

## **Evaluation: A Critical Factor in Appropriate Career Development in Developing Economies**

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**DOI Link:** <http://dx.doi.org/10.6007/IJARBSS/v3-i8/112>

**Published Date:** 16 August 2013

### **Abstract**

Developing economies are very often faced with challenging problems of under development. It becomes necessary therefore, that individuals within these economies are properly guided to face the challenges. Guidance and counselling assist people experience appropriate career choice and development. To achieve this, there must be reliable data. This paper examines the role of evaluation in appropriate career development. WAEC and NECO multiple choice test items in Mathematics were surveyed. The study spanned five years (ie 2000-2004). Nine experts in measurement and Evaluation with Mathematics bias were used to appraise the items randomly selected by the researcher to ascertain the proportion of items that belong to the different cognitive levels. Percentages were used to answer the two research questions and t-test statistics was used to test the two hypotheses of the study. The findings disclosed that both WAEC and NECO items were more of Lower Level Cognitive Skills (LLCS) than Higher Level Cognitive Skills (HLCS), thus, students and counsellors were all working with flawed information leading to the rejection of the hypotheses. Recommendations were made including the need for the Counsellor to apply a variety of techniques in order to assist their clients, whether in school or at work.

### **Introduction**

Nigeria is a developing country, as such, several efforts have continued to be put in place at different times to facilitate the growth of the nation's economy. How strong or viable a nation is also has a lot to do with the standard of living and career progress of its citizens. There is, therefore, a great need for proper and effective career development.

Guidance and counselling was introduced into the Nigerian Educational curriculum in 1977 (Nwachukwu, 2003), since then, it has continued to touch the lives of the citizens in many ways. Yet, problems have continued to exist. This is probably not surprising, since according to Ortese and Nicholas (1995), "societies world over are plagued with social problems such as drug trafficking, drug abuse, unemployment, illiteracy, industrial stress, hypertension, juvenile delinquency etc". Confirming this, Yusuf (1995) observed that a cursory look at the Nigerian society today reveals a plethora of problems that requires the services of the counsellor which include unemployment, illiteracy, industrial stress among workers etc. Could it then mean that guidance and counselling services have been based on wrong parameters? The counsellor provides human services to diverse individuals in a variety of settings. A counsellor, therefore, plays a vital role in a developing economy such as Nigeria. These services, however, cannot be effectively rendered when information at the disposal of the counsellor are neither dependable nor reliable.

Sound career choices are very necessary for appropriate career development. A professional counsellor should among other things, assist individuals make career choices that would enable them develop themselves within situations they may find themselves. In secondary schools, the counsellor assists students in choice of school subjects for dream careers. Justifying this, Nwamuo (2001) observes that career guidance should begin at that point in an individual's life when he finds it necessary to make choices that have definite significance for his future career. To guide this student, the counsellor depends on results of previous evaluation. Evaluation here should be interpreted to mean assessment of student achievement. When such data are deceitful, counselling would not achieve what it is supposed to achieve, leading to stunted career development. Of course, it is only when a person is well adjusted in his chosen career that he would be able to positively touch his life and those of others in the society and by extension contribute to national development.

Evaluation is a sine qua non in ascertaining mastery during or after instruction. According to Essien (2008), evaluation is the appraisal of the worth of value of a thing or action and the making of appropriate decision on the basis of such appraisal. To Omole and Ajileye, (2008) it is expected that the outcome of any evaluation process should be informative and helpful for the improvement of the testee. It therefore becomes imperative that evaluation should be carefully done.

The West African Examination Council (WAEC) and the National Examination Council (NECO) are the two accredited bodies charged with the responsibility of conducting the Senior School Certificate Examination (SSCE) in Nigeria. SSCE is a standardized examination and therefore should meet the expectations of the Nigerian citizens. The results of this examination should be such that could conveniently be used for counselling during schooling and even at work. Onyeka, (2009) believes that when results of the Senior School Certificate examination is used for placement in the universities or to gain employment at this level, it is expected that appropriate evaluation was done and therefore both at school and at work, the individual should contribute meaningfully to self and to the society.

