discuss the differences between psychological, educational and counselling tests?



4.3. Distinctions Between Psychological, Educational and Counselling Tests

4.3.1 Meaning of Psychological Test

A psychological test is an objective and standardized measure of an individual's mental and/or behavioural characteristics. A psychological test is an instrument designed to measure unobserved constructs, also known as latent variables. Psychological tests can strongly resemble questionnaires, which are also designed to measure unobservable constructs, but differ in that psychological test ask for a respondent's maximum performance whereas a questionnaire asks for the respondent's typical performance.

Educational tests are teacher made tests and standardized measures of Intended Learning Outcomes. Educational tests are designed to measure what learners have benefited after a given learning outcome. They may be objective items or essay designed to measure the success or failure of a given educational programme. Educational tests usually vary from one context to the other. Educational tests usually followed planned or stated objectives of instruction or learning outcome. A teacher or school administrator may construct and administers a test to a large number of candidates and from their performances decides which candidates should be administered, promoted or demoted.

Counseling tests are psychological or educational tests for counseling purposes. Counseling tests may be adopted, adapted or modified. Psychological or educational tests can be developed by counsellor for counselling uses. Broadly speaking, tests that serves counselling purposes are called counselling tests.

Question: Briefly define psychological, educational and counselling tests?

4.4 Distinctions Between Psychological, Educational and Counselling Tests

The following illustrates the relationships and distinctions between psychological, educational and counselling tests:

1. Psychological tests such as interest tests assess a person's interests and preferences. These tests are used primarily for career counselling. In the classroom, the test measures learner's

- academic choices which are of interest to the school counsellors and the teachers.
2. Psychological tests provides the basis for teachers and counsellors in measuring or classifying intelligence levels of clients and students
 3. The roles of psychological and educational test outcomes is to provide guidance and counseling to individual or student client's concern.
 4. Some psychological tests such as interest tests, Rorschach Inkblot test, and Thematic Apperception tests are purely for counselling and psychotherapy.
 5. Psychological tests are useful in developing therapeutic rapport between the counsellor and the client, also useful in creating inferences to follow-up with other methods. These can also be applied in motivating the learner by the teacher, toward learning tasks.
 6. Psychological tests of aptitude are used by teachers and counsellors to measure specific abilities in clients and learners, such as mechanical or clerical skills.
 7. One major distinction between the three categories of tests is that psychological tests are an objective and standardized measure of an individual's mental and or behavioural characteristics; educational tests are combinations of teacher – made tests and standardized test and counseling tests are tests used for the benefits of counselling processes.

Self-Assessment Exercises 4

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

1: Using relevant test examples, distinguish between psychological, educational and counseling tests?



4.5 Summary

Descriptions were made of psychological, educational and counselling tests. Distinctions between psychological, educational and counselling tests were discussed based on types of psychological tests.

It is difficult to say that, there are no relationships between psychological, educational and counselling tests. This is because, both psychological, educational and counselling tests focused on people, clients or learner's personality.



4.6 References/Further Readings/Web Resources

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4.7 Possible Answers to Self-Assessment Exercises

Question 1: Using relevant test examples, distinguish between psychological, educational and counseling tests?

Answer:

Psychological test is an objective and standardized measure of an individual's mental and/or behavioural characteristics. A psychological test is an instrument designed to measure unobserved constructs known as latent variables. Psychological tests can strongly resemble questionnaires, which are also designed to measure unobservable constructs, but differ in that psychological test ask for a respondent's maximum performance whereas a questionnaire asks for the respondent's typical performance. Examples of psychological tests are: 1. Aptitude tests, 2. Attitude tests, 3. Vocational Interest test.

On the other hand, educational tests are mostly teacher or classroom made tests and measures of Intended Learning Outcomes. Educational tests are designed to measure what learners have benefited after a given learning activity (s). Educational tests may be objective items or essay designed to measure the success or failure of a given educational

programme. Educational tests usually vary from one context to the other.

Educational tests usually followed planned or stated objectives of instruction. A teacher or group of teachers may construct and administers a test to a large number of candidates and from their performances decides which candidates should be admitted, promoted, recommended or demoted. While, counseling tests are psychological or educational tests for counselling purposes. Counselling tests may be adopted, adapted or modified. Psychological or educational tests may be developed by counsellor for counselling uses. Broadly speaking, all tests that serves counselling purposes are called counselling tests.

Unit 5: Relevance of Psychological Tests to Counselling

Unit Structure

- 5.1 Introduction
- 5.2 Intended Learning Outcome
- 5.3 Uses of Different Kinds of Psychological Tests to Counselling
- 5.4 Summary
- 5.5 References/Further Reading
- 5.6 Possible Answers to Self-Assessment Exercises



5.1 Introduction

Psychological tests are measures that give fairly stable and predictable result that can be depending upon during counselling process. This is one of the reasons that makes counsellors to uses psychological tests in many circumstances. This unit discusses relevance of kinds psychological tests to counselling.



5.2 Intended Learning Outcome

By the end of this unit, you will be able to:

- identify and discuss the uses of different kinds of psychological tests to counselling.



5.3 Uses of Different Kinds of Psychological Tests to Counselling

The following are relevance of different kinds of psychological tests to counselling:

- a. Personality psychological tests are used in counselling for diagnosing or identifying client personality problems and dysfunction so that appropriate remedial steps can be taking.
- b. Aptitudes psychological tests are used for predicting students or clients' future in a specific field such as language-fluency, music or academic specializations.
- c. Vocational tests are used by counsellor for selecting candidates into either vocations or educational programmes.
- d. Psychological tests provide feedbacks for evaluating counselling processes and outcomes.

- e. Neuro-psychological tests are used in a clinical context to assess individual impairments.
- f. Sexological tests are used to examine the various aspects of discomfort, problem or dysfunction.
- g. Interest tests are used for the assessment of a person's or group interests and preferences.
- h. Attitude tests are used for the assessment of individual or group feelings about an event, person or object.
- i. Infants and preschool assessment are used for the assessment of reflexes, developmental milestone, sensory and motor skills, language skills and simple cognitive skills in infants and preschool aged children from birth to six years of age.
- j. Direct observation tests are used to establish a pre-intervention baseline of a child's hyperactive or aggressive classroom behaviour or to observe the nature of a parent-child interaction in order to understand a relational disorder.
- k. Public safety employment tests are used by public safety organisation and industries such as national fire fighter to tests initial employment and advancement throughout the ranks.
- l. Personality test measures and outcomes are useful in developing therapeutic rapport between counsellor (therapist) and the client. In addition, they are also useful in creating inferences to follow-up with other therapeutic methods.

Question: Identify and discuss the uses of any five (5) kinds of psychological tests to you as a counsellor?

Self-Assessment Exercises 5

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than five minutes:

1. Identify and discuss any five kinds of psychological tests with their specific functions to the counselling process?



5.4 Summary

The unit discusses various uses and purposes of psychological tests to the counsellors and counselling processes and other practioners such as psychotherapists, researchers and others.

The effectiveness or appropriateness of counselling services depends on appropriate use of psychological tests so as to produce expected outcomes, the counsellors need to understand the specific uses, purposes, rationales and conditions prescribe for application of different psychological tests.



5.5 References/Further Readings/Web Resources

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5.6 Possible Answers to Self-Assessment Exercises

Question: Identify and discuss any five kinds of psychological tests with their specific functions to the counselling process?

Answer:

The following are five functions of psychological tests to counselling process:

- a. Interest tests are used for the assessment of a person's or group interests and preferences.
- b. Attitude tests are used for the assessment of individual or group feelings about an event, person or object.

- c. Infants and preschool assessment are used for the assessment of reflexes, developmental milestone, sensory and motor skills, language skills and simple cognitive skills in infants and preschool aged children from birth to six years of age.
- d. Direct observation tests are used to establish a pre-intervention baseline of a child's hyperactive or aggressive classroom behaviour or to observe the nature of a parent child interaction in order to understand a relational disorder.
- e. Public safety employment tests are used by public safety organisation and industries such as national fire fighter to tests initial employment and advancement throughout the ranks.

Personality test measures and outcomes are useful in developing therapeutic rapport between counsellor (therapist) and the client. In addition, they are also useful in creating inferences to follow-up with other therapeutic methods.

MODULE 3

Unit 1	Test Standardization.
Unit 2	Uses of Strong Vocational Interest Blank, Kuder Preferential Blank, Achievement Test and Intelligence Test
Unit 3	Personality Tests
Unit 4	Problems Associated with Personality Tests
Unit 5	Ways of Overcoming Problems Associated with Personality Tests

Unit 1 Test Standardization

Unit Structure

- 1.1 Introduction
- 1.2 Intended Learning Outcomes
- 1.3 Procedures for standardizing a test
- 1.4 Summary
- 1.5 References/Further Readings/Web Resources



1.1 Introduction

Counselors may adopt, adapt or modify an already developed test based on legal permission or may develop their own. Whatever the case, test construction or developers must follow laid down processes to standardize the tests. This unit outlines the criteria for standardizing a test.



1.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- list the criteria for tests standardization.
- explain the criteria for standardization of tests.



1.3 Test Standardization

Standardization processes also known as determining the psychometric properties involved in psychological tests or any given standardized tests relate to collection of data on the test to determine how well it measures the construct, traits or behaviour of interest. Test constructors, psychologists or counsellors with the objective of developing a good psychological test, will subject the new test to statistical analyses to ensure that it has good psychometric properties.

There are three broad types of standardizations or psychometric properties that a test must have in order to be considered a good measure of a particular construct and these are; reliability, validity and usability. However, some of these qualities have been identified and fully discussed in previous units. But for the purpose of further clarifications, they are explained in this unit:

- ❖ Test validity
- ❖ Test reliability, and
- ❖ Test usability

Test validity is defined in terms of the extent to which a test measured what it purported to measure but contemporary use of test validity refers to the extent to which the results of an evaluation procedure serve the particular uses for which they are intended.

Test Reliability refers to the accuracy or precision of a measuring instrument that is; the consistency with which the instrument measures what it is expected to measure.

Test Usability: This comes after validity and reliability. It is the third requirement for test standardization. The term usability is an umbrella term under which all practical considerations before selecting or using a test are discussed. These include test being easy to administer, time required for administration of the test, ease of scoring and interpretation, cost of development and testing. All these factors are very important for consideration before selecting, adopting, adapting or developing a test.

Self-Assessment Exercises 1

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question 1: Briefly write short note on test standardization process?

Question 2: Outline psychometric properties of a psychological test?



1.4 Summary

Processes involved in test standardization are using collected data with statistical measures to determine how reliable, valid and useful the developed, adopted, adapted or modified tests are.

For the counsellor to develop or construct an effective test it requires a detail understanding of the qualities of a good test. The counsellor also needs to liaise with experts in test construction followed by constant practices.



1.5 References/Further Readings/Web Resources

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1.6 Possible Answers to Self-Assessment Exercises

Question 1: 1: Briefly write short note on psychological test standardization process?

Answer

Psychological test standardization process is also called test psychometric properties. The process involved in psychological tests or any given standardized tests relate to collection of data on the test to determine how well it measures the construct, traits or behaviour of interest. Test constructors, psychologists or counsellors with the objective of developing a good psychological test, will subject the new test to statistical analyses to ensure that it has good psychometric properties.

Question 2: Outline psychometric properties of a psychological test?

Answer:

There are three broad psychometric properties that a test must have in order to be considered a good measure of a particular construct and these are:

1. Test validity
2. Test reliability
3. Test usability

Unit 2: Uses of Strong Vocational Interest Blank, Kuder Preferential Blank, Achievement Test and Intelligent Test

Unit Structure

- 2.1 Introduction
- 2.2 Intended Learning Outcomes
- 2.3 Uses of Strong Vocational Interest Blank
- 2.4 Uses of Kuder-Preferential Blank
- 2.5 Uses of Achievement Test
- 2.6 Uses of Intelligent Tests
- 2.7 Summary
- 2.8 References/Further Readings/Web Resources



2.1 Introduction

Data collection is an integral part of counseling process. The general order of cotemporally scientific methods which the counsellors follow attests to this claim. Data collection techniques entail the determination of the information needed and of how to obtain it. Some of the uses of the various tests that can be used in counseling process are discussed under this unit.



2.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- explain the uses of Strong Vocational Interest Blank
- apply Kuder Preferential Blank
- explain Achievement test
- apply Intelligence test.



2.3 Strong Vocational Interest Blank

Strong vocational interest Blank is an example of interest inventories. The blank asks the client to indicate her/his preference for various occupational areas such as mechanical, scientific, artistic, and persuasive and social science:

Uses of Strong Vocational Interest Blank are:

1. It is used to measure client personality interest toward a targeted object, individual or event
2. is used to determine client level of likes and dislikes, such as the kinds of activities she/he prefers to engage
3. Being a non-projective test personality, it is used to describe the personality structure of different group
4. It also used to measure client self that is client assess his/her feelings about himself/herself
5. In a correlational study, it was used to correlate intelligence of different individuals.

Question: Briefly discuss situations in which student counsellor can use strong vocational interest blank?

2.4 Kuder Preferential Blank

Kuder Preferential Blank is an example of non-projective test similar to Strong Vocational Interest Blank. In many experimental studies it has been used to correlate different personality trait, such as intelligence. The uses of Kuder preferential blank include:

1. To correlate client's intelligence level
2. Describe personality structure of various groups of clients
3. The format of the test is sometimes used as checklist where an individual checks items that best characterized a trait.

It is also used to measure feelings of clients toward a targeted trait.

Question: Briefly discuss situations in which student counsellor can use Kuder preferential blank?

2.5 Uses of Achievement Tests

Achievement tests have been defined as those tests that measure the current status of individuals with respect to proficiency in given areas of knowledge or skill. Some examples of achievement tests are:

- The California Achievement Tests
- Standard Ford Achievement Tests
- Iowa tests of basic skills
- Metropolitan Achievement test
- Sequential tests of educational progress

Uses of achievement tests include:

1. Achievement tests are used to measure achievement in reading, language and Arithmetic
2. Achievement tests are used to measure presence of basic skills in client
3. Achievement tests such as metropolitan achievement test measures general academic achievement in vocabulary, reading and numerical ability
4. Achievement tests are used to determine the extent to which an individual benefited from a course of instruction
5. Achievement has been used in researches as dependent variables especially in areas involving instructional processes.

Question: Briefly discuss situations in which student counsellor can use Achievement tests?

2.6 Intelligence Tests

Intelligence tests are psychological tests. There are different definitions of intelligence. For example, Spearman defines intelligence as the ability to develop relations and correlates, Terman considers intelligence to be the ability to carry on abstract thinking, Thorndike sees intelligences as the power of good responses from the point of view of truth and fact, Woodrow defines intelligence as the capacity to acquire capacity, etc.

