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# A meta-analysis of personality tests used by human resources consultancy firms in Kenya

Chege Kimani Gabriel  
Moi University, Kenya.

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## ABSTRACT

The aim of this study was to determine the relevance of the personality tests used in Kenya for recruitment and placement purposes. The study sought to determine the construct validity of the tests as well as the tests' stability and internal consistency. The tests are published abroad and it is not known whether they are valid with the local population. The population comprised all published personality tests as well as all the Higher Diploma students at The Kenya Institute of Management, Eldoret Branch who were 57 in number (both male and female). A complete enumeration of the students was done. Purposive Sampling was used to select one personality test on the basis of frequency of use by consulting firms. A mock recruitment exercise was conducted during which the test was administered to obtain scores, which were analyzed using the spearman rank coefficient of correlation and factor analysis. The test was found to have very low levels of validity though its level of reliability was satisfactory. With alterations in the content item structure and type, the test can be adopted by the public and private sector for use in recruitment instead of the practice of posting staff.

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## Introduction

McReynolds (1975, 1986) cited in Matarazzo (1992) and other historians quoting from some earliest writings of civilization have documented some form of psychological assessment of individuals based on their individual differences in intellectual personality and physical traits that was practiced in ancient Greece and China as early as 2000 - 2500 years ago. Francis Galton, Emil Kraepelin and Alfred Binet are the modern contributors to the current systematized and standardized practice of psychometrics (Matarazzo, 1992).

Rapid scientific and social progress in Europe during the 19<sup>th</sup> century led to the development of several assessment techniques especially in psychiatry. The evolution of the human intellect was of particular interest to Sir Francis Gallon.

He carried out a study of genealogy of the famous scientific families of the time and argued that genius, which had a genetic origin, was to be found in these families which included his own. Galton was the major originator of psychometrics. He established an anthropometric laboratory in 1883 where peoples' faculties were tested and the data generated was used to develop the tools of the trade. Galton and Karl Pearson developed the twin study 'technique for looking at heredity. They developed the Pearson product- moment correlation coefficient for analyzing these data. However, the attempt to measure intellect by these early tests failed. Galton also explored the use of the normal curve as a model for the distribution of test scores. The techniques and models developed by Galton and Pearson still form the basis of present day psychometrics.

Galton's work strongly affected the course taken by test experimenters until about 1900 when Alfred Binet emerged as a psychometrician.

Catell (1960) published the first modern scientific paper on psychological assessment entitled "Mental Tests and Measurements." Kraepelin published a system of classifying

individuals with psychiatric and psychological disorders, on which today's revised Diagnostic and Statistical Manual of Mental disorders (DSM- III-R and DSM-IV) are based.

Binet's classical work on psychological assessment culminated in the development of the prototype of all of today's tests for the measurement of intelligence, the 1905 Binet- Simon scale.

Those earlier successes were extended in the 20<sup>th</sup> century to the assessment of personality and individual temperament, differences in aptitudes and achievement, individual difference in leadership and assessment of cognitive memory and neuropsychological functions.

The advancement in technology for administering and interpreting computerized versions of psychometric tests has improved both theory and practice of psychometrics. Software for interpreting findings from the Wechsler intelligence scale for children-III (WISC-III) has already been developed. A great deal of employee selection tests are available on-line.

There has been a widespread concern over the legal and ethical implications of psychometric testing. This has paused "threats to survival" on the practice of testing for employment and educational purposes. The major concern is the privacy of the candidates' responses as well as equal employment opportunities for women and minority groups. The legal concern culminated in the civil rights Act of 1964 in America. However such legal steps are yet to be taken in Kenya. Truth-in-testing efforts are largely expected in future.

Some new research findings have proved some old theories of employment testing right while other have been proved wrong. One old theory that holds that employee selection methods have little impact on the performance and productivity of the workforce has been found to be true. Brogden (1949); Cronbach and Glesser (1957) cited in Matarazzo (1992) advanced an equation for determining the impact of selection on

workforce productivity. The theory of test invalidity holds that cognitive employment tests are frequently invalid for majority and minority groups alike. The last old theory is that the criteria of success in training are insufficient.

