

## Psychological Testing in Schools with Counselling Implications

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**Abstract:** *This paper focused on psychological testing in schools with counselling implications. However, the paper is a theoretical one; hence there was no research methodology. The rate at which many students develop anxiety whenever they hear about testing makes this paper imperative, especially as it involves counselling implications in the education process. The paper covers the meaning and nature of psychological testing, purposes, forms, guiding principles and counselling implications of psychological testing. From the review of literature, some of the observed counselling implications of psychological testing in schools are that: through psychological testing, the school counsellor will be able to determine the testees whose intelligent quotients are below average, average and above average and thus classify them accordingly with reference to their ability as to enable them benefit effectively in school, and the principles of psychological testing guides the school counsellors in their efforts to improving students' test-taking skills. It was concluded that counselling is imperative in the school setting because it helps to minimize the usual students' fear and anxiety for testing with its resultant effects of examination malpractice. It was therefore, recommended among others that: the government, school operators and managers should endeavour to create a counselling unit in schools for proper guidance and counselling of students, and school counsellors should endeavour to implement a comprehensive school counselling programmes such as test coordination, test-taking skills.*

**Key words:** *Test, Psychological Testing, Counselling implications.*

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### Introduction

Psychological testing may be seen as part of the major ingredients of educational system or an integral part of the entire educational process. According to Adebule, Onijin and Akomolafe (2016), psychological test is an instrument designed to measure unobserved constructs, also known as latent variables. Psychological test is a measuring instrument at the disposal of a teacher, counsellor or psychologist, just as a measuring tape is in the hands of a tailor or carpenter (Monday, 2000). Psychological testing is so important that without it, measurement of learners' learning outcomes or educational achievements and decision making based on the

learning outcomes may not be possible, and the learners may not also be properly guided and placed. With the “No Child Left Behind Act of 2002” signed into law in America by the former president, George W. Bush in particular and the need for accountability in education in general, psychological testing, guidance and counselling tend to have gained considerable prominence in modern educational practice. This paper covers the meaning and nature, purposes, characteristics, categories, guiding principles of psychological testing and the counselling implications.

### **Meaning and Nature of Psychological Testing**

Different psychological characteristics of man have been identified over the years. These include attitude, character, mentality, intelligence, interest, feeling, ability, skill, etc. These psychological characteristics have ways of influencing positively or negatively the educational achievement or learning outcomes of learners. In order to understand the direction or the extent to which these psychological characteristics can influence students’ behaviour and learning outcomes in the school, there is need for testing. Testing can be defined as a systematic means through which data can be obtained about an individual’s trait and learning outcomes or academic achievement. Adebule, Onijgin and Akomolafe (2016) viewed testing as a procedure or techniques intended to establish the quality performance or reliability of something especially before it is taken into widespread use. Then, what is psychological test?

Psychological test can be defined as a well designed instrument which is used to measure psychological characteristics of an individual as well as his/her learning outcomes. Psychological test is an instrument designed to measure unobserved constructs, also known as latent variables (Adebule, Onijin & Akomolafe, 2016). Adebule, et. al further explained that psychological tests are typically, but not necessarily, a series of tasks or problems that the respondent has to solve. Psychological test could be in the form of questionnaires and test batteries which are designed to measure a sample of behaviours or the mental ability of an individual. Monday (2000) contended that psychological test is a measuring instrument at the disposal of a teacher, counsellor or psychologist, just as a measuring tape is in the hands of a tailor or carpenter. Psychological testing is therefore, the use of well designed evaluation instrument to harness psychological characteristics and learning outcomes of learners. It can also be referred to as the procedure used to obtain a description of a person’s trait. Monday (2000) asserts that psychological testing is like observations in any other science areas—where observations are made on small carefully chosen samples, and then inference made for the rest of the population. This assertion has been buttressed by Shultz & Schultz (2010) when they reiterated that the technical term for the science behind psychological testing is psychometrics. Psychometrics, according to the Institute of Medicine (IOM, 2015), is the scientific study including the development, interpretation, and evaluation of psychological tests and measures used to assess variability in behaviour and link such variability to psychological phenomena. According to Monday (2000), psychologists interested in individual differences are concerned with some questions like: In what ways do people differ? How large are these differences? How can these differences be most accurately measured? What are the practical implications of these differences? To obtain the desired responses from the above suggested questions by Monday, the psychologist needs to device a test with array of items that would objectively measure the sample of behaviour of the individual testees as to enable him/her make an appropriate or a valid decision. For a student who is depressed, personality test, cognitive test interview and observation schedule may be administered. Interview and screening instruments are recommended for a student who is drug