Alfred Binet in the early 1900s developed the first standard measurement of intelligence in Paris. This was motivated by his interest in predicting the academic success of school children. The test was later revised by Lewis Terman of Stanford University for use with children in the United States. This was released in 1916 as the Stanford-Binet Intelligence Test. Since, then, a number of different tests of intelligence have been developed. The most re-known intelligence tests are:

- Binet Intelligence test
- Stanford – Binet Intelligence test
- Wechsler-Intelligence tests for pre-school, primary, children and adults.

Uses of intelligence test are:

1. Intelligence tests are used to measure the construct in a manner it is theorized
2. Intelligence tests are constructed with varieties of items that measures different abilities – verbal, numerical, spatial, etc
3. Intelligence tests are used to compare individual performances on the tests against some criteria, norm or standard
4. Intelligence tests are also used to identify intelligent level of individual for classifications

5. Intelligence tests assists the counselor to identify appropriate counseling intervention for client.

Self-Assessment Exercises 2

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question: Explain why counsellors uses the following tests:

- i. strong vocational interest blank?
- ii. kuder preferential blank?
- iii. achievement tests?
- iv. intelligence tests?



2.7 Summary

The unit introduces the concepts and identified some of the uses of strong vocational interest blank, kuder preferential blank, achievement tests and intelligence tests.

Projective personality tests are utilised to a great extent by clinical psychologists, therapists and guidance counsellors because the techniques require special skills for use (administration, scoring and interpretation).



2.8 References/Further Readings/Web Resources

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2.9 Possible Answers to Self-Assessment Exercises

Question: Explain reasons why counsellors use the following tests:

- i. strong vocational interest blank?
- ii. kuder preferential blank?
- iii. achievement tests?
- iv. intelligence tests?

Answer:

The following are reasons why counsellors' use Strong Vocational Interest Blank:

6. It is used to measure client personality interest toward a targeted object, individual or event
7. is used to determine client level of likes and dislikes, such as the kinds of activities she/he prefers to engage
8. Being a non-projective test personality, it is used to describe the personality structure of different group
9. It also used to measure client self that is client assess his/her feelings about himself/herself
10. In a correlational study, it was used to correlate intelligence of different individuals.

Answer:

The following are reasons why counsellors' use Kuder Preferential Blank:

1. To correlate client's intelligence level
2. Describe personality structure of various groups of clients
3. The format of the test is sometimes used as checklist where an individual checks items that best characterized a trait.

4. It is also used to measure feelings of clients toward a targeted trait.

Answer:

The following are reasons why counsellors' use Achievement tests:

1. Achievement tests are used to measure achievement in reading, language and Arithmetic
2. Achievement tests are used to measure presence of basic skills in client
3. Achievement tests such as metropolitan achievement test measures general academic achievement in vocabulary, reading and numerical ability
4. Achievement tests are used to determine the extent to which an individual benefited from a course of instruction
5. Achievement has been used in researches as dependent variables especially in areas involving instructional processes.

Answer:

The following are reasons why counsellors' use Intelligence tests:

1. Intelligence tests are used to measure the construct in a manner it is theorized
2. Intelligence tests are constructed with varieties of items that measures different abilities – verbal, numerical, spatial, etc
3. Intelligence tests are used to compare individual performances on the tests against some criteria, norm or standard
4. Intelligence tests are also used to identify intelligent level of individual for classifications
5. Intelligence tests assists the counselor to identify appropriate counseling intervention for client.

Unit 3: Personality Tests

Unit Structure

- 3.1 Introduction
- 3.2 Intended Learning Outcomes
- 3.3 Personality tests
- 3.4 Projective and Non-projective personality tests
- 3.5 Uses of Personality tests
- 3.6 Summary
- 3.7 References/Further Readings/ Web Resources
- 3.8 Possible Answers to Self-Assessment Exercises



3.1 Introduction

Data collection is an integral part of counseling process. The general order of scientific methods which the counsellors follow attests to this claim. Data collection techniques entail the determination of the information needed and of how to obtain it. Many of the uses of the various tests in counselling falls under personality tests.



3.2 Intended Learning Outcomes

By the end of this unit, you will be able to: □

- explain the uses of personality tests.



3.3 Personality Tests

Psychological measures of personality are often described as either objective tests or projective tests, rating scale or self-report measures. For the purpose of measurement, Kerlinger (1986) defined personality as the organisation of the traits of the individual. A trait is viewed as a characteristic of an individual revealed through recurring behaviours in different situations. Personality is an important variable (dependent or independent) in counseling processes. Personalities tests are broadly categorized tests are broadly categorized into two: projective and non-projective tests.

Question: What is personality test?

3.4.1 The projective personality tests are constructed in an attempt to do away with the problems of non-projective techniques – “conscious dishonesty of respondents or clients” or “socially acceptable responds”.

Examples of projective tests are:

- The Roschach Inkblot Tests, and
- The Thematic Apperception tests

Question: Identify the major reason why psychologists preferred using the projective personality tests?

3.4.2 The Non-Projective tests are self-report measures or tests that usually ask an individual to respond to a series of questions or statements about his personality. Examples of non-projective tests are:

- Personality inventories like:
 - a. The Minnesota Multiphasic Personality Inventory
 - b. IPAT Anxiety Scale
 - c. Piers –Haris Children’s Self-Concept Scale
 - d. Kuder Preference Record
 - e. Rotters Locus of Control Scale

Question: Identify the major reason why psychologists use the non-projective personality tests?

3.5 Uses of Personality tests:

1. Personality tests are used to measure individual traits and predisposition.
2. Personality tests are used as a form of projective technique by individual to assess feelings, strength, and weaknesses of his personality.
3. Personality tests are used as checklist where individual check items that best characterized his/her trait in question.
4. Personality tests are greatly used by clinical psychologists and
5. Personalities tests are adapted to a great extend toward aiding counselling researches.

Self-Assessment Exercises 3

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question 1: Define personality test in your own understanding?

Question 2: Clearly differentiate between projective and non-projective personality tests?

Question 3: Explain the uses of personality tests by counsellors?



3.6 Summary

The unit introduces the concepts of Personality tests, classification of personality tests and uses of these tests. All these were also discussed. Guidance counsellors, psychologists, and therapists use tests with a great caution particularly the projective personality tests because the techniques require special skills for use (administration, scoring and interpretation).



3.7 References/Further Readings/Web Resources

- Richard, F. F. (2016). *Minority and Cross-Cultural Aspects of Neuropsychological Assessment Enduring and Emerging Trends* <https://www.routledge.com/Minority-and-Cross-Cultural-Aspects-of-Neuropsychological-Assessment-Enduring/Ferraro/p/book/9781848726352> Minority Consensus Study Report Institute of Medicine; Board on the Health of Select Populations; Committee on Psychological Testing, Including Validity Testing, for Social Security Administration Disability Determinations (2015). *Psychological Testing in the Service of Disability Determination* <https://www.nap.edu/catalog/21704/psychological-testing-in-the-service-of-disability-determination>
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3.8 Possible Answers to SAEs

Question 1: Define personality test in your own understanding?

Answer:

Personality tests are psychological tests developed to measure of individual traits. A trait is viewed as a characteristic of an individual revealed through recurring behaviours in different situations. Personality is an important variable (dependent or independent) in counselling processes. Personalities tests are broadly categorized tests are broadly categorized into two: projective and non-projective tests.

Question 2: Clearly differentiate between projective and non-projective personality tests?

Answer:

The projective personality tests are constructed in an attempt to do away with the problems of non-projective techniques – “conscious dishonesty of respondents or clients” or “socially acceptable responds”. Examples of projective tests are: The Roschach Inkblot Tests, and The Thematic Apperception tests while the,

Non-Projective tests are self-report measures or tests that usually ask an individual to respond to a series of questions or statements about his personality. Examples of non-projective tests are:

- Personality inventories like:
 - a. The Minnesota Multiphasic Personality Inventory
 - b. IPAT Anxiety Scale
 - c. Piers –Haris Children’s Self-Concept Scale
 - d. Kuder Preference Record
 - e. Rotters Locus of Control Scale

Question 3: Explain the uses of personality tests by counsellors?

Answer

1. Personality tests are used to measure individual traits and predisposition.
2. Personality tests are used as a form of projective technique by individual to assess feelings, strength, and weaknesses of his personality.
3. Personality tests are used as checklist where individual check items that best characterized his/her trait in question.
4. Personality tests are greatly used by clinical psychologists and counsellor to presume their views when interacting with clients.
5. Personalities tests are adapted to a great extend toward aiding counselling researches.

Unit 4: Problems Associated with Personality Tests

Unit Structure

- 4.1 Introduction
- 4.2 Intended Learning Outcomes
- 4.3 Problems or weaknesses associated with personality tests.
- 4.4 Summary
- 4.5 References/Further Readings/Web Resources
- 4.6 Possible Answers to Self-Assessment Exercises



4.1 Introduction

Personality tests are instruments designed to measure an individual traits and predispositions. Personality tests are used to measure or assess complex individual traits when the construct is properly defined. However, test users continue to observe that tests such as personality tests provide inexact and limit measurement. Other similar problems with personality tests are discussed in this unit.



4.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- discuss five problems or limitations of personality tests
- provides strategies that can be used to overcome the problems associated with personality tests.



4.3 Problems/Limitations of Personality Tests

The following are researched to be problems of personality tests. Some of the problems are stated in the American Journal of Personality Assessment:

1. There are series of doubts about the theoretical assumptions behind projective personality testing. This problem started in the second half of the 1900s. These doubts lead to less use of the tests compared to the first half of the 1900s.
2. Personality tests typically, projective tests are being criticized of more time consuming to administer, score and interpreted.

3. The reliability and validity of personality tests are controversial. Experts argued that clinical judgment are used instead of norms and statistics to evaluate people's characteristics has convinced many that projective personality tests are deficient and unreliable (results are too dissimilar each time a test is given to the same person).
4. Projective personality tests also require special skills for use in administration, scoring and interpretations. Many practitioners (counselor, psychologist and psychotherapists) lack these skills and expertise required for the test.
5. Another general problem in tests including personality tests is that no tests provide exact measurement rather infer in their measurement
6. Personality tests provides limited measurement, approximate rather than an accurate measure of personality
7. Many of the personality tests are culturally biased and only create artificial testing situations.
8. Many personality tests are influenced by a variety of factors such as hunger, fatigue, worry, anxiety, excitement conditions and influences test performance
9. Problem of personality tests also include improper interpretation of test scores or results. The interpreter sometimes placed too much faith in the test results and draw unwanted conclusions regarding the exactness of the test scores.
10. Mistakes in administering the test can result from errors such as using the wrong form of the test, the wrong answer sheet, or failing to follow the directions properly.
11. Mistakes in scoring the test can result from a simple mistake when evaluating the test responses, using the wrong scoring procedure, using the wrong norm group for converting the raw scores to standard scores, or making a mathematical mistake when calculating the standard scores.
12. Experienced test constructors don't assume the test result is correct when it contradicts the other information that is available, nor do they automatically disregard test results that do not confirm their expectations. They investigate the inconsistency and attempt to resolve the paradox. Often, this involves discussing the seeming inconsistency with the examinee.

Self-Assessment Exercises 4

Attempt the following exercise to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question: Discuss any five problems or limitations of personality tests?



4.4 Summary

Problems or limitations of personality tests were discussed in details. The next unit will look at various strategies that can be employed to reduce the problems.

Upon all the problems observed with personality tests, many practitioners (counselors, psychotherapists, researchers and others) continue to rely on personality tests. Some testing experts (e.g., Cohen, Anastasi) suggest that personality tests results can be useful in developing therapeutic rapport, creating inferences to follow-up with other methods.



4.5 References/Further Readings/Web Resources

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4.6 Possible Answers to Self-Assessment Exercises

Question: Discuss any five problems or limitations of personality tests?

Answer

1. There are series of doubts about the theoretical assumptions behind projective personality testing. This problem started in the second half of the 1900s. These doubts lead to less use of the tests compared to the first half of the 1900s.
2. Personality tests typically, projective tests are being criticized of more time consuming to administer, score and interpreted.
3. The reliability and validity of personality tests are controversial. Experts argued that clinical judgment are used instead of norms and statistics to evaluate people's characteristics has convinced many that projective personality tests are deficient and unreliable (results are too dissimilar each time a test is given to the same person).
4. Projective personality tests also require special skills for use in administration, scoring and interpretations. Many practitioners (counselor, psychologist and psychotherapists) lack these skills and expertise required for the test.
5. Another general problem in tests including personality tests is that no tests provide exact measurement rather infer in their measurement.

Unit 5: Ways of Overcoming Problems Associated with Personality Tests

Unit Structure

- 5.1 Introduction
- 5.2 Intended Learning Outcome
- 5.3 Problems associated with personality tests.
- 5.4 Summary
- 5.5 References/Further Readings/Web Resources
- 5.6 Possible Answers to Self-Assessment Exercises



5.1 Introduction

Personality tests are instruments designed to measure an individual traits and predispositions. Personality tests are many – as many personality traits of an individual that can be outlined and defined. It was observed that tests such as personality tests provide inexact and limit measurement. This unit examines some of the strategies that can be used to reduce problems associated with uses of personality tests.



5.2 Intended Learning Outcome

By the end of this unit, you will be able to:

- provide some strategies that can be used to overcome the problems associated with the uses of personality tests.



5.3 Ways of Overcoming the Problems Associated with Personality Tests

The following strategies will assist the users of personality tests in guiding against its shortcomings:

1. The users of personality tests need to thoroughly understand the nature, validity, reliability and the established norms of the tests and the nature of the client or group to be tested.
2. Before using any personality test, the user should understand the person's or client's growth and development, such as the influences of home environment, vocabulary level, and reading ability.

3. The users should consider their effectiveness and skills before using any of the tests. The user should be honest in asking himself/herself of their capability in using the tests
4. Interest and consent of the client should be considered before using the tests
5. The users should not place too much emphasizes on the potentiality of the tests, but should combine different technique before interpretations
6. Users should not use first tests they find that appears to measure what they want, but search for more similar tests
7. Users of personality tests should search for available or attached tests manual or information that explains how the test can be used
8. In case of not commercially available test(s), users should seek the permission of the author before use. Try to acknowledge source
9. Users should conduct a pilot study to reestablish the quality estimates of the selected test(s).
10. Search, select and use culture free and culture fair tests.

Self-Assessment Exercises 5

Attempt the following exercise to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question: Discuss ways by which problems of personality tests can be overcome?



5.4 Summary

Suggested ways and strategies of overcoming the problems associated with personality tests were discussed in the unit.

Upon all the problems observed with personality tests, many practitioners (counselors, psychotherapists, researchers and others) continue to rely on personality tests.



5.6 References/Further Readings/Web Resources

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5.5 Possible Answer to Self-Assessment Exercise

Question: Discuss ways by which problems of personality tests can be overcome?

Answer

1. The users of personality tests need to thoroughly understand the nature, validity, reliability and the established norms of the tests and the nature of the client or group to be tested.
2. Before using any personality test, the user should understand the person's or client's growth and development, such as the

influences of home environment, vocabulary level, and reading ability.