New research findings indicate that professionally developed cognitive ability tests are valid predictors of performance on the job and on training for all jobs (Schmidt and Hunter, 1981) in all settings.

Tests have been used in making employment decisions in Kenya for over 20 years (Waweru, 1994). Although occasional use has been made of personality tests and content validated job-knowledge and job sample tests have been used with some frequency, the most commonly used employment tests have been measures of cognitive skills - that is, ability or aptitude tests. Examples include test of verbal and numerical logical reasoning skills or ability, perceptual speed, inductive and deductive reasoning, and spatial and mechanical ability.

A great deal of new knowledge has accumulated over the last 10 years on the role of cognitive abilities in job performance and in employee selection process.

Psychometric tests today find a great deal of application in educational institutions as tools of screening and placement, for example the Graduate Management Admission Tests (GMAT) is used to determine an applicant's mental ability before entry into a higher education program. Tests of personality and aptitude tests are being used in some business, industrial and consultancy firms in the selection of management personnel as well as the selection of individuals to be educated or trained. Human resource consultancy' firms in Kenya have set the place in use of psychometric tests.

Employers in the private sector use tests of intelligence, personality, motivation and other aspects of an individual's psychological make-up collectively known as 'psychometric tests' to select the best employees and to satisfy their needs. Selection tests are psychometric instruments for the selection of job applicants or for an educational/training program.

It is premised here that this study will unearth important facts about psychological testing with particular reference to the Kenyan experience.

Graham and Bennett (1998) have pointed out that the selection of employee's best fit for jobs depends critically on sound employment tests and procedures. Most employers, small or giant, individual or corporate, in public or private sector, are partially or totally oblivious of the existence and importance of such psychometric devices.

In the public sector the most common practice has been 'posting' of newly trained graduates to the field without an attempt to empirically establish whether the candidates possess the basic aptitudes for the jobs, that is, the basic mental and physical qualities that can be developed into the specific skill in Kenya, the interview is used either as an exclusive selection tool or in addition to other devices like the CV and application forms. The result has been a high rate of labor turnover and an escalation of the associated operational costs because firms employ qualified people who sooner or later resign because the jobs they were selected for do not meet their expectations (Graham and Bennett, 1998).

Many employers focus their attention on the 'can do' element- assessing the knowledge and skills needed for job performance, ignoring the employee's interest in the job and the relevance of his personality to the demands of the job. Therefore, for selection to be effective, organizations need to

also assess the 'will do' (motivation) component of the candidates. The common selection practices in Kenya lack the care of good selection criteria, a methodical approach to the problem of finding the best material person for the job.

A part from the high levels of labor turnover, studies have shown that two of three new employees will disappoint in the first year, ninety-five of one hundred applicants will 'exaggerate' to get a job and one of three businesses, in the Developed world will be sued every year over an employment issue (Matarazzo, 1992).

Clearly, an essential ingredient for making "people decisions" has been lacking from the selection formula. The psychometric tests have the potential of addressing more adequately the problems discussed in the foregoing. But this is not until the psychometric tests have been understood, following a detailed analysis, and this constituted the main concern of the study.

### **Weaknesses and strength personality tests**

Four main methods of personality assessment used include: questionnaires, ratings, objective tests and projective tests. The limitation of questionnaires include: Acquiescence response set- there is a tendency for people to answer "yes" rather than "no" when asked a question. This means that tests need to make sure that "no" answers measure the trait as well (Eysenck, 1994). Secondly, social desirability bias - people often answer the question in a way that makes them more likeable or attractive. Lie scales are included in the questionnaires, but have not always proved successful. Thirdly, reliability and validity. Whilst personality tests have a high reliability, it is much more difficult to establish validity. One method used by McGrae and Costa (1990) cited in Eysenck (1994) correlates the questionnaire results with ratings from spouses and peers. This consensual validity has revealed correlations of 0.50 respectively (Eysenck, 1994).

Personality rating scales involve an observer rating participants along a scale designed to measure a particular behaviour or trait, such as: Rating scales are not tests, nor are they precise or objective measures, hence their reliability cannot be so high as that found for other types of psychometric instruments.