addict, while screening instrument, interview and personality tests may be recommended for a student who is a cult member.

Psychological testing can also be viewed as the use of standardized test or instrument to objectively and systematically measure a sample of behaviour. Anastasi and Urbina (1997) defined sample of behaviour as an individual's performance on tests that have usually been prescribed beforehand. Individual's performance on a series of items in a well-constructed psychological test produces a test score. However, some factors among the testees such as motivation, cultural and language differences may affect the individual testee's performance with its resultant effect of inaccurate test result and decision making. Thus, psychological test need not to be solely used as the basis for an individual's diagnosis and grading. However, there are ways in which these factors or intervening variables that may affect the individual testee's performance could be controlled. First, parents and teachers need to assure the individual testees prior to the testing period that what matters in testing is their ability to attempt the test to the best of their knowledge, and not to place much emphasis on the importance of getting the test. Secondly, the test giver, administrator or examining body need to be informed about the testee's language ability level (i.e. whether the testee is fluent or not in the language use in setting the test) prior to testing time. Thirdly, the test giver or administrator or the examining body should also be informed of the cultural background of the testees (i.e. whether they belong to the minority or majority culture in the society) prior to the testing. Fourthly, the Encyclopedia of Children Health submitted that, prior to the administration of any psychological test, the administrator should provide the child and the child's parent with information on the nature of the test and its intended use, complete standardized instructions for taking the test (including any time limits and penalties for incorrect response), and information on the confidentiality of the results. All these would make the testees to have the feelings that they are part and parcel of the testing process, hence build their confidence in the test in one hand and kills anxiety for testing in another hand.

### **Purpose of Psychological Testing**

Tests and other evaluation procedures simply are a means of obtaining more comprehensive, systematic and objective evidence on which to base instructional decisions (Gronlund, 1985). Apart from instructional decisions, psychological measures provide help in making other decisions like curricular, selection, placement and personal in nature (Thorndike & Hagen, 1977). This could imply that traditionally, the purpose or functions of psychological testing is to obtain adequate data for making valid and realistic decision on individuals, instructions or programmes and products. The school administrators, teachers and counsellors use the data obtained through psychological testing in the school setting to make informed decisions that will help the students to improve in their behaviour and academics. However, the purpose of psychological testing or measurement can be summarized following Denga's (1987) classification as: prediction, selection, evaluation, classification, guidance and counselling, administrative and research.

**a. Prediction:** Psychological testing or measurement results are used most times by school administrators, teachers and psychologists to predict what will likely be the students' future performance and behavior in a given skill or task. Monday (2000) gave an instance that, for a state-wide common entrance examination, the underlying assumption is that those who perform well (obtain high scores) on the examination are those who are likely to understand, learn and perform well in their secondary school education, unlike those who perform badly or fail the common entrance examination.