3. The users should consider their effectiveness and skills before using any of the tests. The user should be honest in asking himself/herself of their capability in using the tests.
4. Interest and consent of the client should be considered before using the tests.
5. The users should not place too much emphasizes on the potentiality of the tests, but should combine different technique before interpretations.

MODULE 2

Unit 1	Psychological Test Development
Unit 2	Test Validity and Reliability
Unit 3	Types of Test Validity and Reliability
Unit 4	Theory of Test Reliability and Factors that Influences Estimated Test Reliability
Unit 5	Psychological Tests Interpretation

Unit 1 Psychological Test Development

Unit Structure

- 1.1 Introduction
- 1.2 Intended Learning Outcomes
- 1.3 Psychological Test Development
- 1.4 Qualities of A Good Psychological Test
- 1.5 Factors that Affects Psychological Test Reliability Results
- 1.6 Summary
- 1.7 References/Further Reading
- 1.8 Possible Answers to Self-Assessment Exercises



1.1 Introduction

The use of psychological tests is an integral part of counselling and thus, knowledge of test or assessment techniques is an indispensable tool for any counsellor anywhere. This is coupled with the roles of the school counsellor since the introduction of continuous assessment in our educational system has also made this requirement even more apparent. Unfortunately, a very significant proportion of the school counsellors lack the necessary competence in development of tests. This unpleasant situation has made this aspect of the programme to mandatory.

Psychology testing is an aspect of general psychology in which standardized tests are used, developed or constructed for the purpose of understanding individual differences inherent in human personality and dispositions. The field of psychological testing is a term that covers all possible uses, applications, pilot testing, standardization and underlying concepts of psychological tests. In this unit we are going to discuss how psychological tests are developed/constructed, administration of psychological tests and validation of psychological tests.



1.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- identify stages involved in constructing/development of psychological test
- explain the stages involved in constructing a psychological test
- outline five qualities of a good test.



1.3 Psychological Test Development

For an acceptable or standard psychological test to be constructed or developed, the test developer in this case, a counsellor must be aware that psychological tests require thoughtful and sound application of established principles of test construction. Example: Before the real work of test construction, the counsellor takes some broad decisions about the major objectives of the test in general terms and group of clients or clientele for whom the test is intended and also indicates the possible conditions under which the test can be used and its important uses. These initial decisions have far reached implications. A counsellor developing a test may decide to construct an intelligence test meant for students of lower secondary school with the goal of diagnosing the organisational and manipulative ability of the students. After making these initial decisions, the counsellor who is now referred to as test constructor can go ahead with the following steps for constructing a psychological or standardized test include:

Stages Involved in Developing / Construction of Psychological Tests

- A. Planning
- B. Writing items for the test.
- C. Preliminary administration of the test constructed test.
- D. Determining the Reliability of the final test.
- E. Determining the Validity of the final test.
- F. Preparation of norms for the final test.
- G. Preparation of manual and reproduction of the test.

A. Planning

Planning is the first stage or step in the construction of psychological tests. The step requires thorough and careful planning. During this stage, the counsellor (test constructor) must address and clarifies the following: 1. defining the construct, 2. Objective of the test under construction, 3. Population or clientele, 4. Content of the test, 5. Test format, 6. Type of instructions and, 7. Test administration.

Let us now examine each of these steps or stages under planning:

Definition of the Construct: The counsellor (i.e., test constructor) has to clearly define the construct to be measured by the test under construction. Construct here means the trait or behaviour that the test intends to measure. Example: interest, intelligence, aptitude and so on.

Objectives of the Test: The counsellor (i.e., test constructor) must indicate the general and specific objectives of the test under construction in clear and unambiguous terms. Example: those that will use the test being developed. It may be for teachers, career counsellors, classroom teachers or individual client. The objective of the test must also indicate the uses or purposes for which the test will be used for.

Population or Targeted Audience: The counsellor or test constructor must also specify the appropriate age range for the use of the test, school or educational level and cultural background of the testees or examinees, which are desirable to take the developed test.

Content of the Test: At this stage, the counsellor or test constructor must identify the appropriate contents or items of the test or what will or should be the content of the test? Whether the content coverage of the test under construction is different from that of the existing tests developed for the same or similar purposes? This aspect must be specific.

Test Format:

The counsellor or test constructor must decide the nature of items that will be included in the test. Example: Decision on whether the test items will be multiple choice, true false, fill in the gap, inventive response or some other forms.

Type of Instructions: The counsellor or test constructor must indicate the type of instructions that will accomplish the developed test. Example: oral or written instructions.

Test Administration: The counsellor developing or constructing a psychological test must indicate whether the test would be administered individually or in groups; individual or group of clients, whether the test will be designed or modified for computer administration. The counsellor who had developed a test must agree on initial and final administration pattern for the test. The procedure for administration should also indicate qualification and professional requirement for the users of the test. Example: the type of training or qualification that will be necessary for administering the developed test and also for interpreting the outcome of the test, expected time to spend in responding to the test by the testees or

those taking the test and the statistical requirement for analysing the developed test.

Parts of psychological test administration requirements involve sampling procedure. Example: random or selective selection of testees or those taking the test. Administration of developed psychological tests also include, stating the ethical and social consideration issues. Example: Whether the test has any potential harm for the testees or those taking the test resulting from the administration of the test and if so, the test constructor must build or suggests ways or techniques of safeguards the testees as part of recommendations in administration procedure to prevent any sort of harm to anyone involved in the use of this test. Test interpretation is also parts of psychological test administration; it is a precise indication of how scores generated through the responses of the testees should be interpreted. Example: Are the scores obtained for a testee or examinee going to be compared to others in the criteria group or will the scores obtained for a testee or examinee use to determine level of mastery a specific content area or skill; whether the test interpretation will be criterion referenced or norm referenced. Still on administration requirement from a counsellor developing or constructing a psychological test is, designing a manual and condition for reproduction of the test such as total number that can be reproduced.

B. Writing Items for the Test

Counsellor developing a psychological or standardized test item should note that a single question or task that will be transformed into an item on the test is not to be broken down into any smaller units. Item writing referred to the preparation of the items that will constitute the actual test under construction. Item writing follows the guidelines the test constructor had set and agreed upon at the planning stage. Example: If the test constructor decides to prepare an objective or essay test, then the objective or essay items are written down. The difference between the processes involved in writing down objective or essay items is that in objective item writing, the test constructor or counsellor as the case may be, writes down the objective items to reflect the pattern of response from the testee or examinee. Example: multiple choice item, short answer item, alternative response item, pictorial form of item, matching item, completion item and others. These choices depend on the purpose decided by the test constructor.

Question: Outline the basic stages that you will follow in constructing a good psychological test?

1.3.1 Conditions for Writing Appropriate Psychological Test Items

Writing an acceptable test item requires a creative skill on the part of the test constructor or counsellor constructing a test, as there are no standard rules to guide or direct a test constructor on this aspect. Example: practice, imagination, experience, intuition and ingenuity are said to be the guide and direct the test constructor in item writing. Having said that there is no standard laid down rules for arriving at appropriate test items notwithstanding, the test constructor must be aware that there are acceptable conditions upon which appropriate or acceptable test items must meet. These conditions include:

1. Test constructor having command of subject matter (principles, facts, and fallacies, misconceptions of the subject matter or area) of the test under construction, test constructor fully aware of the population (testees or examinees) that will use or take the test. Test constructor knowing the population also include awareness of the population's intelligence level so as to determine the difficulty level of the items on the test in order to meet the adjustment level of the targeted population and avoiding irrelevant clues to correct responses when taking the test.
2. Still on the conditions for writing appropriate or testable test items, the test constructor must be aware of different types of test items with their merits and demerits. This also extend to knowing qualities of good test items and associated errors when writing test items.
3. The counsellor or test constructor must be verse in the use of vocabulary, knowing different meanings of any given word so as to prevent misleading word, sentences or pattern of a language. Also important at this level is that the test constructor must try developing the test items in simplest language and original.
4. The counsellor constructing appropriate test items must use expert or peer review to critics and make suggestions to the test items following their development. After the test items must have been developed and submitted to experts in the areas in which the test is been constructed; suggestions and contributions from these experts must be acknowledged and used to modify the already developed test items.
5. Another area considered to be important in writing appropriate test items is consultation or review of textbooks, course materials, periodic journals by relevant professional associations, discussions, questions from interviews, instructional materials and others. The essence of these consultations and reviews are to update, validate and enrich the test items so developed.

Question: List and discuss factors that will guide a psychological test constructor to develop acceptable good test items?

C. Preliminary Administration of the Constructed Test Items

- Following items written or development, review by a least three experts and the test constructor and, modification made based on the outcomes of review the next stage under test construction is preliminary administration sometimes referred to as pilot testing or experimental try-out or pre-try-out. During the preliminary administration the sample size should be 100 (Theodoros, 2018). The preliminary administration of the developed test serves many purposes. Example: cited in from Theodoros (2018), the try out helps in determining vagueness and weaknesses in terms of inadequacies of the items, ambiguities and other weaknesses; helps to determine the item difficulty level, helps to determine the actual length of the test in terms of number of items to appear on the final test, helps in determining appropriate time duration for responding to the test and helps to determine the effectiveness of instruction attached to the test or the test taking direction.
- After the preliminary administration, next is the second preliminary administration. The second preliminary administration is known as “proper try-out”. The sample size suggested for this stage and who should share similar characteristics with the target population for whom the test is constructed for are 400. It is at this stage that test item analysis is performed and determined. Example: Test item analysis is the process of selecting discriminating items for the purpose of final composition of the test. The essences of item analysis are: 1. to determine item difficulty level. Item difficulty level is the percentage or number of the testees or examinees who got or scored the test items correctly. 2. To determine the discriminatory power of the test items. Discriminatory power of test items is the extent to which any given test item successfully discriminates between those who possess the expected traits in large amounts and those who possess the same trait in the least amount. 3. To determine the effectiveness of item distractors. Item distractors are the items in the test that are non-functional distractors or simply put, test items that failed to distract.
- Still under the preliminary administration there is the final try-out. At this stage, the expected sample size should be at least 100 (Theodoros, 2018). This stage follows the item analysis and it forms the final format of the test. The essences of final try-out are: 1. it is used to determine minor errors unnoticed during the first and the second preliminary administration. 2. It reveals the effectiveness of the test and predicts how the whole test will be during administration on the targeted population sample.

It is advisable to re-consider the suggestions and recommendations of the experts used to validate the tests following final try-out.

A. **Checking or Determining the Reliability of the Constructed Final Test Items**

Test reliability is defined as the extent to which a measurement instrument (test) outcome or result from a given test is consistent. Sometimes test reliability is also called “self-correlation of a test”. If the result of a previously administered test gives the same or nearly the same result under the same or similar situation of administration then we can claim that the test is reliable. In determining test reliability, we use correlation coefficient statistical methods. Example: A reliable test will display a high positive correlation and an unreliable test will display a negative correlation. Test reliability can be internal or external reliability.

In an internal test reliability; test reliability assesses the consistency of test results across items within the test while, in external test reliability; test reliability assesses the extent to which test results vary from one use to another use.

There are different techniques of determining test reliability. These methods include: 1. Test-retest method. 2. Alternative form method. 3. Split-half method. These methods are further analysed in the module 3.

E. **Determining the Validity of the Constructed Final Test Items**

Test validity is defined as the extent to which a test measures exactly what it intends to measure. It is generally agreed that a valid test must be reliable but a reliable test may not be valid. There are two basic types of test validity, namely: 1. External validity. 2. Internal validity.

External validity is the degree or extent to which test results can be generalized to different groups of population, situations, conditions and settings.

Internal validity is the degree or extent to which a test result is free from flaws and that any differences in the same test results are attributed to an independent variable outside what the test measures. Meanwhile, types of test validity include; **Face validity, Construct validity and Criterion related validity**. Face validity of a test is determined by a review of the test items. Experts, test constructor and examinees may be used to give informal opinion as to whether or not the test is measuring or assessing what it is purported to measure. However, face validity may not be adequate for establishing validity of test. Construct validity on the other hand, refers to the use of construct correctly. Construct may be in form of ideas, notion or concepts. Construct validity tries to establish relationship between a theoretical concept and a measuring device or procedure. In

criterion related validity the criteria must be clearly define in advance by the test constructor or counsellor constructing a test before measurement or administration takes place.

F. Preparation of Norms for the Constructed Final Test Items

Any developed or constructed psychological test must have accompanying test norms. Test norms can be described as a scale for comparison by establishing test norms. Test norm indicate the average performance or scores of a large sample representatives of a given population. Test norms are used as a guide toward interpretation of scores obtained by examinee after taking a psychological test. Example: If examinees score; 50, 55, 67, 70, 66 etc. these scores convey no meaning regarding their performance or demonstration of a trait being measured therefore, it is the test norms that gives meaningful inference to the meanings of the scores obtained by individual or group of examinees or testees. Types of test norms include; **Grade norms, Age norms, Standard scores norms and Percentile norms.** Test norms may vary from types of psychological tests to the others likewise; the purpose of each psychological test may also make the norms to vary.

In a grade test norm, the norms usually indicate the average test performance of examinees in a given school grade. Example: the use of grades or position to classify learners' performance following end of term examinations in schools. However, test grade norms are valid for months or years of schooling or term completed without being useful to children that are not in school or children who are out of school.

In age test norms for instance, the norms indicate the average performance of different samples of examinees or testees who were at the various ages at the period of taking the test. For clearer indication, if a child of any chronological age whose performance on a psychological test of intelligence indicated that the child had intellectual ability comparable to that of the average child of some other category of age then the child will be said to have mental age of the norm group in which the child performance fell.

Standard score test norms is the process of converting test raw scores into a formula; when this is done the raw scores becomes standard scores. Example: the total scores obtained by NOUN student from addition of TMAs and examinations are graded in 100% but when the scores are converted in GPA, they become standard score.

Percentile test norms is a process of using percentile to rank test scores obtained by examinees to indicate the ratio of score lower from higher than a given score. Percentile ranking is an expression of the percentage of examinees whose score on a test fall below an expected score. We need to note that the Concept of percentage correct is different from the concept

of percentile. A percentile is a converted score that refers to a percentage of examinees while, percentage correct refers to the distribution of raw scores to the number of test items that were answered correctly, multiplied by hundred and divided by the total number of test items. Due to convenience in calculating percentiles, many test constructors uses it as a way of organising test data and very flexible to apply to a wide range of tests.

G. Preparation of Manual and Reproduction of the Constructed Test

Preparation of manual and reproduction of the test is the final stage in the processes involved in developing, designing or construction of psychological tests. Test manual is expected to contain the report of psychometric properties, norms and references of the constructed test and the test constructor (s) is to design this manual along with the actual test. The test manual explains the procedures to be followed in administration of the test, the time to be spend on the test, the scoring methods or patterns, instructions, arrangement of materials; whether the test items are arranged in random order or any other methods or patterns of arrangement. It is also at this stage that the test constructor (s) gives permission or orders for reproduction or printing of the test and the manual.

Question: Using good reasons justify why psychological test preliminary administration is different from the final administration during psychological test development process?