Different raters may interpret the same behaviour differently. However, rating scales provide a means of obtaining organized descriptions of behavioural traits from judges who have had ample opportunity to make the necessary observations. By means of an organized scale, it is possible to obtain ratings on specified traits that are essential or significant in the particular setting where the scale is being used (Freeman, 1962). Rating, generally takes place in social contexts and people's behaviour may change in different contexts.

Objective tests of personality are often taken in laboratory conditions and tend to use behavioral measures to assess underlying traits. So, a measure of timidity may be obtained by getting participants to blow up a balloon until it bursts. Their limitations include: Low validity - it is very difficult to ascertain if the test is actually measuring the underlying trait, Minor changes in the procedure have influence on the results of the tests and, Participants may feel that they have been assessed on traits without their knowledge and this raises ethical issues (Eysenck, 1994)

Projective tests involve getting people to write stories about pictures they are shown (Thematic apperception test) or asking them to describe what they see in an ink blot (Rorschach ink

Blot test). Based on the psychodynamic theory, projective tests are designed to reveal the participants' hidden conflicts and desires (Eysenck, 1994). The following limitations have been pointed out on the use of these tests: Participants' response to the task may be determined by their current mood, rather than by their deep-rooted characteristics, the interpretation of the responses has been criticized for being somewhat subjective (Eysenck, 1990).

The main strength of the projective tests especially the Rorschach inkblot method is that it has been shown to have its greatest usefulness in revealing markedly deviant personalities. A vigorous attack was launched on personality tests by Binkorm and Johnson (1991) cited in Matarazzo (1992) commented: "we see precious little evidence of personality tests predicating job performance. But Fletcher (1991) cited in Matarazzo (1992) responded: - like any other selection procedure, they (psychometric tests) can be used well or badly but it would be irrational to dismiss all the evidence of the value of personality assessment in selection on the basis of some misuse. Personality tests can provide interesting supplementary information about candidates that is free from the biased reactions that frequently occur in face-to face interviews (Armstrong, 2003).

#### **Purpose of the Study**

Specifically the study aimed at investigating the range and types of personality tests used in recruitment and selection procedures by human resource consultancy firms in Kenya as well as the determination of the relevance of the personality tests used in Kenya for recruitment and placement purposes. The study sought to determine the construct validity of the tests as well as the tests' stability and internal consistency. Most of the tests are published abroad and it is not known whether they are valid with the local population.

#### **Data and Methods**

**Population and Sample:** The population comprised all published personality tests as well as all Higher Diploma students at The Kenya Institute of Management, Eldoret who numbered 57 (both male and female). A complete enumeration of the students was done. Purposive sampling was used to select one personality test on the basis of frequency of use by consulting firms. The personality research form was selected and administered to obtain scores which were analyzed.

**Research design:** The main concern of this study was the validity and reliability of the intelligence tests. Consequently, a Quantitative Content Analysis (QCA) design in which a researcher seeks to describe in quantitative terms the content in documents or materials under study as well as the degree to which variables are related was adopted.

This is a technique for examining or analyzing information or content, in written or symbolic material (Newman, 2000). In quantitative content analysis, the researcher identifies a body of material to analyze (Psychometric tests) and then creates a system of analyzing specific aspects of it. The personality test used in recruitment and placement was analyzed for its validity and reliability. This exposed its inherent strengths and weaknesses on the criteria of validity and reliability. The study used the spearman rank correlation coefficient as the main statistical tool in the analysis of the test alongside factor analysis.

According to Mugenda and Mugenda (1999), the use of a correlation coefficient involves collecting data in order to determine whether and to what degree a relationship exists between two or more quantifiable variables. The degree of the

relationship is expressed as a correlation coefficient ( $r$ ). The correlation coefficient lies in the interval  $-1 < r < 1$ . When  $r = 1$ , this indicates a strong positive correlation between the variables being studied, and vice versa. No relationship is denoted by 0. The correlation coefficient enabled the researcher to: establish the extent to which the test is consistent internally (using the split-half method) and to establish the extent to which a subject's score in one test is related to his score in the same test when he is retested or an equivalent form of a test.

#### **Results and discussion**

Personality tests used in the recruitment and selection of managers.