The cognitive domain of the educational taxonomy is concerned with knowledge outcomes as well as intellectual abilities and skills. (Bloom1956). This domain is sub-divided into six divisions namely; knowledge, comprehension, application, analysis, synthesis and evaluation.

The category according to Bloom begins with the relatively simple knowledge outcome:- knowledge, comprehension and application which are the Lower Level Cognitive Skills (LLCS). The intellectual abilities and skills encompass; analysis, synthesis and evaluation: The Higher Level Cognitive Skills (HLCS). This means that these examination bodies are expected to spread their items across the cognitive levels adequately.

These examination bodies also have a great influence on the generation of test items for internal examinations. This is because teachers tend to prepare their students along the same lines adopted by these bodies. A faulty WAEC or NECO examination could imply a faulty continuous assessment. This, of course, has great consequences for guidance and counselling in schools and hence proper career choices and subsequent developments.

### **Statement of Problem**

Since Nigeria is a developing country, individuals require appropriate career development so as to meet with the challenges of the economy. Adequate and comprehensive counselling is, therefore, needed. WAEC and NECO are charged with the responsibility of evaluating students at the end of the senior school programme. They are, therefore, expected to do a thorough evaluation since the results of their evaluation are the basis for counselling for appropriate career choices or even job placements at this level. However, there have been misgivings and ill-feelings regarding the following:

1. The assessments done by WAEC and NECO are not comprehensive enough as they concentrate their questions on one cognitive domain. This assessment could be misleading in guidance and counselling situations.
2. School-based continuous assessment are not comprehensively done and therefore could be misleading when used for career guidance
3. Counsellors do not have reliable data at their disposal to help bring about positive career choices and changes in the lives of their clients.
4. Holders of the Senior School Certificate do not perform optimally in further studies and at work.

### **Scope of Study.**

The paper focuses on the spread of multiple choice test items among cognitive levels of WAEC and NECO Senior School Certificate Examination. Mathematics which is a compulsory senior school subject was studied. The work spanned five years, (ie 2000-2004)

### **Purpose of the Study**

The problems of the work highlight a number of issues which the study aims at examining. Specifically, the work intends to:-

1. ascertain the balance over cognitive levels of multiple choice test items (MCTIs) of WAEC in Mathematics.
2. ascertain the spread of multiple choice test items (MCTIs) of NECO in Mathematics between the lower level cognitive skills and the higher level cognitive skills.

### **Research Questions**

1. What percentages of multiple choice test items of WAEC in Mathematics over the years belong to the lower level cognitive skills (LLCS) and the higher level cognitive skills (HLCS)?

2. What percentages of multiple choice test items of NECO in mathematics over the years belong to the lower level cognitive skills (LLCS) and the higher Level Cognitive Skills (LLCS)

### Hypotheses

1. The percentages of multiple choice test items in Mathematics drawn by WAEC over the years to test the lower level cognitive skills and the higher level cognitive skills are not significantly different from the percentages of items expected ( $P < 0.05$ ).
2. The percentages of multiple choice test items in mathematics drawn by NECO over the years to test the lower level cognitive skills and the higher level cognitive skills are not significantly different from the percentages of items expected ( $p < 0.05$ ).

### Methodology

The design is survey as well as inferential in nature.

### Population

The WAEC and NECO multiple choice test items in mathematics from 2000 to 2004 form the population of the study. This is presented on the table below.

**Table 1: Population Distribution**

Year under study	No of items	
	WAEC	NECO
2000	50	60
2001	50	60
2002	50	60
2003	50	60
2004	50	60
TOTAL	250	300

### Sample Design

Clustered random sampling technique was employed to select forty percent of the items of the population. Two examination bodies were involved and the study spanned five years. The total population (items) is five hundred and fifty. Since this will be too cumbersome for a rater, the items were put in clusters, year by year for both examination bodies. Then a random sampling technique was employed to select forty percent of the items which constituted the sample for the study. The sample is presented on table 2.