1.4 Qualities of a Good Psychological Test

In addition to conditions required for writing appropriate and acceptable psychological test items, good test items must possess the following qualities:

1. Good test items should be clear in content, language, purpose and responses required without ambiguity regarding its meaning for both the item writer as well as the examinees who will take the test.
2. Good test items must not be too easy or too difficult for the population that will take the test.
3. A good test must have items discriminating power or the ability to distinctly identify the group among the examinees who got the items correctly from those that got the items wrongly.
4. Good test items must specifically and distinctly measure the significant aspects of knowledge or understanding of the trait under consideration.
5. A good test item must discourage or prevent examinees from guessing or guesswork.

6. Good test items must not be difficult for examinees to read through, that is should not consume the precious time of examinees to read.
7. Good test items should convey an independent meaning without depending on another test items before realising it meaning and each test item should have a separate answer without depending on another item within the test for answer.

1.4.1 Meanwhile, test constructor should avoid making the following mistakes when developing test items:

- Test items should not be made as “verbal puzzles”. An appropriate test items must be able to discriminate between the group who are competent and the group who are not competent.
- Test items should avoid non-functional words that are words that have no relevance to the correct or wrong choice of examinees.
- The item developer or writer must make sure that irrelevant accuracies unintentionally incorporated in the items, are avoided. Such irrelevant accuracies reflect the poor critical ability to think on the part of the item writer. They may also lead the examinees to think that the statement is true.
- Test items must not be too difficult or easy for the level of examinees. The difficulty level of the test items corresponding to the level of understanding of the examinees.
- Test items that may encourage rote-learning should be avoided so as not to encourage guesswork or guessing the correct answers and responses by the examinees.
- Items with Irrelevant clues must be removed as they they decrease the difficulty level of the test.
- Interlocking items in the test must be removed and prevented. In test construction, test interlocking items are also known as interdependent items. Example: Test interlocking items are test items that can be answered only by referring to other items. For additional example: - Nigeria was colonised by Britain. True/false - Britain was the country that colonised Nigeria. True/false - Nigeria gained independent from Britain. True/false

The example given above demonstrates interlocking test items. Answer to items 2 and 3 will only be given when the examinee knows the correct answer of item 1. Such items should be removed because they do not provide examinees equal chance to answer the item.

- The number of items to be on any developed test is expected to be decided by the expertise of the test constructor. Many studies in psychological construction revealed that the number of items to be on any developed or constructed test can be arrived at based on the test constructor’s targeted level of reliability coefficient for the test. Example: The level of reliability coefficient of a test can be

determined by the number of test items; 25-30 dichotomous test items can be used to arrive at test reliability coefficient level of 0.80 which is considered high test reliability coefficient while, 15-20 multipoint test items can be used to arrive at 0.80 test reliability coefficient level. However, studies had suggested that there are minimum numbers of test items which a test must contain but this should be determine following item analysis. The expert advice in this direction of ensuring minimum number of items in a constructed test is that the test constructor writes more than the needed items such as making the items twice. Example: if the test constructor wants 20 items, then, 40 items should be written or developed.

- Next is how the test constructor can best arrange the developed or written test items. Arrangement of the test items can be conveniently done after expert's review, suggestions and recommendations and also personal review by the test constructor. The items can now be arranged by the test constructor in the order in which they are to appear in the final test. In addition, arrangement can also be done in an increasing order of difficult or according to the level of difficulty or according to the pattern of expected responses from the examinee or examinees.

Question: What are the areas that can jeopardize the efforts of a psychological test constructor toward achieving acceptable test items?

1.5 Factors that may Affects Psychological Test Reliability Results

Test reliability results may be affected by varying and different factors. These are called "Errors in reliability".

However, Errors in reliability are classified into:

1. Random Error and,
2. Systematic Error

These errors may be from noise during test taking situation, health of testees or examinees, time allotted to the examinees, test of assistance rendered during test taking process. However, marginal error of 5% in test reliability result is acceptable. Random error for example causes uncertainty test results and they cannot be totally eliminated or corrected while, systematic error is caused due to measuring tools, machine, instruments used in the test. The good thing with systematic error is that they can be corrected and handled.

Self-Assessment Exercises 1

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes.

1. Question 1: Outline the steps involved in constructing psychological tests?
2. **Question 2:** Briefly write short notes on any five (5) steps involved in constructing psychological tests?



1.6 Summary

Constructing psychological tests requires series of tasks that involves; Planning, Writing items for the test, Preliminary administration of the test constructed test, determining the reliability of the final test, determining the validity of the final test and preparation of norms for the final test and Preparation of manual and reproduction of the test. These steps are expected to be followed by the test constructors (counsellors, psychologists or educational experts) to arrive at acceptable, appropriate or valid test.

Psychological tests are integral part of guidance and counseling and, this knowledge of the meaning of test and its association with measuring personality of client is an indispensable tool for any counsellor to practice the profession effectively.



1.7 References/Further Readings/Web Resources

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1.8 Possible Answers to Self-Assessment Exercises

Question 1: Outline the steps involved in constructing psychological tests?

Answer

The Stages Involved in construction of psychological tests includes:

- A. Planning
- B. Writing items for the test.
- C. Preliminary administration of the test constructed test.
- D. Determining the Reliability of the final test.
- E. Determining the Validity of the final test.
- F. Preparation of norms for the final test.
- G. Preparation of manual and reproduction of the test.

Question 2: Briefly write short notes on any five (5) steps involved in constructing psychological tests?

Answer:

1. **Planning:** Planning is the first stage or step in the construction of psychological tests. The step requires thorough and careful planning. During this stage, the counsellor (test constructor) must address and clarifies the following: 1. defining the construct, 2. Objective of the test under construction, 3. Population or clientele, 4. Content of the test, 5. Test format, 6. Type of instructions and, 7. Test administration. Let us now examine each of these steps or stages under planning: **Definition of the Construct:** The counsellor (i.e., test constructor) has to clearly define the construct to be measures by the test under construct. Construct here means the trait or behaviour that the test intends to measure. Example: interest, intelligence, aptitude and so on. **Objectives of the Test:** The counsellor (i.e., test constructor) must indicate the general and specific objectives of the test under construction in clear and unambiguous terms. Example: those that will use the test being developed. It may be for teachers, career counsellors, classroom teachers or individual client. The objective of the test must also indicate the uses or purposes for which the test will be used for. **Population or Targeted Audience:** The counsellor or test constructor must also specify the appropriate age range for the use of the test, school or educational level and cultural background of the testes or examinees, which are desirable to take the developed test. **Content of the Test:** At this stage: the counsellor or test constructor must identify the appropriate contents or items of the test or what will or should be the content of the test? Whether the content coverage of the test under construction is different from that of the existing tests developed for the

same or similar purposes? This aspect must be specific. **Test Format:** The counsellor or test constructor must decide the nature of items that will be included in the test. **Example:** Decision on whether the test items will be multiple choice, true false, fill in the gap, inventive response or some other forms. **Type of Instructions:** The counsellor or test constructor must indicate the type of instructions that will accomplish the developed test. **Example:** oral or written instructions. **Test Administration:** The counsellor developing or constructing a psychological test must indicate whether the test would be administered individually or in groups; individual or group of clients, whether the test will be designed or modified for computer administration.

The counsellor who had developed a test must agree on initial and final administration pattern for the test. The procedure for administration should also indicate qualification and professional requirement for the users of the test. **Example:** the type of training or qualification that will be necessary for administering the developed test and also for interpreting the outcome of the test, expected time to spend in responding to the test by the testees or those taking the test and the statistical requirement for analysing the developed test. Parts of psychological test administration requirements involve sampling procedure. **Example:** random or selective selection of testees or those taking the test. Administration of developed psychological tests also include, stating the ethical and social consideration issues. **Example:** Whether the test has any potential harm for the testees or those taking the test resulting from the administration of the test and if so, the test constructor must build or suggests ways or techniques of safeguards the testees as part of recommendations in administration procedure to prevent any sort of harm to anyone involved in the use of this test. Test interpretation is also parts of psychological test administration; it is a precise indication of how scores generated through the responses of the testees should be interpreted. **Example:** Are the scores obtained for a testee or examinee going to be compared to others in the criteria group or will the scores obtained for a testee or examinee use to determine level of mastery a specific content area or skill; whether the test interpretation will be criterion referenced or norm referenced. Still on administration requirement from a counsellor developing or constructing a psychological test is, designing a manual and condition for reproduction of the test such as total number that can be reproduced.

2. **Writing Items for the Test:** counsellor developing a psychological or standardized test item should note that a single question or task that will be transformed into an item on the test is not to be broken down into any smaller units. Item writing referred to the preparation of the items that will constitute the actual test under construction. Item writing follows the guidelines the test constructor had set and agreed upon at the planning stage. **Example:** If the test constructor decides to prepare an objective or

essay test, then the objective or essay items are written down. The difference between the processes involved in writing down objective or essay items is that in objective item writing, the test constructor or counsellor as the case may be, writes down the objective items to reflect the pattern of response from the testee or examinee. Example: multiple choice item, short answer item, alternative response item, pictorial form of item, matching item, completion item and others. These choices depend on the purpose decided by the test constructor.

Conditions for Writing Appropriate Psychological Test Items: Writing an acceptable test item requires a creative skill on the part of the test constructor or counsellor constructing a test, as there are no standard rules to guide or direct a test constructor on this aspect. Example: practice, imagination, experience, intuition and ingenuity are said to be the guide and direct the test constructor in item writing. Having said that there is no standard laid down rules for arriving at appropriate test items notwithstanding, the test constructor must be aware that there are acceptable conditions upon which appropriate or acceptable test items must meet. These conditions include: Test constructor having command of subject matter (principles, facts, and fallacies, misconceptions of the subject matter or area) of the test under construction, test constructor fully aware of the population (testees or examinees) that will use or take the test.

Test constructor knowing the population also include awareness of the population's intelligence level so as to determine the difficulty level of the items on the test in order to meet the adjustment level of the targeted population and avoiding irrelevant clues to correct responses when taking the test. Still on the conditions for writing appropriate or testable test items, the test constructor must be aware of different types of test items with their merits and demerits. This also extend to knowing qualities of good test items and associated errors when writing test items. The counsellor or test constructor must be verse in the use of vocabulary, knowing different meanings of any given word so as to prevent misleading word, sentences or pattern of a language. Also important at this level is that the test constructor must try developing the test items in simplest language and original. The counsellor constructing appropriate test items must use expert or peer review to critics and make suggestions to the test items following their development. After the test items must have been developed and submitted to experts in the areas in which the test is been constructed; suggestions and contributions from these experts must be acknowledged and used to modify the already developed test items. Another area considered to be important in writing appropriate test items is consultation or review of textbooks, course materials, periodic journals by relevant professional associations, discussions, questions from interviews, instructional materials and others. The essence of these

consultations and reviews are to update, validate and enrich the test items so developed.

3. Preliminary Administration of the Constructed Test: Following items written or development, review by a least three experts and the test constructor and, modification made based on the outcomes of review the next stage under test construction is preliminary administration sometimes referred to as pilot testing or experimental try-out or pre-try-out. During the preliminary administration the sample size should be 100 (Theodoros, 2018). The preliminary administration of the developed test serves many purposes. Example: cited in from Theodoros (2018), the try out helps in determining vagueness and weaknesses in terms of inadequacies of the items, ambiguities and other weaknesses; helps to determine the item difficulty level, helps to determine the actual length of the test in terms of number of items to appear on the final test, helps in determining appropriate time duration for responding to the test and helps to determine the effectiveness of instruction attached to the test or the test taking direction. After the preliminary administration, next is the second preliminary administration. The second preliminary administration is known as “proper try-out”. The sample size suggested for this stage and who should share similar characteristics with the target population for whom the test is constructed for are 400. It is at this stage that test item analysis is perform and determined. Example: Test item analysis is the process of selecting discriminating items for the purpose of final composition of the test. The essences of item analysis are: 1. to determine item difficulty level. Item difficulty level is the percentage or number of the testees or examinees who got or scored the test items correctly. 2. To determine the discriminatory power of the test items. Discriminatory power of test items is the extent to which any given test item successfully discriminates between those who possess the expected traits in large amounts and those who possess the same trait in the least amount. 3. To determine the effectiveness of item distractors. Item distractors are the items in the test that are nonfunctional distractors or simply put, test items that failed to distract. Still under the preliminary administration there is the final try-out. At this stage, the expected sample size should be at least 100 (Theodoros, 2018). This stage follows the item analysis and it forms the final format of the test. The essences of final try-out are: 1. it is used to determine minor errors unnoticed during the first and the second preliminary administration. 2. It reveals the effectiveness of the test and predicts how the whole test will be during administration on the targeted population sample. It advisable to re-consider the suggestions and recommendations of the experts used to validate the tests following final try-out.

4. Checking or determining the reliability of final test: Test reliability is defined as the extent to which a measurement instrument (test) outcome

or result from a given test is consistent. Sometimes test reliability is also called “self-correlation of a test”. If the result of previously administered test gives the same or nearly the same result under the same or similar situation of administration then we can claim that the test reliable. In determining test reliability, we used correlation coefficient statistical methods. Example: A reliable test will display a high positive correlation and an unreliable test will display a negative correlation. Test reliability can be internal or external reliability. In an internal test reliability; test reliability assesses the consistency of test results across items within the test while, in external test reliability; test reliability assesses the extent to which test results varies from one use to another use. There are different techniques of determining test reliability. These methods include: 1. Test-retest method. 2. Alternative form method. 3. Split half method. These methods are further analysed in the module 3.

5. Determining the validity of final test: Test validity is defined as the extent to which a test measure exactly what it intends to measure. It generally agreed that a valid test must be reliable but a reliable test may not be valid. There are two basic types of test validity, namely: 1. External validity. 2. Internal validity. External validity is the degree or extent to which test results can be generalized to different groups of population, situations, conditions and settings. Internal validity is the degree or extent to which a test results is free from flaws and that any differences in the same test results are attributed to an independent variable outside what the test measures. Meanwhile, types of test validity include; Face validity, Construct validity and Criterion related validity. Face validity of a test is determined by a review of the test items. Experts, test constructor and examinees may be used to give informal opinion as to whether or not the test is measuring or assessing what it is purported to measure. However, face validity may not be adequate for establishing validity of test. Construct validity on the other hand, refers to the use of construct correctly. Construct may be in form of ideas, notion or concepts. Construct validity tries to establish relationship between a theoretical concept and a measuring device or procedure. In criterion related validity the criteria must be clearly define in advance by the test constructor or counsellor constructing a test before measurement or administration takes place.

Unit 2: Test Validity and Reliability

Unit Structure

- 2.1 Introduction
- 2.2 Intended Learning Outcomes
- 2.3 Meaning of Test Validity
- 2.4 Meaning of Test Reliability
- 2.5 Characteristics of Test Validity and Reliability
- 2.6 Summary
- 2.7 Tutor-Marked Assignment
- 2.8 References/Further Reading



2.1 Introduction

One of the rationales behind the development/construction of psychological tests is the power to provide information that when interpreted will lead to making practical decisions on the targeted client (s). The criteria that guide a guidance counsellors or teachers in selecting good psychological tests that will measure an intended trait are validity and reliability. In practice, the following illustrations will give detail discussion on psychological test validity and reliability.