The study established that Human resources consulting firms preferred to use the rating scales and mainly inventories in their attempt to measure one's personality for purposes of classifying the candidates. The study identified the following personality tests that were being used by the firms; the Myers-Briggs Type indicator, The Personality Research Form, The Sixteen-Personality Factor Questionnaire, and the Tennessee self-concept scale. The most popular and frequently used test according to the Executive Selection and Search Managers was the Personality Research Form.

#### **The validity estimate for the Personality Research Form**

The Personality Research Form was validated for content and construct validity. Three experts were given a copy of the test and the job description and then asked to evaluate the extent to which test items sampled the responsibilities, competencies and innate capabilities. The experts indicated that the Personality Research Form was content valid. During the validation for constructs, the Strong Vocational Interest Blank was used as a criterion profile since it has been standardized and validated for constructs relevant for proficiency in human resources management.

**Table 1: Construct validity estimate for the Personality Research Form**

		Scores from the Vocational interest blank
Personality research form test scores	Spearman's rho correlation coefficient	.247*
	Sig. (2-tailed)	.640
	N	57

\*Correlation insignificant at the .05 level (2-tailed).

The scores from the Personality Research Form and those from the criterion were correlated to obtain a coefficient of .247 which was not statistically significant at the .05 level. Since the coefficient is positive but insignificant, the Personality Research Form is quite low in construct validity with the local population.

#### **Test retest reliability for the personality research form**

The table 4.2.7 below shows the correlation coefficient computed from scores obtained from the Personality Research form during the test and retest administration.

**Table 2: Stability of the Personality Research form**

		Scores from the Personality research form scores – retest administration
Personality research form scores-first administration	Spearman rho correlation coefficient	.608*
	Sig. (2-tailed)	.000
	N	57

\* Correlation is significant at the .05 level (2-tailed).

A statistically significant coefficient of correlation of .608 was obtained which indicated that the Personality Research form was stable over the intervening period since the two sets of scores were related strongly.

#### **The split-half reliability estimate for the Personality Research form**

The extent to which test items uniformly contribute to the final score is important in the process of psychometric testing. The Personality Research form was sub-divided into two equivalent subtests, one comprising the odd numbered items and the other comprising the even numbered items. Subtest scores were computed and the scores correlated to obtain the following coefficient.

**Table 3: Internal consistency of the Personality Research form**

		Scores from the even-numbered items in the Personality research form
Scores from odd-numbered items in the Personality research form	Spearman's rho correlation coefficient	.235*
	Sig. (2-tailed)	.079
	N	57

\* Correlation is significant at the .05 level (2-tailed).

The correlation yielded a coefficient of .235 which was significant at the .05 level as shown in table 4.2.8 above. The application of the Spearman-Brown formula to correct for the length of the test gave the reliability of the Personality Research form as .381 which indicated that the psychometric test was internally consistent but to a low degree.

#### **Conclusion**

From the reliability analysis conducted on the Personality Research form, the study concluded that the Personality Research form was stable over the intervening period since the two sets of scores were related and the correlation was significant at the .05 level. The consultancy firms can use the test without fearing the effect of learning on the testees' performance. The split-half reliability estimate was .381 which indicated that the psychometric test was internally consistent but to a low degree. The firms should consider modifying the order of items in the test to increase its internal consistency. On the basis of this finding, the study concluded that it was possible that the Human Resources Consultancy firms make decisions using a psychometric test that is not internally consistent and this could impact on the recruit's efficiency at work negatively. The test results may not truly reflect the individual's traits.

The experts used to validate the Personality Research Form reported that it was content valid since the items under each of the traits named in the foregoing were matching the traits required of managers. In conclusion therefore, this test is a sound measure of the type of traits that matter for management efficiency. However, the Personality Research Form is quite low in construct validity with the local population

#### **The way forward**

Since the psychometric tests are valid and reliable on the whole, employers experiencing high labor turnover due to the effects of ineffective recruitment procedures and techniques can now adopt the practice of psychometric testing to ensure

objectivity in selection. The firms should consider modifying the order of items in the test to increase its internal consistency.

Generally, most of the psychometric tests have been established to be valid and reliable with the local population, the study recommends that the government's employment agencies, that is, the Teachers' Service Commission and the Public Service Commission adopt these tests for use in the selection of staff to increase objectivity instead of relying on the traditional selection techniques and tools like the oral interview and the employment forms.

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