- b. Selection:** Psychological testing or measurement results can easily be used to select quality or qualified candidates who can represent a school in external competitions or for scholarship awards, promotion to higher class and or for admission into the higher institutions. Ubolom, Uzoeshi, Amini and Vipene (2011) maintained that selection aids the educators in the selection process of candidates for different available educational programmes such as selection for scholarship awards, and admission into universities, colleges of education, polytechnics, school of nursing, junior and senior secondary schools, etc.
- c. Evaluation:** Psychological test and measurement scores serves as relevant data in which educational administrators can determine the effectiveness of an instructional process, educational programme which will enable them take decision on whether to continue, improve or terminate such instructional process or educational programme. In this case, a well-designed check-list and achievement test can serve as a good tool data generation.
- d. Classification:** With testing and measurement, educators and counsellors will be able to classify or place students into different groups based on observable change in the students in terms of learning, behaviour, career aspiration/choice and needs. For instance, some students may be placed in science class while others in arts class. On the other hand, the school counsellor may also through the test results classify some students as highly intelligent and others as moderately intelligent as the case may be.
- e. Guidance and Counselling:** Psychological testing or measurement makes available appropriate and relevant data about individual student's attitude, interest, learning outcome competency and many other psychological characteristics which will help the counsellors and teachers to guide the students to resolve their academic, social and psychological problems. Although some schools have full-time counsellors, guidance and counselling is still part of the teacher's instructional role (Monday, 2000). This is because while teachers attempt to function as loco-parentis in the school setting, they will at the same time play the role of a guidance counsellor to the students.
- f. Administrative Purpose:** According to Ubolom, et al. (2011), measurement provides concrete data to assist Ministries of Education and school principles to evaluate educational issues and take vital decision on administrative matters concerning selection, classification and placement of students in the programmes and schools where they are most likely to achieve their educational goals.
- g. Research Purpose:** Results or scores obtained from psychological measurement or testing are used to analyze research questions and hypotheses of a study with findings discussed, conclusion drawn and recommendations made base on the result findings. Based on the results and findings of the research, the need for further research may arise whereby data obtained from measurement can also be found useful (Ubolom, et al., 2011).

### **Characteristics of Psychological Testing**

Below are some of the characteristics of psychological testing or psychological measurement:

- a. Relative Testing or Measurement:** Psychological measures or tests in educational measurement are usually relative and not absolute. This means that the test result or score of a student cannot be said to be meaningful until such scores are interpreted in relation to scores of other students who took the same test in the class within the same condition. For instance, Daniel's score could be said to be relative to Delight's and Divine's scores. On the other hand, it does not mean that when a student scores zero in a test the student totally lacks knowledge of the construct been measured. The reason is that it is very difficult for a single test or a particular test to measure all the aspects of a psychological construct at the same time. Hence, tests are not

perfect and so zero scores does not mean that the scorers have no knowledge of the construct been measured. In scale of measurement, this can be linked to interval scale because interval scale do not have a true zero point even if one of the scaled values happens to carry the name “zero”. Assessments made under the conditions that trigger stereotype threat could thus make certain groups appear to have lower levels of non cognitive qualities than is true in reality (Mindset Scholars Network, 2015).

**b. Quantitative Testing or Measurement:** The results of psychological tests are usually expressed quantitatively (numerically) rather than qualitatively (descriptively). Qualitative expression may however, only be used as a follow-up explanation to the outcome of testing or to describe the construct which is being tested on. However, emerging testing theories and practices (item response theories, Rasch model) have tried to take care of this particular characteristic of psychological testing (Monday, 2000).

**c. Indirect Testing or Measurement:** Testing or measurement of students’ psychological attributes or traits cannot be done direct. It is rather done indirectly in educational measurement. This is to say that instead of directly measuring a student’s psychological trait like anxiety, the educator or psychologist can prefer to determine whether the student is anxious or not from the students behavior or from the responses of the student in a give test. However, the test must be constructed in such a way that inferences based on its result are authentic (Monday, 2000). For instance, students’ behaviour (an aspect of performance) can be identified through class performance, written and oral tests, general conduct as well as skills and practical activities (Ubolom, et al., 2011).

**d. Incomplete testing or Measurement:** This refers to the impossibility of a particular test to completely measure all what the evaluator or psychologist is interested to know about a person at the same time as to enable him/her make valid decision. Since test only measure sample of behaviour, it will therefore require continuous measurement of several sample or universe of behaviour of the person which he intend to measure. The issue here is that a given test will only cover a small proportion or a sample of the entire behaviour which the evaluator intends to measure and this makes testing or measurement look incomplete in nature.