2.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- Define test validity and test reliability
- Differentiates between test validity and test reliability



2.3 Definition of Test Validity

Test validity refers to the extent to which a test measured what it purported to measure. In another view, test validity refers to the extent to which the results of an evaluation procedure serve the particular uses for which they are intended. For a test to be valid it must possess the ability to measure precisely what it sets out to measure. In addition, for validity to occur there must be evidence to support the specified interpretation of the test results.

Question: What is psychological tests validity?

2.4 Definition of Test Reliability

Test reliability refers to the accuracy or precision of a measuring instrument. The consistency with which the test measures what is expected to measure. A test is reliable when subsequent measurements give the same or approximately the same numerical status or results of the trait being measured. Test reliability also is internally consistent or gives consistent results over time, across raters, etc.

Question: What is psychological tests Validity?

2.5.1 Characteristics of Test Reliability

1. Ability or power of the test to measure the trait purported to measure.
2. Ability or power of the test result procedure serve the particular uses for which it is intended.
3. Ability of the test items to indicate specifically the trait or aspect of measurement in a step-by-step approach.
4. Ability of the test items to cover each of the sub-segment of the trait under investigation.
5. Ability to provides the consistency that makes reliability possible.

2.5.2 Characteristics of Test Validity

1. Tests must provide the consistency that will makes validity possible
2. Ability to indicates the level of confidence that can be placed on the test results.
3. Ability to produce the same or approximately the same test results by different raters.
4. Ability of the test results to be interpreted by interest users.

Self-Assessment Exercises 2

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes.

Question 1: What do we mean when we say a psychological test is valid?

Question 2: A psychological test that is valid and reliable must have distinct characteristics. Briefly explain three (3) of these characteristics? characteristics?



2.6 Summary

Test validity is the extent to which a test measure precisely what is designed to measure. A test that is designed to observe trait will only be valid when it observes trait but not interview trait. Test validity is the consistency with which the test measures what is expected to measure by providing the same or approximately the same results overtime. Characteristics of test validity and reliability were also discussed.

Test validity and reliability are the two basic qualities desired of good psychological tests. A psychological test that is valid must also possess the quality of reliability and the other way round.



2.7 References/Further Readings/Web Resources

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2.8 Possible Answers to Self-Assessment Exercises

Question 1: What do we mean when we say a psychological test is valid?

Answer

Whenever we say that a psychological test is reliable, we refer to the accuracy or precision of a measuring instrument. The consistency with which the test measures what is expected to measure. A test is reliable when subsequent measurements give the same or approximately the same numerical status or results of the trait being measured. Test reliability also is internally consistent or gives consistent results over time, across raters, etc.

Question 3: A psychological test that is valid and reliable must have distinct characteristics. Briefly explain three of these characteristics?

Answer

Three characteristics of test reliability are:

1. Ability or power of the test to measure the trait purported to measure.
2. Ability or power of the test result procedure serve the particular uses for which it is intended.
3. Ability of the test items to indicate specifically the trait or aspect of measurement in a step-by-step approach.

Three characteristics of test validity are:

1. Tests must provide the consistency that will make validity possible.

2. Ability to indicate the level of confidence that can be placed on the test results.
3. Ability to produce the same or approximately the same test results by different raters.

Unit 3: Types of Test Validity and Reliability

Unit Structure

- 3.1 Introduction
- 3.2 Intended Learning Outcomes
- 3.3 Types of Validity
- 3.4 Types of Reliability
- 3.5 Summary
- 3.6 References/Further Readings/Web Resources
- 3.7 Possible Answers to Self-Assessment Exercises



3.1 Introduction

Test validity is an indicator of some abstract concept is valid to the extent that it measures what it purports to measure and test reliability is the consistency with which it measures whatever it measures. In the process of ensuring that a test is valid or reliable there are methods or techniques that are used. These techniques or methods are referred to as types of validity and reliability of a test.



3.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- list and explain types of test validity
- list and explain types of test reliability.



3.3 Types of Test Validity

The following approaches are ways of establishing the validity of a test. Since, it is not the test that is being validated, but an interpretation of data arising from a specified procedure:

a. Content Validity

The process of context validity focuses upon the extent to which the content of an indicant corresponds to the content of the theoretical concept it is designed to measure. For example, the self-concept indicates focused upon the same content as the conceptual definition of self-concept. In a simple description, content validity, refers to the extent to which a test measures domain of tasks under consideration. Establishing content

validity involves specifying the domain of content for the concept and constructing and selecting indicants that represent that domain of content. This, sampling is the essence of content validity. For example, a counsellor might expect his client to correctly explain the meaning of the one hundred and fifty words that describes self-concept, because explain the meaning of one hundred and fifty words in a single test would take too long, the counselor might select fifteen words to represent the one hundred and fifty words. If the client correctly explains the meaning of the one hundred and fifty words that describes self-concept, because explaining the meaning of one hundred and fifty words in a single test would take too long, the counselor might select fifteen words to represent the one hundred and fifty words. If the client correctly explains the meaning of seventy percent of the fifteen words, the counselor would like to generalize and claim that the client would also be able to correctly explain the meaning of the seventy percent of the one hundred and fifty words. For the counselor to achieve this, the sample test must constitute a representative sample of the one hundred and fifty indicants of self-concept.

Developing content validity requires first, carefully defining in behavioural terms the content areas to be measured. Second, breaking these areas into categories representing all major aspects of the area and thirdly, constructing a sufficient number of test items or indicants in each category. One of the best options to do this, is by drawing a table of specification. Table of specification is defined as a 2 –way chart showing subject matter content on one part and the instructional objectives on the second part. Below is a sample of table of specification:

Table 2: Table of Specification with relative emphasis in percent given to content areas and objectives for a test in Behavioral Science

Content areas	Objectives			
	Knowledge indicants	Comprehension indicants	Application indicants	Total
Meaning	3	4	5	12
Types	8	6	4	18
Importance	5	5	5	15
Differences	5	5	5	15
Total	21	20	19	60

Table of specification is used to judge the content validity of a test, assists the counselor or tests placing undue emphasis on certain area to the

detriment of other area either in the content or in the objective area. The table is mostly used when constructing a new test. Content validity can also be determined by (a) comparing the test items with the objectives of the test, and (b) item analysis result.

Question: Using relevant examples discuss any three (3) reasons for the use of table of specification in determining content validity of a psychological test?

B. Criterion – Related Validity: This is also called empirical validity. Gronlund (1981) cited in Muhammed (1996) defines criterion – related validity as the extent to which test performance is related to some other valued measure of performance. Criterion-related validity is divided into two types namely:

- i. Concurrent validity which is obtained when data from test scores are obtained at the same time with data from some outside criterion. For example, a test of theory of computer might be used to estimate current skill in the operation of computer as determined by the observer. If candidate who scored high on the test tend to show greater skills in computer operation, then the observer can claim a reasonable concurrent validity for his test of theory of computer.
- ii. Predictive Validity which is the second type of criterion – related validity. In predictive validity, a criterion is identified and success in this test is used to predict future status. For example, a high score in theory of computer may be a predictive for future operational of computer.

Another way of obtaining concurrent and predictive validity is to compare the scores. For example, in the case of concurrent validity the two sets of data to be compared are obtained simultaneously, while in the case of predictive validity obtaining the two sets of data can be Spearman-Rank Order correlation coefficient or Pearson product moment correlation coefficient.

For the Spearman-Rank order

$$\text{Formula: } r = 1 - \frac{6\sum D^2}{N(n^2-1)}$$

For the Pearson Product moment formula:

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{n\sum X^2 - (\sum X)^2} \sqrt{n\sum Y^2 - (\sum Y)^2}}$$

The Spearman – Rank correlation coefficient is a non-parametric statistic and the Pearson-Product moment correlation coefficient is a parametric statistic.

Illustration of the Spearman-Rank correlation coefficient computation is shown in example 1:

Example 1:

Step 1: Arrange the two pairs of data for each client in X and Y column

Step 2: Rank clients from 1 to the last number for each set of data in Xr and Yr

Step 3: Calculate the difference (D) in ranks by subtracting Yr from Xr.

Step 4: Square each difference in rank to obtain difference squared D²

Step 5: Sum or add the squared difference D² to obtain ED² Step 6:

Substitute the formula as thus:

Table 3: Computation of Spearman Rank Order Correlation Coefficient

X	Y	Xr	Yr	D	D ²
71	61	9	7	-2	4
62	62	6	8	+2	4
69	55	7	5	02	4
45	41	2	2	0	0
53	52	4	4	0	0
78	67	10	10	0	0
37	40	1	1	0	0
48	43	3	3	0	0
60	58	5	6	+1	1
70	63	8	9	+1	1
					ED ² = 14

$$\begin{aligned}
 r &= 1 - \frac{6 \times 14}{10(10^2 - 1)} \\
 &= 1 - \frac{84}{10(99)} \\
 &= 1 - \frac{84}{990} \\
 &= 1 - 0.085 \\
 &= 0.92
 \end{aligned}$$

Example 2: Using Pearson product moment correlation coefficient formula: $r = \frac{N\sum XY - (Ex)(Ey)}{\sqrt{nEx^2 - (Ex)^2} \sqrt{nEy^2 - (Ey)^2}}$

$$\sqrt{nEx^2 - (Ex)^2} \sqrt{nEy^2 - (Ey)^2}$$

Illustration of the Pearson Product Moment Correlation coefficient computation is shown below:

Step 1: Arrange the two pairs of data for each client in X and Y column

Step 2: Ex = addition of the X data

Step 3: E_y = addition of the Y data

Step 4: E_{x^2} = addition of the squared X data

Step 5: E_{y^2} = addition of the squared Y data

Step 6: E_{xy} = addition of the Products of paired X and Y data

Step 7: N = number of paired products Step 8: Substitute the formula as thus:

Table 4: Computation of the Pearson Moment Correlation Coefficient

X	Y	X ²	Y ²	XY
71	61	5041	3721	4331
62	62	3844	3844	3844
69	55	4761	3025	3795
45	41	2025	1681	1845
53	52	2809	2704	2756
78	67	6084	4489	5226
37	40	1369	1600	1480
48	43	2304	1849	2064
60	58	3600	3364	3480
70	63	4900	3969	4410
X = 593	Y = 542	X ² = 36737	Y ² = 30246	EXY = 33231

$$r = \frac{10 \times 33231 - (593)(542)}{\sqrt{10 \times 36737 - (593)^2} \sqrt{10 \times 30246 - (542)^2}}$$

$$\frac{332310 - 321406}{\sqrt{367370 - 351649} \sqrt{302460 - 293764}}$$

$$\frac{10904}{\sqrt{15721} \sqrt{8696}}$$

$$= \frac{10904}{11691.685}$$

$$= 0.93$$

$$= \frac{125.38 \times 93.25}{10904}$$

$$= 11691.685$$

$$= 0.93$$

The counsellor can now interpret the calculated or obtained alpha value of Spearman – rank order or Pearson Product Moment Correlation with the grouping of results interpretation of correlation tests with the Best and Khan (1989) table of a value interpretation of correlation coefficient:

Table 5: Interpretation of Correlation Coefficient

Coefficient of r	Relationship
00 – 20	Negligible
20 – 40	Low
40 -60	Moderate
60 – 80	High
80 – 100	Very high

Source: Best and Khan (1989). Research in Education

b. **Construct Validity:** Construct validity is the third way of establishing the validity of a psychological test. Construct is psychological quality that we assume to exist and used to explain some aspect of behaviour. Examples of construct include verbal ability, reasoning ability, intelligence, creative thinking, interpersonal relation skills or ability. Whenever test performance is interpreted on the basis of a certain construct, it implies we are referring to construct validity.

Construct validity therefore, is the extent to which test performance can be interpreted in terms of certain psychological constructs are hypothetical that is, each construct carries with it a number of associated meanings relating to how a person who possessed the specified traits would behave in a given situation. If we say a person is under emotional stress, for example, we would expect him to behave or react in a certain way in various situations. This, establishing construct validity for a test involves: (1) identifying the constructs presumed to account for test performance (2) stating the hypotheses regarding test performance from the theory underlying each construct and (3) verifying the hypotheses empirically. Suppose one wish to verify the claim that a new test he constructed measures emotional stress. From what is known about 'emotion and stress' he might make the following predictions:

- a. Emotional stress individuals will score higher on the test than non-emotional stress individuals
 - b. Scores on the test will correlate positively with scores on trait factional test
 - c. Scores on the test will be positively related to counsellor's therapist's or psychologist's rating of emotional stress
2. Scores on the test will be little influenced by other non-emotional stress situations.

3. Scores on the test will correlate positively with scores on other emotional stress related tests.

After stating the predictions, then each of the predictions will be tested one by one. If each yields a positive result, then the combined evidence lends support to the claim that the test measures emotional stress. If any of the predictions is not confirmed, for example, the scores of the test are considerably influenced by other non-emotional stress situation, then we must conclude that: either:

- I. The test does not measure emotional stress, or ii. There is something wrong with the theory iii. The experimental design failed to test the hypothesis properly.

This implies that a decision must be made as to which of the three conditions has occurred. It should be noted that, establishing construct validity for a test challenge both the theory and the test simultaneously. It is important to keep in our minds that a test is not valid in and of itself, but rather valid for a particular purpose, thus, a test may be valid for one purpose, but not valid for another purpose.

Evidence for construct validation can be gathered with the use of the following methods:

- a. Study of the test taking process: this involves analysis of the test taking process such as examining the test items to determine what factors or trait they appear to measure, client taking the test might be asked to think aloud to see whether the items call for the intended reasoning.
- b. Group Difference: This involves comparing the scores of the groups that are known to differ. For example, persons of different age groups will be expected to perform differently on any test of intellectual ability, emotional stressed individuals
- c. Changes in performance: this method depends on the nature of the construct in question. Some test scores are expected to vary or remain stable after a given period. Scores on an intelligence test will remain stable even with direct teaching; scores on an anxiety scale or test will be expected to vary from one testing occasion to another.
- d. Correlation with other tests: The scores of any particular test will be expected to positively correlate with the scores of another test that measures the same trait and also scores of as given test will have low or no correlation with scores of a test measuring different trait.