**Table 2: Sample distribution**

Year under study	No of items	
	WAEC	NECO

2000	20	24
2001	20	24
2002	20	24
2003	20	24
2004	20	24
TOTAL	100	120

**Instrumentation**

Three experts in measurement and Evaluation who have bias in Mathematics were requested to appraise the multiple choice test items randomly selected from WAEC and NECO question papers by the researchers using a proforma. They were requested to identify the coverage among the cognitive levels.

These raters are experts in mathematics who possess good knowledge of the domains of educational objectives and therefore could comfortably identify the levels the items belong.

Abel’s rater reliability of 0.88 was established and therefore the proforma was used for the work.

**Instrument and method of data collection**

WAEC and NECO past question papers from 2000 to 2004 were used. Two separate proformae were also used. A set of proformae were used by nine measurement and Evaluation experts who also have bias in Mathematics. Detailed information was given on the proformae of what they were required to do.

They were required to appraise the items of the question papers sampled by the researchers. The second proforma was used by the researcher to collate the items so identified by the experts.

**Method of Data Analysis**

Percentages were used to answer research questions while research hypotheses were tested with t-test statistics.

**Results of Data Analysis**

The result of data analysis for research question one and two are presented in tables 3 and 4 respectively, while the results of data analyses for hypotheses one and two are presented in table 5

**Table 3**

Spread of multiple choice test items in Mathematics among cognitive levels over the years in WAEC’s examination.

Cognitive Skills	Experts views											
	2000		2001		2002		2003		2004		2000-2004	
	Items	%	Items	%	Items	%	Items	%	Items	%	Items	%
LLCS	141	78.3	144	80	126	70	144	80	135	75	690	76.7
HLCS	39	21.7	36	20	54	30	36	20	45	25	210	23.3

TOTAL	180	100	180	100	180	100	180	100	180	100	900	100
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**Table 4**

Spread of multiple choice test items in Mathematics among cognitive levels over the years in NECO's examination.

Cognitive Skills	Experts views											
	2000		2001		2002		2003		2004		2000-2004	
	Items	%	Items	%	Items	%	Items	%	Items	%	Items	%
LLCS	159	73.6	150	69.4	123	56.9	150	69.4	138	63.9	720	66.6
HLCS	57	26.4	66	30.6	93	43.1	66	30.6	78	36.1	360	33.4
TOTAL	216	100	216	100	216	100	216	100	216	100	1080	100

**TABLE 5**

Summary of t-test calculations for Mathematics multiple choice test items in each year and over the years in respect of hypotheses one and two.

Exam Body	2000			2001			2002			2003			2004		
	t <sub>cal</sub>	t <sub>tab</sub>	Dec	t <sub>cal</sub>	t <sub>tab</sub>	Dec	t <sub>cal</sub>	t <sub>tab</sub>	Dec	t <sub>cal</sub>	t <sub>tab</sub>	Dec	t <sub>cal</sub>	t <sub>tab</sub>	Dec
WAEC	3.42	2.086	Sig	3.57	2.086	Sig	2.68	2.086	Sig	3.57	2.086	Sig	3.13	2.086	Sig
NECO	3.29	2.086	Sig	2.88	2.014	Sig	1.66	2.014	Sig	2.88	2.064	Sig	2.34	2.064	Sig

Table 3, shows that for WAEC, in 2000 78.3% of the multiple choice items were from the LLCS while 21.7% were from the HLCS. The proportions in 2001 and 2003 were 80% for LLCS and 20% for HLCS. 70% items were set from LLCS in 2002 while 30% were from the HLCS. In 2004, 75% of the items were from the LLCS while 25% were from the HLCS. Over the five years, a total of 76.7% items were set from the LLCS while 23.3% items were from the HLCS.

In table 4, NECO questions in 2000 comprised 73.6% items for the LLCS and 26.4% items for the HLCS. The proportion was the same in 2001 and 2003 where 69.4% of the items were from the LLCS and 30% were from the HLCS. 2002 had 56.9% for LLCS while 43.1% were from HLCS. In 2004, the proportion was 63.9% for LLCS and 36.1% for HLCS. The overall proportion over the five years was 66.6% for LLCS as against 33.4% for HLCS.