**e. Error of measurement:** It is assumed that there is an inherent error in every measurement or test score. This inherent error occurs when the behaviour or trait inferred from the responses of the testees or from test scores differs from the actual behaviour or trait possessed by the testee. Measurement error could be systematic or unsystematic. It is said to be systematic when it is purposely committed or introduced into the measurement process for certain reasons which may not be ethical while unsystematic error occurs at random or by chance. It is not purposely committed or introduced into the measurement process. According to Ubolom, et al. (2011), most of the educational measures contain measurement errors which emanated from three main sources:

a. Human error: This is a situation whereby an individual inconsistently observe and record facts.

b. Measurement instrument: This error emanates from faulty instruments and instruments that are sensitive to changes due to weather or other reasons or individual using inappropriate instrument to gather wrong data.

c. Lack of uniformity in measurement can also cause measurement error.

These measurement errors can result to unreliable and misleading result finding, misplacement and misinterpretation of an individual’s behaviour by the user.

### **Forms or Categories of Psychological Test**

According to the Institute of Medicine (IOM, 2015) while citing Cronbach (1960), one of the most common distinctions made among tests relates to whether they are measures of typical behaviour (often non-cognitive measures) versus tests of maximal performance (often cognitive tests). The measure of typical behaviour is also known as measures of typical performance. To this effect, psychological tests are generally categorized into two namely, measures of typical behaviour or performance and tests of maximum performance. Measure of typical performance is usually used to illicit data on the personality, attitudes, values, opinions, interests, intelligence, behaviour of an individual to the construct or issue of concern. Because tests of typical performance involves non-cognitive performance, they are therefore, regarded as non-cognitive tests or measures. Examples of measures of typical behaviour or performance (non-cognitive tests) are attitude test, interest test, personality test (Monday, 2000) and intelligence test. Tests of maximum performance on the other hand, allow the testees to respond to the items as possible as they can or to the best of their knowledge. The instruction during the testing is “do your best” or “obtain the highest possible score” (Monday, 2000). Monday also observed that items of tests of maximum performance usually have definite correct answers” and the score obtained by individual on the test is the addition of the “correct answers” he/she selected or given. Because tests of maximum performance usually involve cognitive performance, they are generally regarded as cognitive tests. Some of the examples of tests of maximum performance (i.e. cognitive tests) include achievement test, aptitude test and ability test.

### **Types of Non Cognitive Test (Measures of Typical Performance)**

**Attitude Test:** Attitude refers to the manner in which a person reacts to issues or challenges or tasks. It can also be seen as the extent to which a person is predisposed to external stimulus which may be positive or negative. Attitude Test, according to Monday (2000) is a kind of scale designed to capture the typical or habitual response of an individual to certain issues or persons. A student’s attitude towards a particular school subject will to a large extent determine the student’s performance or learning outcomes in that very subject. Positive attitude to a task will produce high performance or result while negative attitude will likewise produce low performance or result to the task. Although attitude is difficult to measure, however, the commonest types of scale used for measuring attitude include Likert Scale (Monday, 2000) and Thurstone Scale.

**Personality Test:** Personality may be regarded as the cognitive and non-cognitive traits of an individual. According to Anastasi and Urbina (2005), personality test is generally concerned with the affective or non intellectual aspects of behaviour. Personality test is designed to measure the personality characteristics of traits or people such as interest, emotion, self- concept, attitude, feeling, inter-personal relationship etc. Some of the techniques used to test or measure personality include self-reports, observational techniques, sociometric inventories, rating scales, check-lists (Monday, 2000), personality questionnaire, free association tests, the Minnesota Multiphasic Personality Inventory (MMPI) etc (Asuru, 2006). A personality test may be designed in a projective form in such a way that the response or answer to it would be more of subjective and unrestricted to a particular scale. It may also be prepared in an objective form which will restrict the response or answer to the test to a particular scale e.g. True/ False, Yes/ No.