In the process of establishing construct validity of psychological tests, some variables may still influence the construct therefore; the test constructor should understand these variables so as to control them from contaminating the test result. Some of these variables are:

- a. Unclear directions: This is when test directions are not clear or are not clear as possible, to the clients or testees. They may not be sure of what to do or how to record the answers causing unnecessary interpretations.
- b. Complex or awkward wording: if the language or grammar and sentence structure are too difficult for the client(s) taking the test.
- c. Inappropriate level of item difficulty: when test items are too easy or too difficult the validity will be low. In addition, if test items are too easy most clients will obtain high scores and if test items are too difficult most clients will obtain low scores thereby making validity to be unrealistic.
- d. Poor construction of test items: if tests are poorly constructed items may give unintended clues. For example, grammatical inconsistent with the neither stern, other alternative nor may include extreme adjectives like “always” or “never” or the item may be ambiguous to the point of confusing the testees.
- e. Improper arrangement of items: if for example, difficult test items are placed early in the arrangement of the test items, testees may spend too much time on them and this may prevent them from reading items they could easily answer, they may also lose hope, become frustrated and finally makes the test result to be unrealistic.
- f. Test items being too short: this is a situation when the items on the test refused to cover all the content or aspect of the behaviour being measured, this will affect the validity of the test being measured.
- g. Identifiable pattern of answers: This is a situation where arrangement of correct answers or responses follow the same pattern (e.g., A, B, C, D, or A A A A or B B B B) will enable clients or testees to guess answers.

Variables a – g are factors in the test itself that can influence test validity. Other factors that can influence test validity is in test administration and scoring that include the manner in which a test is administered and scored such as lack of sufficient time to complete the test items, cheating, extra help given to testees in difficulty, un-conducive physical and psychological environment like noise, heat or cold, insufficient space and lighting, mis scoring or wrong totaling, halo effect. Factors in clients or testees response that can affect test validity are emotional disturbances, test anxiety, poor motivation and responses etc. a response set is a consistent tendency to follow a certain pattern in responding to test items. E.g., some clients will respond ‘thru’ when they do not know the answer to a true-false item, whereas other clients will respond ‘false’, the nature of the group being tested such as age, sex, ability level, cultural background of the group may also affect test validity.

In view of the above variables, test constructor needs to devise an effective mechanism for controlling or reducing them so as to have an acceptable level of validity from our tests.

3.4 Types of Test Reliability

Test Reliability is the ability or power of a test to produce the same or approximately the same numerical status in a consistent manner to the object or person or behaviour being measured. Other terms used to describe reliability of a test are dependability, stability, consistency, predictability and accuracy. Types of test reliability also form methods of estimating or establishing test reliability. Although, psychometricians believed that it is not possible to compute the true reliability of any test (to be discussed under theory or reliability in later unit), however, there are four procedures for estimating test reliability. They are:

1. **Test-Retest Method:** The method defines variable under investigation in terms of random fluctuation in performance from one testing occasion to another. That is, error is defined as 'anything that leads a client or testee to get a different score on one testing than he obtained on another testing? Error in this way makes reliability obtained to be referred to as coefficient of stability. Test procedure is the administration of the same test twice on the same group of testees with a given time interval between the first and second administration of the same test. At the end of the administration, the two results are then correlated. The correlation coefficient provides an estimate of the test reliability. If the result is stable, testees who obtained high scores on the first test should also obtain high scores on the second test and those with low test scores.

The problem with test-retest method procedure is the time interval between the two testing sessions. If the interval is short the testees will remember some of their answers from the first test to the second and the constancy of the results will be inflated and if the time interval is long, there will be actual changes in the testees, and the testing procedure with the stability of the results will be underestimated. However, the test-retest approach sees this problem as error. Therefore, alternative approach or method is next!

2. **Equivalent – Forms Method:** This method is also called parallel or alternate form method. The method involves the use of two different, but equivalent forms of the test items. The two equivalent forms of the test are administered to the same group of testees in close succession and the resulting scores are correlated. The correlation coefficient provides a measure of equivalence. When tests are administered this way, it provides a measure of equivalent and stability in addition to taking care of all possible sources of variation in the test scores, i.e., stability of testing procedures, constancy of testees characteristics being measured and representativeness of the sample tasks included in the test. The

major weakness of the equivalent forms' method is that, it is difficult to construct two tests that are truly equivalent. Two tests measuring the same traits in the same way. In addition, it calls real fluctuation in the trait 'error'. The alternative to this approach is next!

3. Split-Half Method: The procedures in the split-half method are that, a single form of a test is administered to a group of testees and then divided into two halves for scoring purposes; the two sets of scores are correlated. A usual method of splitting the test into two halves is to take the odd numbered items in one half and the even numbered items in the other half. Since test reliability is a function of test length, the Spearman Brown formula is used to estimate the reliability of the scores based on the full-length test. The computation is:

Reliability on full test = $\frac{2 \times \text{reliability on } \frac{1}{2} \text{ test}}{1 + \text{reliability on } \frac{1}{2} \text{ test}}$

Computation example:

Assuming the correlation coefficient between the two halves of a test is .7:

$$\begin{aligned} \text{Reliability on full test} &= \frac{2 \times .70}{1 + .70} \\ &= \frac{1.40}{1.70} \\ &= 0.83 \end{aligned}$$

The test reliability coefficient computed through the split-half method is called measure of internal consistency. Beside this method is:

4. Kuder-Richardson Method: This is another way of thinking about variable error in the term of inconsistency of performance of the testees on the items within a test. It is a measure of internal consistency. Richard-Kuderson Formula 21 can be used to obtain internal consistency of a test. When using this formula, one should note that it is more concerned with the homogeneity of the items, that is whether each item measures the same characteristic or not. In this formula only one single test is administered and does not require splitting the test responds into half for scoring purposes. For example, using the formula to estimates reliability is thus:

$$KR 21 = \frac{K}{K-1} \left\{ 1 - \frac{\sum M^2}{N} \right\}$$

K = the number of items in the test

M = the mean of the test scores S = the standard deviation of the test scores Computational illustration using KR 21:

Table 6: Sample of Data for calculating the Mean and Standard Deviation

X	X ²
10	100
8	64
8	64
9	81
7	49
8	64
6	36
$\Sigma X = 56$	$\Sigma X^2 = 458$

$$\Sigma x = 56$$

N

$$K = 7$$

$$M = \frac{\Sigma x}{N} = \frac{56}{7} = 8$$

N

$$S = \frac{\sqrt{\Sigma x^2 - 8^2 N}}{N}$$

$$\sqrt{458 - 8^2}$$

7

$$\frac{\sqrt{65.43 - 64}}{7} = \frac{\sqrt{1.43}}{7}$$

$$S^2 = 1.195$$

In the process of estimating the reliability of a test, some factors may affect the results. Some of these factors are:

1. Procedures used to estimate test reliability usually produces slightly different results. For example, parallel test usually results in low reliability estimate, test re-test given to group of testees and split-half Kuder-Richardson result in serious over-estimate if applied to speed test.
2. Test length that is, the length of a test. In practice, the longer the test, the higher the reliability. A lengthier test provides a more representative sample of the behaviour under investigation. Lengthier tests also have content validity. However, this effect

holds true only when the items added are of the same quality as the items that are already in the test. Adding very simple or very difficult items in the test does not add anything to the reliability of the test.

3. Range of abilities has influence on test reliability based on the heterogeneity of the analysis group. In practice, the more heterogeneous the group, the higher the estimate of reliability.
4. Testing environment such as light, ventilation influences estimate of test reliability
5. Poor motivation on the part of testees also affects reliability estimate
6. Subjectivity of the rater may also influence test reliability estimates.

Self-Assessment Exercises 3

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question: Outline and discuss any three (3) types of test validity and (3) types of test reliability you know?



3.6 Summary

Different types of test validity were identified and discussed. In the discussions, it was pointed out that, types of test validity are also forming the methods of estimating or establishing validity of a test. Reliability types were also identified and discussed, explanation on how types of test reliability can be used to estimate reliability of a test were given

Test validity and reliability are among the qualities of a good psychological educational or counseling test therefore, counselors need to familiarise themselves with their types and roles toward adopting, adapting or constructing a test.



3.7 References/Further Readings/Web Resources

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3.8 Possible Answers to Self-Assessment Exercises

Question: Outline and discuss any three types of test validity and three types of test reliability you know.

Answer

1a. The following are types of test validity:

A. **Content Validity:** The process of content validity focuses upon the extent to which the content of an indicant corresponds to the content of the theoretical concept it is designed to measure. For example, the self-concept indicates focused upon the same content as the conceptual definition of self-concept. In a simple description, content validity, refers to the extent to which a test measures domain of tasks under consideration. Establishing content validity involves specifying the domain of content for the concept and constructing and selecting indicants that represent that domain of content. This, sampling is the essence of content validity. For example, a counselor might expect his client to correctly explain the meaning of the one hundred and fifty words that describes self-concept, because explain the meaning of one hundred and fifty words in a single test would take too long, the counselor might select fifteen words to represent the one hundred and fifty words. If the client correctly explains the meaning of the one hundred and fifty words that describes self-concept, because explaining the meaning of one hundred and fifty words in a single test would take too long, the counselor might select fifteen words to represent the one hundred and fifty words.

If the client correctly explains the meaning of seventy percent of the fifteen words, the counselor would like to generalize and claim that the client would also be able to correctly explain the meaning of the seventy percent of the one hundred and fifty words. For the counselor to achieve this, the sample test must constitute a representative sample of the one hundred and fifty indicants of self-concept. Developing content validity requires first, carefully defining in behavioural terms the content areas to be measured. Second, breaking these areas into categories representing all major aspects of the area and thirdly, constructing a sufficient number of test items or indicants in each category. One of the best options to do this is by drawing a table of specification. Table of specification is defined as a 2 –way chart showing subject matter content on one part and the instructional objectives on the second part.

- B. **Criterion – Related Validity:** This is also called empirical validity. Gronlund (1981) cited in Muhammed (2015) defines criterion – related validity as the extent to which test performance is related to some other valued measure of performance. Criterion-related validity is divided into two types namely:
- i. **Concurrent validity** which is obtained when data from test scores are obtained at the same time with data from some outside criterion. For example, a test of theory of computer might be used to estimate current skill in the operation of computer as determine by the observer. If candidate who scored high on the test tend to show greater skills in computer operation, then the observer can claim a reasonable concurrent validity for his test of theory of computer.
 - ii. **Predictive Validity** which is the second type of criterion – related validity. In predictive validity, a criterion is identified and success in this test is used to predict future status. For example, a high score in theory of computer may be a predictive for future operational of computer.

Another way of obtaining concurrent and predictive validity is to compare the scores. For example, in the case of concurrent validity the two sets of data to be compared are obtained simultaneously, while in the case of predictive validity obtaining the two sets of data can be Spearman-Rank Order correlation coefficient or Pearson product moment correlation coefficient.

- C. **Construct Validity:** Construct validity is the third way of establishing the validity of a psychological test. Construct is psychological quality that we assume to exist and used to explain some aspect of behaviour. Examples of construct include verbal ability, reasoning ability, intelligence, creative thinking, interpersonal relation skills or ability. Whenever test performance is interpreted on the basis of a certain construct, it implies we are referring to construct validity. Construct validity therefore, is the extent to which test performance can be interpreted in terms of certain psychological constructs are hypothetical that is, each construct carries with it a number of associated meanings relating to how a person who possessed the specified traits would behave in a given situation. If we say a person is under emotional stress, for example, we would expect him to behave or react in a certain way in various situations. This, establishing construct validity for a test involves: (1) identifying the constructs presumed to account for test performance (2) stating the hypotheses regarding test performance from the theory underlying each construct and (3) verifying the hypotheses empirically. Suppose one wish to verify the claim that a new test he constructed measures emotional stress.

From what is known about ‘emotion and stress’ he might make the following predictions:

- d. Emotional stress individuals will score higher on the test than non-emotional stress individuals
 - e. Scores on the test will correlate positively with scores on trait
- f. Scores on the test will be positively related to counsellor’s therapists or psychologist’s rating of emotional stress.

1b. The following are types of test reliability:

1. **Test-Retest Method:** The method defines variable under investigation in terms of random fluctuation in performance from one testing occasion to another. That is, error is defined as ‘anything that leads a client or testee to get a different score on one testing than he obtained on another testing? Error in this way makes reliability obtained to be referred to as coefficient of stability. Test procedure is the administration of the same test twice on the same group of testees with a given time interval between the first and second administration of the same test. At the end of the administration, the two results are then correlated. The correlation coefficient provides an estimate of the test reliability. If the result is stable, testees who obtained high scores on the first test should also obtain high scores on the second test and those with low test scores.

The problem with test-retest method procedure is the time interval between the two testing sessions. If the interval is short the testees will remember some of their answers from the first test to the second and the constancy of the results will be inflated and if the time interval is long, there will be actual changes in the testees, and the testing procedure with the stability of the results will be underestimated. However, the test-retest approach sees this problem as error. Therefore, alternative approach or method is next!

2. **Equivalent – Forms Method:** This method is also called parallel or alternate form method. The method involves the use of two different, but equivalent forms of the test items. The two equivalent forms of the test are administered to the same group of testees in close succession and the resulting scores are correlated. The correlation coefficient provides a measure of equivalence. When tests are administered this way, it provides a measure of equivalent and stability in addition to taking care of all possible sources of variation in the test scores, i.e., stability of testing procedures, constancy of testees characteristics being measured and representativeness of the sample tasks included in the test. The major weakness of the equivalent form’s method is that, it is difficult to construct two tests that are truly equivalent. Two tests measuring the same traits in the same way. In addition, it calls real

fluctuation in the trait 'error'. The alternative to this approach is next!

3. **Split-Half Method:** The procedures in the split-half method are that, a single form of a test is administered to a group of testees and then divided into two halves for scoring purposes; the two sets of scores are correlated. A usual method of splitting the test into two halves is to take the odd numbered items in one half and the even numbered items in the other half. Since test reliability is a function of test length, the Spearman Brown formula is used to estimate the reliability of the scores based on the full-length test. The test reliability coefficient computed through the split-half method is called measure of internal consistency. Beside this method is:
4. **Kuder-Richardson Method:** This is another way of thinking about variable error in the term of inconsistency of performance of the testees on the items within a test. It is a measure of internal consistency. Richard-Kuderson Formula 21 can be used to obtain internal consistency of a test. When using this formula, one should note that it is more concerned with the homogeneity of the items, that is whether each item measures the same characteristic or not. In this formula only one single test is administered and does not require splitting the test responds into half for scoring purposes.

Unit 4 Theory of Test Reliability and Factors that Influences Estimated Test Reliability

Unit Structure

- 4.1 Introduction
- 4.2 Intended Learning Outcomes
- 4.3 Theory of Reliability
- 4.4 Factors that influences test reliability
- 4.5 Summary
- 4.6 References/Further Readings/Web Resources
- 4.7 Possible Answers to Self-Assessment Exercises



4.1 Introduction

A reliable psychological test is one that gives fairly stable and predictable result that can be depended upon. However, all measurements contain variable errors. Variable errors are described as those errors arising from accidents and inaccuracies due to many causes such as, incorrect test wording, directions, distractions, ill-health, fatigue and others. Variable errors carries from person to person and also for a given person each time he takes the test. These are some of the reasons why illustration of the theory and factors that influences estimate test reliability will be appropriate at this point.



4.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- Explain in detail the assumptions of the reliability theory
- Identify and discuss factors that influences the estimated test reliability



4.3 Theory of Reliability

Reliability Theory presumed that; every measurement contains some amount of error. Thus, if we measure the length of a table for example, the score we observe is made up of two components: a – true component and b – error component.