It is observed that in table 5, the t-tests for WAEC in 2000, t<sub>cal</sub> is 3.42 while t<sub>tab</sub> is 2.086. This showed a significant proportion. In 2001 and 2003, t<sub>cal</sub> is 3.57 while t<sub>tab</sub> is 2.086. The proportion is also significant. Year 2002 and 2004 also returned significant proportions except in 2002 with a t<sub>cal</sub> of 1.66 and a t<sub>tab</sub> of 2.064 which of course is not significant.

It is also observed that for NECO in 2000,  $t_{cal}$  is 3.29 while  $t_{tab}$  is 2.086. This showed a significant proportion. In 2001,  $t_{cal}$  is 2.88 while  $t_{tab}$  is 2.014, the proportion is also significant. Year 2002 ,  $t_{cal}$  is 1.66 and  $t_{tab}$  2.014 which is not significant. In 2003, it is  $t_{cal}$  2.88 and  $t_{tab}$  2.064. 2004 returned significant difference with  $t_{cal}$  , 2.34 and  $t_{tab}$  2.064.

The result of this analysis indicate that both WAEC and NECO multiple choice test items in mathematics are significantly more of LLCS than expected.

### **Discussion of Results**

The results obtained in this study have shown that both WAEC and NECO exhibited an undue bias towards the lower level cognitive skills. These are knowledge, comprehension and application skills. This finding agrees with Ogomaka (2005) and Nwana (2007). Ogomaka in his study asserted that one obvious implication of the situation is that secondary school students are not adequately challenged to apply what they learn in school, think analytically, take serious and reasoned decisions as well as make reflective judgement. In his own analysis, Nwana inferred that the situation is responsible for the inability of students to engage in those mental activities referred to as critical thinking, reflective thinking, problem solving and inductive-deductive processes. In all, by concentrating their items at this level, the examination bodies have failed to test those higher thought processes essential for a meaningful career development. They have also fallen short of the stipulations that item generations should be 40% to the lower level and 60% to the higher level cognitive skills (Onyeka, 2009). By not testing the higher thought processes also, the result so released is not very reliable in guiding the testee towards a meaningful career. Thus, evaluation has failed to perform its expected role.

As standardized examination bodies, WAEC and NECO need to ensure that the right things are done always. The inclination towards the lower level cognitive skills may be responsible for the student's results not being fair predictors of the same student's first year university performance (Egbo, 1999 and Dara 2008). Adhering strictly to guidelines would make for proper planning and enhance national development. Since Guidance and Counselling is aimed at making the individual a better person, it must be based on proper evaluation. Anything to the contrary is rather deceitful.

### **Implications of the study**

The findings of this study have various implications which include

1. The guidance counsellor may base counselling on an SSCE result that does not actually portray the inclination of the client. By so doing, the client is misled, with its implications on career development
2. Teachers may pattern continuous assessment in line with WAEC and NECO examinations. This again leads to a deceitful internal examination result which is the counsellor's basis for assisting students. Again, a wrong basis leads to poor guidance with consequent implications on career development.
3. Holders of these certificates are misled into seeking jobs that they are not quite prepared for and there is the attendant lack of job satisfaction. This again has implications for career development.

4. As a pre-requisite to higher education, holders of the SSCE Opt for University courses which they may not be prepared for leading to high incidences of cultism and other deviant behaviours. This also has its implication for the nation.

### **Recommendations**

1. WAEC and NECO should target using more of the higher level cognitive skills. This, they will achieve by Organizing more item workshops for item writers and should ensure the use of test blue prints.
2. Counsellors should apply a number of techniques to assist students while in school than to base their assistance only on an examination result. This, they could achieve by investigating and verifying their clients, using interviews, and other diagnostic/psychological tests.
3. At work, individuals should seek the services of professional counsellors to assist them stabilize at work and make appreciable career development
4. Guidance and counselling units of secondary schools should be strengthened to enable them cope with the varied demands of students especially in the face of unreliable data.
5. Employers of labour should, from time to time, seek the services of professional counsellors to assist their employees achieve greater productivity and enhance career growth.
6. WAEC and NECO should employ the services of professional counselors to assist in organizing workshops for items writers.

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