**Intelligence Test:** Intelligence could be seen as a person’s mental ability to think abstractly, process decoded messages, make sense in issues, adjust and adapt to new experiences and situation. According to the BrainMetrix (2016), intelligence is simply defined as general

cognitive problem-solving skills. Monday (2000) viewed intelligence as an individual's capacity to think abstractly, integrate new sense and adapt to new situations. In whichever way it is been defined, it should be noted that the definitions of intelligence according to Mehrens & Lehmann (1987) fall generally into one or more of three categories: The capacity to: (a) think abstract (b) learn, or (c) integrate new experience and adapt to new situation. Thus, Intelligence tests, according to the Encyclopedia of Mental Disorders are psychological tests that are designed to measure a variety of mental functions such as reasoning, comprehension and judgement. Intelligence test is used to measure general mental function or ability of an individual. Intelligence is usually measured using Intelligent Quotient, symbolically expressed as:

$IQ = \frac{MA}{CA} \times 100$ , where IQ represent Intelligent Quotient, MA represent Mental Age and CA represent Chronological Age. While the mental age is the individual testees' level of mental development which is usually revealed by the testees' scores on the intelligent test, the chronological age is the testees' natural birth. For example, when a student of 10 years old whose mental age is 13 took an intelligence test, his/her IQ will be computed thus:

$$IQ = \frac{MA}{CA} \times 100 = \frac{13}{10} \times 100$$

$$IQ = 130.$$

The student can be said to be bright or highly intelligent. However, a testee whose IQ score falls between 40 and 54 could be regarded as an average student and moderately retarded. The table below shows the variations in intellectual ability.

**Table 1: Variations in intellectual ability**

Intellectual ability	IQ score	Characteristics
* Profound retardation (profoundly retarded)	Below 25	Inability to function independently
* Severe retardation (Severely retarded)	25 - 39	Difficulty in functioning independently
* Moderate retardation (Moderately retarded)	40 - 54	Less difficulty in functioning independently
* Mild retardation (Mildly retarded)	55 - 69	Ability to function independently
* Intellectually gifted	Above 130	Higher-than-average intelligence, with IQ score above 130

**Source:** Adapted from Feldman (1993, p.281 - 283).

However, intelligent test have been criticized among others as being culturally biased and this has led to the development of culture fair intelligence test; for example the Raven Progressive Matrics (Ukwuije, 2016). There are so many intelligence tests in the world such as the Hermon-Nelson test of Mental Ability, Lorge-Thorndike Intelligence Test, Kaufman Assessment Battery for Children (K-ABC), Woodcok-Johnson Psycho-educational Battery (WJ) Stanford-Binet Intelligence Scale, Wechsler Intelligence Scales etc but the two major intelligence tests that stand above the rest in both historical precedence and frequency of use as observed by Thorndike & Thorndike-Christ (2010) are the Stanford-Binet Intelligence Scale-Fifth Edition and the Wechsler Intelligence Scales. Thorndike and Thorndike-Christ explained that the Wechsler Intelligence Scales are a set of related and highly similar test batteries that span the age range