We never know the true length nor do we ever know the error scores. The true length is what we would get if the measurement were perfect, that is, no error at all. Now if we measure the same table several times it is possible to observe a different score each time, we measure the table. If the length of the table remains the same, any variation in observed length represents an error in measurement. If the variation is small the error is small and if the variation is large the error is large. Thus, the amount of variation is an index of the size of error in measurement. If instead of only one table we measure the length of several tables of different length the total variance cannot be said to be all error since part of the variance is due to actual differences in the length of the tables.

Thus, the total variation is made up of two components: true score variance and error variance. Since we cannot attribute all the variation to error, it is reasonable to ask what proportion of the observed differences is attributable to true or actual difference in table length. If this proportion is large then the measurement reflects true differences and if the proportion is small, a large part of what has been observed is error. This proportion of the amount of variation in true score to total variation is termed reliability. In terms of test, reliability is defined as 'the ratio of the true score variance to the observed variance'. From this expression, it can be seen that if the measurement involves nothing, but error (e.g., if all the tables have the same true length and any variation in observed score is entirely attributable to error and reliability is zero. On the other at all = 0 the ratio become = 1. This, reliability varies from 0 to 1, taking a value of zero when measurement involves nothing, but error and value of one when there is no variable error at all in the measurement.

Question: Differentiate between true and error components of reliability measurement?

4.4 Factors that Influences Test Reliability measures

At any given estimation of establishing test reliability some internal or external, intrinsic or extrinsic factors may influence the expected test estimate. Psychological test constructors have identified some of the factors to include:

- A. Internal or Intrinsic Factors that Influences Test Reliability to include factors within the test itself. These factors are:
- Length of Test: Test length influences reliability depending on the length. A test with a greater number of test items will yield greater reliability compare to a test few numbers of test items. The more test items on a given trait or knowledge; the more reliable the test will be. Although, the test constructor may find it difficult to determine the maximum length of the test that will lead to appropriate value of reliability. The general guide is that the length of tests should avoid giving rise to fatigue effects in those that will

take the test; as the use of longer tests are more reliable than the use of shorter tests.

- Homogeneity of Items: There are two ways of viewing homogeneity of items. The first is item reliability and homogeneity of traits varying from one test item to another. Example: A test that measures different functions and yielded zero or near to zero inter-correlations, the reliability of such test will be interpreted as zero correlation or very low and vice-versa.
 - Difficulty Level of Items: The clarity of language or wordings of the test is another factor that influences test reliability scores. Example: Too difficult or too easy test of test items to the group of testees or examinees will yield low reliability scores; because the two tests (too difficult or too easy) have a restricted spread of scores.
 - Test instructions: Test instructions that clearly specify to the understanding of examinees will yield or produce high reliability scores than a test with instruction that is ambiguous, unclear, misleading or complex instructions which will make examinees find the test difficult with tension and unnecessary stress; resulting in low reliability scores.
 - Item selection: Test with many interdependent items will result into producing low reliability scores.
 - Reliability of the scorer: The personality or traits of the test scorer also influences test reliability scores. Example: Test scorer's mood, being unstable type may make the reliability test scores varies from one situation to another.
- B. External or Extrinsic Factors that Influences Test Reliability to include factors outside the test itself. These factors are:
- Group variability: A test that measures examinees that are homogenous in ability may yield or produce low reliability test scores than a test that measure the opposite.
 - Guessing and chance errors: A test that creates chance for examinees to guess will give rise to increased error variance thereby reduces reliability test results or scores. This may be more common with tests of two-alternative response option where there is 50% chance of answering the test items correctly in terms of guessing.
 - Environmental conditions: This refers to as testing environment; light, uniform or same environment, sound, noise, arrangement should be conducive, free from fear and other security threat, and equal to all examinees. Positive environmental conditions also predict the results or scores.
 - Momentary fluctuations: These include distractions such as noise, sudden sound outside the testing room or hall, inadequate test materials, broken pencil, distractions from test administrators, test anxiety, fear of mistaking mistakes in giving the correct answer

and no provision for examinee who make and wants to correct mistakes make reliability test result scores to be low or high.

Self-Assessment Exercises 4

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

1. List three intrinsic factors that may affect test reliability estimates?
2. List two (2) extrinsic factors that may affect test reliability estimates?



4.6 Summary

Theory of reliability explains possible ways by which error can be made in the process of estimating test reliability. Two types of error were identified as true-error component and error component. The true-error refers to the errors arising from the actual measurement and the error components are those error committed unintentionally. The discussions on the theory later extend to various factors that may influence the estimated reliability of a test.

Counsellors needs to understand the contribution of reliability theory toward identifying different factors that affect the estimate of test they use in counseling profession.



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4.8 Possible Answers to Self-Assessment Exercises

Question 1. List three intrinsic factors that may affect test reliability estimates?

Answer

The three intrinsic factors that may affect test reliability estimate are:

- a. Length of Test
- b. Homogeneity of Items
- c. Difficulty Value of Items

The two extrinsic factors that may affect test reliability estimate are:

- a. Group variability.
- b. Guessing and chance errors.

Answer

Discussions on three intrinsic factors that may affect test reliability estimate are:

- a. **Length of Test:** Test length influences reliability depending on the length. A test with a greater number of test items will yield greater reliability compare to a test few numbers of test items. The more test items on a given trait or knowledge; the more reliable the test will be. Although, the test constructor may find it difficult to determine the maximum length of the test that will lead to appropriate value of reliability. The general guide is that the length of tests should avoid giving rise to fatigue effects in those that will take the test; as the use of longer tests are more reliable than the use of shorter tests.
- b. **Homogeneity of Items:** There are two ways of viewing homogeneity of items. The first is item reliability and homogeneity of traits varying from one test item to another. Example: A test that measures different functions and yielded zero or near to zero inter-correlations, the reliability of such test will be interpreted as zero correlation or very low and vice-versa.
- c. **Difficulty Level of Items:** The clarity of language or wordings of the test is another factor that influences test reliability scores. Example: Too difficult or too easy test of test items to the group of testees or examinees will yield low reliability scores; because the two tests (too difficult or too easy) have a restricted spread of scores.

Discussions on two extrinsic factors that affect the test reliability estimate are:

- a. **Group variability:** A test that measures examinees that are homogenous in ability may yield or produce low reliability test scores than a test that measure the opposite.
- b. **Guessing and chance errors:** A test that creates chance for examinees to guess will give rise to increased error variance thereby reduces reliability test results or scores. This may be more common with tests of two-alternative response option where there is 50% chance of answering the test items correctly in terms of guessing.

Unit 5: Psychological Test Interpretation

Unit Structure

- 5.1 Introduction
- 5.2 Intended Learning Outcomes
- 5.3 Preparing for Test Interpretation
- 5.4 Actual Test Interpretation
- 5.5 Using Knowledge of the Principles of Test Construction to Develop an Objective Test Items
- 5.6 Summary
- 5.7 References/Further Readings/Web Resources



5.1 Introduction

Developing a valid and reliable test involves careful planning based on laid down principles. Counselors may adopt, adapt or modify an already developed test based on legal developed test based on legal permission or may develop their own. Whatever is the case, test construction or development must follow laid down processes known as principles of test construction.



5.2 Intended Learning Outcomes

By the end of this unit, you will be able to:

- list stages recommended for appropriate interpretation of test results?
- briefly write short notes on the conditions for delivering an interpreted psychological test?



5.3 Preparing for Test Interpretation

Test interpretation involves the following preparations:

1. The test interpreter must prepare and integrate technical information about the test with close understanding of the client or group that took the test and review of reference sources to refresh their memory of the nuances that are critical to insightful test interpretation. Following these, test interpretation must be interpreted on the context of the personality and life history of the client or group of clients in essence, psychological test must not be

- interpreted in isolation but other underlying influences must also be considered.
2. Before the actual test interpretation, counsellor or counselling psychologist must be sure of what the test results mean. This thorough understanding of what the test results means will assist the interpreter to formulate hypotheses that will be tested when discussing the results with the concerned client or group of clients. The notion here is that psychological test scores are statistical summaries of statements made by the client in responding to test items; so, test interpreter may ask the client to explain some of his responses to the test during a subsequent interview.
 3. Psychologists' initial question when preparing a test interpretation is, "What do these test results mean?" The objective is to develop hypotheses that can be tested when discussing the results with the client. Test scores provide statistical summaries of statements the client made in responding to test items or evaluations of the client's performance on tasks required by the test. As such, psychologists may ask clients to explain some of their responses to the test during a subsequent interview. This process enables the test interpreter to give specific meaning provided by the client that may seem contradictory. The process also gives opportunity to the test interpreter to resolve with the client low or socially undesirable scores that look embarrassing and threatening to the client.
 4. Test interpreter may use nomothetic (norm-based) or an idiographic (individual-focused) approach to understanding the meaning of the test results. Nomothetic interpretations tend to be quantitative. They compare the scores of the individual to a relevant comparison group. This process permits the test interpreter to distinguish average or typical scores from various types of exceptional scores. Psychological test interpretations are consistent with a nomothetic approach to test interpretation while, idiographic approach to test interpretation is more consistent when the test interpreter is interested in understanding the client as a unique individual without reference to others. Example:

Interviews, Unstructured observation, Case studies and other qualitative methods are more consistent with idiographic approaches.

5. Test interpreter must integrate their understanding of the test results with other available relevant information. This may be previous academic records, job performance, employers rating, family and work history. This information also assists the test interpreter to select appropriate psychological test or assessment for the client. However, the first step toward appropriate interpretation is to evaluate the consistency of the information derived from test results.

6. Following clear understanding of the test result by the test interpreter, the next step for the test interpreter is to consider the order in which to present the information or the outcomes of the interpreted test to the client or group of clients. The requirement is that the test interpreter adopts the client's frame of reference. The test interpreter will now develop a tentative plan that is subject to revision during test interpretation interview or meeting with the client. Example: the client or group may ask about a specific set of results that of interest to them or request for discussion on a different issue than the test results. Test interpreter is expected to begin the interpretation with more concrete information. Example: achievement test results and then shift to information that is more abstract (e.g., personality test results). When the test interpreter is unsure about the best approach with this particular client, the test interpreter can ask the client or group for their preference.
7. The test interpreter should be mindful that despite his agreement with the client or group of clients on the tests to administer and the timing for the test interpretation, the test interpreter must realize that it is important to prepare the client for the interpretation. At this stage the test interpreter should give opportunity to the client or group of clients to raise any issue of concern before discussing the test results or test interpretation. The test interpreter should only begin the test interpretation after making sure the approach to be used based on the personality of the client best for the interview. The test interpreter will now lead the interview into a discussion of the test results when it clears that the client or group of clients are ready; making sure the client understands the inexact nature of test scores and the limits on the precision with which inferences can be drawn. Often, they reiterate this point periodically throughout the interpretation process. The test interpreter and the client should describe the test briefly so that the client can associate the results with the test. However, this more relevant if the client took more than one test or when the time lapse between completing the test and interpreting the results is prolonged. The test interpreter should also review with the client the types of information the test provides and the types of interpretations that are possible. Example: a score indicating an interest in a particular occupation does not mean the person has the ability to be successful in that occupation. The test interpreter explains the norm group used to interpret the test; they may interpret the results in relation to several norm groups.

Question: Briefly discuss four (4) areas to consider when preparing for psychological test interpretation?

5.4 Actual Test Interpretation

For the results of administered psychological test to be delivered to the client or group of clients, the test developer or constructor must follow the stages below:

1. Client's or Group of Client Goals
2. Test Precision
3. Defensive Reactions
4. Plain Language
5. Encouraging Feedback
6. Test Profiles
7. Follow-Up

Client or Group of Client Goals

Test interpreter should realize that a test score may have many interpretations. However, a good of appropriate test interpretation should reveal issues presented by the client or the problem of the client or group of clients. Example: client score on a vocational interest inventory could indicate the client's preference for a given vocation or career or that gaining employment in that career may be difficult due to family or other requirements. Test interpreter should always make the test interpretation personally meaningful by correlating the test results to the issues and decisions confronting the client or presented by the client.

Test Precision

In actual test interpretation, the test interpreter should understand that psychological tests or any other given measure of assessment cannot provide precise answers to client questions or issues. Therefore, test interpreter should avoid unqualified phrases, sentences or terms such as the standard error of measurement but test interpreter can explain that a test score actually indicates an approximate level. Example: an IQ somewhere between 124 and 136 and the test interpreter should avoid statements like, client IQ is 130 or a client is an altruistic extravert. In addition, when correlating test scores to external criterion the test interpreter can explain that the test score actually predicts a range of possible outcomes and avoid giving the client exact test scores or detailed information.

Clients Defensive Reactions

During process of delivering test results or test interpretation, typically when low or undesirable scores the client may display or react unexpectedly therefor, test interpreter should not scold, disapprove, moralize or use offensive language, but test interpreter should be aware that the client with low or undesirable scores will impose these defensive

reactions upon themselves. The test interpreter should not avoid or downplay the importance of low and undesirable test scores, but they should remind clients of the limited accuracy of these scores, they should point out the implications of the scores and relate them to the decision the client must make. The objectives are to get clients to discuss what this information means for them, understand their weaknesses and areas that they need to improve on and as well as understand their area of strengths.

Use of Plain Language

Test interpreters should use common language that the clients can understand without ambiguities. Language, words, phrases or sentences that makes the clients to be threaten, abuse and uncomfortable be avoided. Example: intelligence that is likely to arouse unfavorable connotations, masculinity or femininity, neurotic, maladjusted, abnormal.

Encouraging Clients Feedback

Feedback in the form of client participation should be established by the test interpreters during test interpretation process. Test presenters can achieve this by using words, phrases or statements like; how does that compare with your expectations, do you agree with that, don't be discourage with those results. The feedback assists the test interpreters determine if the client understands the information or interpretation being presented, determine client's attitudes and opinion toward the presented interpretation. Test interpreter should avoid the use of direct questions. The client may also be asked about the implication of the results being presented.

Test Profiles

Test interpreters may use graphical representation to display or show the test scores. The use of graphical representations or visual aids assists clients to have better understanding of the related test interpretation, assists clients to clarify, simplify and organise the test results and in some situation, clients may encourage to take notes during the process of interpretation.

Follow-Up

This requires the test interpreters to encourage continue assimilation of the test information by the clients after test interpretation process or interview. The test interpreter must continue to remind the client that the test results will continue to be use or make reference to in future interview and assistance.

Counsellor constructing or developing an objective test item for use can now apply the principles of test construction in the following ways:

- a. Formulation or stating of objectives for the desired test; ‘
- b. Construction of a test blueprint or table of specification; and
- c. Writing of test items and organising tests.

formulation or stating of objectives is one of the most important tasks expected of a test constructor. The first prerequisite to the tasks of objective formulation is to have a set of data that describes the behaviour in part, information about the nature of client problems, and personality traits such as data on intelligence, physical characteristics, dominant interest, vocational ambitions, etc.