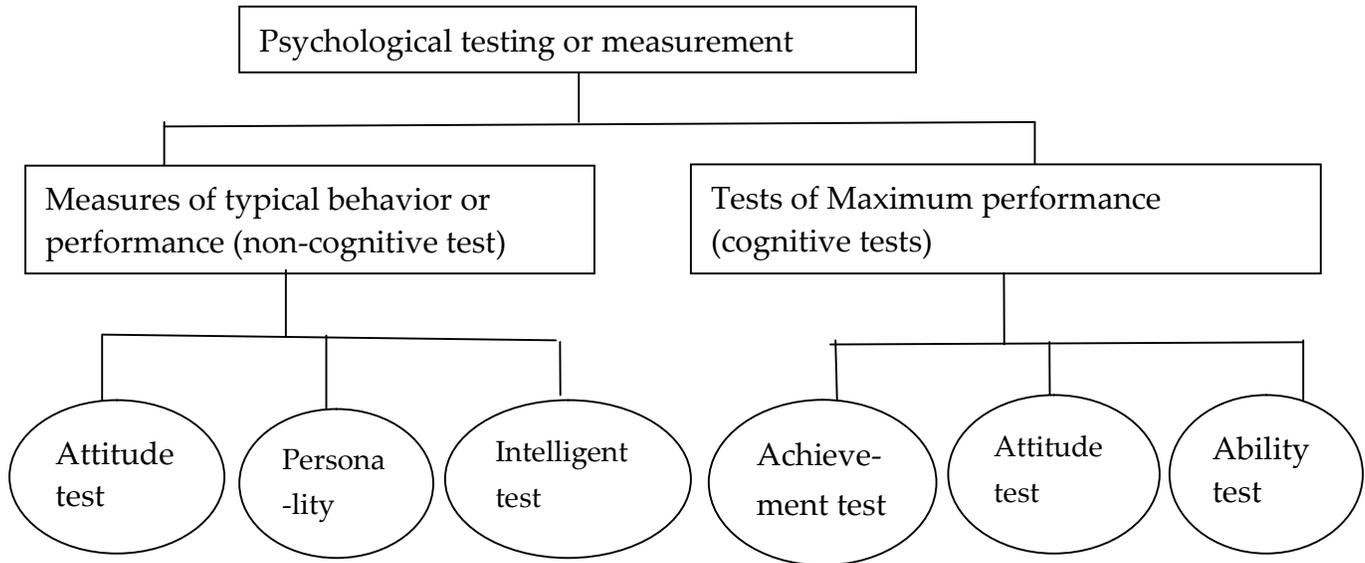
from early childhood (Wechsler Preschool and Primary Scale of Intelligence – Third Edition) through childhood (Wechsler Intelligence Scale for children-Fourth Edition) to adulthood (Wechsler Adult Intelligence Scale – Fourth Edition).

### **Types of Cognitive Test (Tests of Maximum Performance)**

**Achievement Test:** The term, achievement, is used to indicate the degree of success attained in some general or specific area within the school context (Horrocks & Schoonover, 1968) as cited in Asuru (2006). Achievement test has been defined by Noll and Scannel (1972) as a procedure or measuring instrument, usually a paper-and-pencil test, used to measure students' progress toward curricular goals, knowledge or skills usually acquired through classroom instruction. Achievement test is usually in paper-and-pencil form, and it can be used to determine how much students have learned, mastered or achieved after they have been exposed to a given classroom instruction. It can also be used to compare achievement of students across schools. Achievement test is generally divided into two namely; teacher-made test and standardized test. The teacher-made test is the type that is usually constructed by a classroom teacher and administered to his/her students without subjecting it to standardization process, while standardized achievement test is the type that is been subjected to a through scrutinization and refining in such a way that it will measure the common objective of a wide range of schools and provide standard procedures for administration, scoring and norms for the interpretation of the test scores. Examples of standardized achievement tests in Nigeria include the West African Senior School Certificate Examinations (WASSCE), Senior School Certificate Examinations (SSCE) by National Examination Council (NECO) and Unified Tertiary Matriculation Examinations (UTME) by JAMB. Achievement tests are generally used for selection, certification, promotion, research, guidance and counselling etc.

**Aptitude Test:** Walsh and Betz (1985) defined aptitude as the capacity to learn. Aptitude test is specifically interested in predicting what the individual can learn or develop into in future (Asuru, 2006). Aptitude test is the type of cognitive tests that reveals what and how an individual can learn in future in a given task or skill if exposed to the appropriate learning experiences. The key point here is “future”. With the scores of aptitude tests, a counselor or an educator would be able to look into the future of an individual in terms of what the individual would be able to learn and advice him/her accordingly. Aptitude test can be used for selection or screening of candidates for school admission or job provision which can be taken under normal paper-and-pencil examination condition or by online testing.

**Ability Test:** Ability simply means the power or capacity to carry out a given task or instruction within a given time frame. Ability test is therefore, a type of cognitive test that measures an individual's capacity in carrying out an assigned task. Monday (2000) who cited Aiken (1979) described ability test as one that measures the extent to which a person is capable of performing a certain task or occupation, such capability being the product of heredity and experience. While achievement test is used on well- specified learning experiences, ability test measures results of more general or broad learning experiences (Monday, 2000). Examples of ability test include verbal ability test, numeric ability test, power test, etc. Figure 1 below is a chart used to represent the various forms, types or categories of psychological test discussed in this paper.



**Figure 1: Some forms or categories of psychological test**

### **Guiding Principle of Psychological Testing**

- i. **Standardization:** This implies that all the procedures and steps adopted in psychological testing of a psychological construct such as aptitude, emotion, cognitive ability, etc must be conducted with consistency and under the same environment to achieve the same testing performance from those being tested on the construct.
- ii. **Objectively:** This refers to scoring a test such that subjective judgements and biases are minimized, with results for each test taker obtained in the same way.
- iii. **Test Norms:** This refers to the average test score within a large group of people where the performance of one individual can be compared to the results of others by establishing a point of comparison or frame of reference.
- iv. **Reliability:** This means obtaining the same score or result after multiple testing (consistency of results obtained).
- v. **Validity:** This implies that the type of test being administered must measure what it is intended to measure (accuracy in measurement).

### **Counselling Implications**

From the forgoing discussions, it can be observed that psychological testing, also known as psychological measurement is not only one of the crucial areas in psychology or psychometrics, but it has become an integral part of education process which enables the counsellor and educators to generate data on students' psychological characteristics for counselling services. For instance, aptitude tests can serve both diagnostic and prognostic functions in counselling such as provision of data that will guide the counselling interview, and help to build realistic self-image among counselees. In addition, with the scores of aptitude tests, a counsellor would be able to predict what an individual can learn or develop in the future, when exposed to the appropriate learning experiences. Through psychological testing like intelligent test, the counsellor will be able to identify the mental ages of the testees. The counsellor will also determine the testees whose intelligent quotients are below average, average and above average and thus classify them accordingly with reference to their ability as to enable them benefit effectively in school. The testees are equally counselled on how to improve in their mentality taking advantage of the

school environment and learning experiences. Psychological testing complements the work of teachers and learners, while counselling complements the effort of schools in testing and molding students' behaviour. This is so because the performance of students in class activities and test, especially achievement tests administered by teachers in schools serve as evidence of data that reveals students' behaviour to the counselling unit for counselling services.

The principles of psychological testing also guide the school counsellors in their efforts to improve students' test-taking skills. School counsellors use standardized test results to assess students learning and performance across standards. Counsellors can make decisions using standardized psychological tests result for school on placement and accommodation of students with exceptional learning needs and evaluation of instructional personnel. The validity principle enables the counsellor to make accurate and valid judgement about the learner's ability, personality and counselling needs.

### **Summary**

From the above discussions, it can be observed that psychological testing has become an integral part of the school setting and education process generally. However, it can be argued that psychological testing in the school may not be effective or complete without the role of the counsellor or counselling services. While psychological testing reveals relevant data about students' psychological characteristics such as attitude, aptitude, interest, skill, mentality, cognitive ability and learning outcome, etc, the school counsellor uses the data from psychological testing to make valid and reliable decision or recommendations in relation to students' selection, classification, promotion and comprehensive guidance and counselling services in the school. Counselling is thus imperative in the school setting or education process because it helps to minimize the usual students' fear and anxiety for testing with its resultant effects of examination malpractice.

### **Recommendations**

The following recommendations are made:

1. The government, school operators and managers should endeavour to create a counselling unit in their schools as to encourage proper guidance and counselling of students for better behaviour and learning outcomes.
2. Teachers should be well trained and properly guided on the principles of psychological testing in order to minimize bias, and to ensure the validity and reliability of the tests which the teachers administer in schools
3. Administration of psychological test should not be done in such a way that it will increase students' anxiety for test or testing.
4. The school counsellors should endeavour to implement a comprehensive school counselling programmes such as test coordination, test-taking skills etc.

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