Objectives should be specific and measurable. It should clearly state the behaviour expected and which is to be measured. Objectives should be stated in a way that any interested party can tell whether or not it can be achieved, measured and tested by the uses of one or other of his senses.

Three criteria have been identified for stating objectives. They are:

- Each statement of an objective should indicate both the desired behaviour and the type of situation in which it occurs;
- Objectives should be stated in terms of desired client behaviour rather than counselor behaviour;
- Objectives should be formulated to a level of specificity.

The first criterion is on the client behaviour or trait to be measured. How the behaviour can be demonstrated based on situation. The second criterion is on what the client is to do, how he is think, to feel and to act. The task expected of the counselor here is to arrange the situation so that the clients have an opportunity to behave in the ways specified by the objectives. It should be noted that client desirable behaviour is the goal, and counselor technique is only a means to achieving the goal. Attention to this criterion tends to enrich the nature of the test activities selected by the counselor. In addition, client behaviour is the primary target to be assessed, and attention to this criterion facilitates the assessment process. Assessment based on what the client problem look like is virtually a prerequisite to assessment of the power of the test. A third criterion in the statement of objectives is designed to control the statement are genuinely helpful in assessment or measurement. In the process of objectives statement, general objectives are of few types, but there are hundreds of specific objectives subsumed for even one reasonably substantial trait. The criterion seeks to mediate between the general and the specific in terms of the use to be made of objectives. Therefore, the third criterion is: objectives should be formulated to a level of specificity such that it is possible to readily infer some test items appropriate for assisting clients achieve each objective and also to devise means of assessing the achievement of the measurement objectives.

This criterion assumes that the counsellor, or whoever is formulating the objective, understands the subject matter and the nature of appropriate behaviour or problem. The criterion further asserts that under these conditions the counselor should be able to state actual behaviour or problem characteristics or features for the client. In achieving this, it is better to use specific active verbs such as indicate, count, specify, and state, yes, no etc. so that the client can easily interpret or translate what the test item is trying to find out or measure.

5.4.1 Construction of a Test Blueprint or Table of Specification

The test table of specifications or test blueprint is a two-dimensional table; it contains the objectives of the behaviour or problem under investigation in one direction and the content that is the behaviour/traits or behaviour problem in another. The major decision to be made is the number of items to be included in the test. This decision is based upon the type of test format to be used (objective or essay) and the time available for the test. The rule is that the number of items increases as the amount of time available also increases.

The table of specification is shown in Table 1, but brought forward for illustration

Table 7: The Early Stage of The Table of Specializations

Content areas	Objectives			
	Knowledge i	Comprehension	Application i	Total
Meaning				
Types				
Importance				
Differences				
Total				60

At this phase the table of specializations indicates that there are four content areas to be measured and that it is intended that knowledge, comprehension and application areas will be measured by the test. The table contained a total of 12 empty cells. The 12 cells come from the fact

that there are 4 content areas and 3 objectives. This implies that 4 multiply by 3 =12. Each cell is the intersection of the content area and an objective. In each of these cells will be indicated the number of test items to be set in that content area to measure the indicated objectives. The next task is to decide how many of the 60 items will be assigned to each of these 12 cells. The decision is based on the degree of importance attached to each cell. For instance, what percentage of the 60 items will be knowledge items and what percentage will be set in content area one?

The answers are determined by the special circumstances of the individual cases. One practical indicator of the importance attached to a content area is the value of the content on the client behavioural change. Table 8 indicates that in this particular case knowledge is given 21 %, comprehension is given 20% and application is given 19%.

Table 8: The Final Stage of The Table of Specializations

Content areas	Objectives			
	Knowledge i	Comprehension	Application i	Total
Meaning	3	4	5	12
Types	8	6	4	18
Importance	5	5	5	15
Differences	5	5	5	15
Total	21	20	19	60

In table 8 the distribution is as follows: 21%, 20% and 19% to knowledge, comprehension and application. It should be noted that adjustment can be made to increase or decrease the percentages allocated to the content areas depending on the grand total that the test constructor intended. The next level is the writing of test items.

5.4.2 Writing of Test Items and organising Tests

Writing of test items and organising them together to produce an acceptable test requires skill, patience and constant practices. The following guidelines are generally recommended:

1. Counsellor developing a test should always construct more items than the expected numbers in the table of specifications
2. The advantage of constructing more numbers of items required is that it allow for the discarding items that are not very good
3. Excessive window dressing should be avoided. One should not put any more in an item than is necessary for the purpose of that item.
4. The use of long and involved statements should be avoided because such statements make clients waste time thinking out the elements that are important in answering the item
5. Degree of accuracy required from the client should be specified. This can be done either in the item or in the directions for a series of items
6. Use of extraneous cues should be avoided by checking carefully for information a client can use to get an item right even though he does not have the abilities the item is measuring.
7. Avoid giving clues to one item in the statement of another
8. Negative statements and double negative statements should be avoided. Such statements are easily missed by clients particularly in speed test.

organising and administering tests

In organising and administering an already prepared test items, there are two major considerations in setting up the test, namely:

1. The ease with which the client can understand what he/she is to do, and where and how is to record his responses or answers

The ease with which the counselor will be able to locate and score the responses or answers. To achieve these effectively, the counselor can group items of the same type's together, number all items consecutively. From the first item to the last, arrange each subdivision of the test so that the easier items come before the more difficult ones, items should be legible, precede each group of items with simple and clear statements telling how and where the client is to indicate his answers, make client work from a separate copy of the test, have all necessary materials on hand such as erasers, pencils, provide the best physical surroundings with safety, adequate light, ventilation, desk space and make sure that there is no distracting sound or object. If speed is not a factor in the objective covered by the test, enough time should be allowed so that client has an opportunity to attempt all the items. There are two commonly used types of test items, namely objective and essay test items. The objective test

items are mostly used in counseling process. This is because, it is easy to score, it ensures objectivity and caters for all categories of clients irrespective of their educational background.

Using items analysis to analyse the clients' responses to an administered objectives test involves:

Question: Outline four (4) reasons why psychological test constructors uses test table of specification when developing test items?

5.5 Types and Procedures of Item Analysis

Item analysis is of four types, namely:

1. Difficulty level of the item (difficulty index)
2. The discriminatory power of the item
3. The effectiveness of the distracters
4. Effectiveness of counseling intervention.

Each of this type of item analysis has procedures for obtaining them. For example:

a. Calculating the difficult index involves the following procedure:

$$\text{Difficulty index} = \frac{U + L}{T}$$

Computation using the above formula:

- ❖ Rank all the test scores from highest to the lowest score
- ❖ Divide the group of scores into three: for example, if the scores are 60, the first 20 scores with the highest total scores and the next 20 with the lowest total scores
- ❖ The 20 middle scores will be set aside, they will not be used in the analysis
- ❖ Calculate the difficulty index using the formula:

$$= \frac{U + L}{T} \times 100$$

U = the number of clients in the upper group who get the item correct

L = the number of clients in the lower group who get the item correct, and

T = the total number of clients in the upper and lower who participated in the test.

Assuming the 60 clients, 20 highest scoring clients will be referred to as upper group and the next 20 lowest scoring clients will be referred to as lower group. The two groups will be used for item analysis. For example,

17 clients from the upper group got the item correct and 15 from the lower group got the item correct, the difficulty level will be:

$$= \frac{17 + 15}{T} \times 100$$

$$= \frac{32}{40} \times 100$$

$$= 0.8 \times 100$$

$$= 80\%$$

The estimated value of difficulty index can be influenced by the item being too easy or very difficult. For example, too easy item makes difficulty index close to 100%, very difficult item makes difficulty index close to zero. Item that are extremely too difficult are too easy should be discarded. Low difficulty index can be improved and average level of difficulty index can be selected for future use.

b. Calculating the discriminating power of the item

Discriminatory power of an item refers to the extent an item can discriminate between the highest and lowest achievers. The procedure for discriminating power makes the highest achievers as upper group and the lowest achiever as the lower group. If an item discriminates in a positive direction more clients in the upper group will get the item correct than the lower group; this is known as positive discriminating power and the result is usually in a discriminating index of 1.00. Negative discriminatory power on the other hand is obtained in an item that more clients in the lower group than the upper group got the item correct. The result of negative discriminatory power is usually with an index of -1.

Any Item that has no discriminatory power usually have an index of .00 indicating that the same number of clients in the upper and lower group got the item correct.

How to calculate the discriminatory power involves:

Formula: $\frac{U - L}{\frac{1}{2} T}$

$\frac{1}{2} T$

U = the number of clients in the upper group who get the item correct

L = the number of clients in the lower group who get the item correct, and

$\frac{1}{2} T$ = the total number of clients in the upper and lower who participated in the test. Thereby: $\frac{17 - 15}{20}$

$$= \frac{2}{20}$$

$$= 0.10$$

It should be noted that zero is usually added to the obtained answer or value of discriminatory power of item.

When interpreting the discriminatory power, the following criteria are used:

1. 1.00 = positive discriminatory power
2. -1.00 = negative discriminatory power
3. 0.00 = No discriminatory power

Test items with positive discriminatory power are selected for future use, those with negative discriminatory power are improved for future use and those with no discriminatory power are discarded.

c. Calculating the Effectiveness of the distracters

Following our explanations on the interpretations of discriminatory power of test items that a positive discriminatory power item is accepted for future use, but if negative discriminatory power is obtained then, series of questions may be raised particularly on the effectiveness of the distracters. Further analysis of the item can assist the test developer to improve the item.

The ground rule for determining the effectiveness of the distracters is through inspection. Hills, (1976) cited in Yusuf (2009) presented a desirable general pattern of examinee's response in a multiple-choice item a follow:

- a. Every alternative (A, B, C, D) must be chosen by at least one examinee
- b. More examinees in the upper group than in the lower group should answer the correct choice
- c. More examinees in the lower group than in the upper group should answer each distracter
- d. More than half of the examinees should answer the correct choice

Table 7: Determining the Effectiveness of Distracters

Alternatives	A	B	C	D
Upper group = 20	0	2	2	17
Lower group = 20	0	1	3	15

In the table above, the correct answer is D as such the item discriminates in a positive direction since 17 in the upper group and 15 in the lower group got the item correct. Alternative B is poor distracters because it attracted more examinees from the upper group than the lower group.

Alternative or option A is absolutely inadequate because it attracted no examinee. Alternative C is a good distracter because it attracted more examinees from the lower group than the upper group. Moreover, if an estimate of the effectiveness of each distracter is desired, same formula used for calculating discriminatory power can be employed.

For illustration:

$$1. \quad \text{Alternative or option A: } \frac{0 - 0}{20} = 0.0$$

$$2. \quad \text{Alternative B: } \frac{2 - 1}{20}$$

$$= 0.05 \quad 3. \quad \text{Alternative C: } \frac{2 - 3}{20} = 0.05$$

Alternatives A and B are ineffective and alternative C must be improved for future use. Example: procedure for analysing the effectiveness or efficacy of counseling intervention is to construct a test, administer the test before intervention (pretest) so as to establish the presence of a behaviour problem in a client or group of clients and re-administer the test after administering the counseling intervention (post-test) and then compare the results of pretest and post-test. Item analysis may be used. Item analysis measures the effects of intervention by emphasizing the extent to which each stage of intervention or technique had effect on the client targeted behaviour. Inspection of intervention by intervention, comparison will provide information about the effectiveness of the intervention strategies A chart will be prepare with the list of the intervention strategies across the top and the list of clients' names by the side of the chart. The client's correct response to the effectiveness of interventions will be scored (+) and incorrect responses will be scored (-) for each student or a student with exposure to different interventions on both pre and posttest periods. For example, the table below contains an illustration:

Table: Clients Responds on The Effectiveness of Counselling Interventions at Pre and Post Test periods

Clients	Counseling Interventions							
	1		2		3		4	
Hope	-	+	+	-	+	+	-	+
Happiness	-	+	+	-	+	+	-	+
Funmilayo	-	+	+	-	+	+	-	+
Aminu	-	+	+	-	+	+	-	+

Shade	-	+	+	-	+	+	-	+
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Interpretation of the responses:

1. Intervention Strategy 1: Two clients rated correctly the first intervention and four clients after the intervention. This can be said to be a fairly good intervention
2. Intervention Strategy 2: All clients responded correctly before intervention and incorrectly after intervention. This can be judged as ineffective intervention
3. Intervention Strategy 3: All the clients responded correctly before and after intervention. The intervention can be said to lack ability in alleviating the client's problem

Intervention Strategy 4: All the clients responded correctly before and after the intervention. This can be judged to be very effective intervention.

Self-Assessment Exercises 5

Attempt the following exercises to measure what you have learnt in this unit. This should not take you more than 5 minutes:

Question1: Discuss three steps to be followed when preparing for appropriate test interpretation?

Question 2: Identify any five conditions necessary for appropriate test interpretation delivery to clients?



5.6 Summary

Test interpretation was discussed under the concepts of preparation required before delivering a test result, the conditions required during the actual delivery of test results, using the principles of test construction to develop objective test items and finally how item analysis can be used to interpret objective test items responses.

For the counselor to develop or construct an effective test it requires a detail understanding of the principles and applications of test construction. The counselor also needs to liaise with experts in test construction followed by constant practices.



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5.8 Possible Answers to Self-Assessment Exercises

Question1: Discuss three steps to be followed when preparing for appropriate test interpretation?

Answer

Discussions on three steps involves in preparing for appropriate test interpretation are:

- a. The test interpreter must prepare and integrate technical information about the test with close understanding of the client or group that took the test and review of reference sources to refresh their memory of the nuances that are critical to insightful test interpretation. Following these, test interpretation must be interpreted on the context of the personality and life history of the client or group of clients in essence, psychological test must not be interpreted in isolation but other underlying influences must also be considered.
- b. Before the actual test interpretation, counsellor or counselling psychologist must be sure of what the test results mean. This thorough understanding of what the test results means will assists the interpreted to formulate hypotheses that will be tested when discussing the results with the concerned client or group of clients. The notion here is that psychological test scores are statistical summaries of statements made by the client in responding to test items; so, test interpreter may ask the client to explain some of his responses to the test during a subsequent interview.
- c. Psychologists' initial question when preparing a test interpretation is, "What do these test results mean?" The objective is to develop hypotheses that can be tested when discussing the results with the client. Test scores provide statistical summaries of statements the client made in responding to test items or evaluations of the client's performance on tasks required by the test. As such, psychologists may ask clients to explain some of their responses to the test during a subsequent interview. This process enables the test interpreter to give specific meaning provided by the client that may seem contradictory. The process also give opportunity to the test interpreter to resolve with the client low or socially undesirable scores that look embarrassing and threatening to the client.

Question 2: Identify any five conditions necessary for appropriate test interpretation delivery to clients?

Answer

List of five conditions necessary for appropriate test interpretation delivery to clients are:

1. Client's or Group of Client Goals
2. Test Precision
3. Defensive Reactions
4. Plain Language
5. Encouraging Feedback