

# An Investigation of the Reliability of Senior Secondary School Certificate Examination (SSSCE) Results in Gombe Metropolis, Gombe State, Nigeria

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## Abstract

This paper tests the reliability of the results obtained by students who sat for National Examination council Examination (NECO). Using the result obtained by the students in the same school in WAEC. The paper finds the correlation coefficients of percentage achievement in Mathematics and English – language in WAEC and NECO. The correlation coefficient was found for two consecutive years 2012 and 2013. It was observed that the correlation coefficients between the two examination bodies in 2012 are 0.61 in Mathematics and 0.77 in English – language. In 2013, the correlation coefficient between WAEC and NECO are 0.87 in Mathematics and 0.24 in English – language. Except for that of English – language in 2013, the other correlation coefficients are positive and close to perfect. This shows that there is a strong relationship between the achievements.

**Keywords:** West Africa Examination Council (WAEC), National Examination Council (NECO), Correlation Coefficient, Relationship, Percentage achievement, Candidate, Credit.

## Introduction

Established in 1952, the West Africa Examination Council (WAEC) was established by law to determine the examinations required in the public interest in the English-speaking West African countries ([www.waecnigeria.org](http://www.waecnigeria.org)). The Council is also to conduct the examinations and to award certificates comparable to those of equivalent examining bodies internationally. WAEC is saddled with the responsibility of conducting examination for students at the end of their secondary schools. The number of years this examination body has spent has made it to be very experienced in this task. This in turns made it to gain public trust and confidence. However, the public trust and experience never stopped the council from criticism from some people. In the late 90's, some Nigerians were complaining on the increase in the registration fee, some were complaining on the rate of failure of the candidates. Some wanted nothing but an indigenous examination body to be performing the same task with that of WAEC. In April, 1999, the then head of state Rtd. Gen. Abulsalami Abubakar created the National Examination Council (NECO) ([en.wikipedia.org/wiki/National\\_Examination\\_Council\\_\(Nigeria\)](http://en.wikipedia.org/wiki/National_Examination_Council_(Nigeria))). It was mandated to take over the responsibilities of National Board of Education Measurement (NBEM). In 1999, it became the first Federal examination body to offer subsidized registration fee to secondary school candidates in Nigeria. Its maiden examination was conducted in mid – 2000. The present system of education in the country is 9 – 3 – 4. This can be explained as 9 years in the basic class, 3 years in the senior secondary school and 4 years in the tertiary institution. The basic class is subdivided in to 6 years in the lower basic class and 3 years in the upper basic class. Senior Secondary Certificate Examination is written immediately after the completion of the secondary school. Mathematics and English language are made compulsory subjects in all the levels. It is a general belief in Nigeria that the results presented by NECO candidates are not of any quality. Most people believed that the results are gotten through examination malpractice. Some blame the school where the examination is written for conniving with students. Some blame the staff of the examination body. Some blame the parents for insisting that their children must pass Mathematics and English language at all cost because they are core subjects and a must pass at credit level for entry into tertiary institutions in Nigeria. Some blame the examiners that mark the examination. Some of the examiners are NCE holders. On the other hand, the reverse is the case with WAEC. It is a general belief that any result presented from WAEC is of a high standard. Nigerians believes that even if students and teachers want to cheat, the staff and supervisors of WAEC will never allow it. WAEC will never recruit an examiner with a qualification less than first degree.

Correlation coefficient refers to relationships between two or more traits (Dass, 2011). The trait may be quantitative or qualitative. Quantitative trait values may be dichotomized or polychotomized. This mean they can be broken into categories. The chotomizations or categorizations may be natural or forced (artificial) may. Whichever are the traits concerned, correlation is taken for a number of reasons. When one, two or more variables are difficult to measure, efforts and time are devoted to measuring it once together with measuring the

other one or more variables that are supposed to be closely related with the variables difficult to measure. Correlation coefficient between two variables informs the researcher the extent of closeness or moving together of the values of the two variables (Adamu and Johnson, 1975). This paper used the Machine method of Pearson Correlation Coefficient to find the Correlation Coefficient between the results obtained by students in Mathematics and English-language in WAEC and NECO within Gombe metropolis in 2012 and 2013.

### **Statement of the Problem.**

It is a general belief that the result obtained by candidates who wrote NECO at Senior Secondary School Certificate Examination (SSSCE) is always ill – gotten. On the other hand, the result obtained by candidates who sat for WAEC at Senior Secondary School Certificate Examination (SSSCE) is trusted and believed to be reliable. The best way to test the reliability of the NECO result is to find the Correlation Coefficient of the scores obtained by the same set of students in the same subject at the same time and place. Pearson Correlation Coefficient Method is used to find the Correlation coefficient between these two variables.

### **Aim of the Research**

The aim of this research is to test the reliability of NECO result.

### **The objectives of the Research include;**

- i. To find the Correlation Coefficient between the results obtained in Mathematics and English – language in NECO and WAEC examinations.
- ii. To compare the relationship between the Correlation Coefficients obtained in two consecutive years. (i.e. 2012 and 2013 NECO and WAEC)

### **Research Questions**

- i. Is there any correlation between the results obtained in Mathematics and English – language in WAEC and NECO?
- ii. Is there any relationship between the correlation coefficients obtained in WAEC and NECO examinations in 2012 and 2013?

### **Area of Study**

The area of study in this research is Secondary schools within Gombe metropolis in Gombe State, Nigeria. Gombe is located in the Northern part of Nigeria. The state was carved out of the former Bauchi State on the 1<sup>st</sup> of October, 1996 by General Sani Abacha administration. It lies around latitude 10° N and longitude 11° 09E. The state is situated at the centre of the North eastern states of Nigeria. Bounded at the east by Borno State. At the west by Bauchi state, at the North by Yobe state and at the south by Adamawa and Taraba states.

### **Sample and Sampling Technique**

Ten (10) secondary schools were randomly selected from the twenty one (21) public secondary schools within Gombe metropolis. The randomly selected secondary schools include;

1. Special Education Center, Gombe.
2. Government Arabic College, Gombe.
3. Government Day Secondary School, Pilot. Gombe.
4. Government Day Secondary School, Orji Estate. Gombe.
5. Government Day Secondary School, Pantami.
6. Government Day Secondary School, Gandu.
7. Government comprehensive Day Secondary School, Gombe.
8. Government science Secondary School, Gombe.
9. Government Girls College, Doma.
10. Government Day Secondary School, Shehu Abubakar, Gombe.

In this study, a total of 5286 students sat for WAEC and 2458 students sat for NECO in 2012. In 2013, a total of 2458 students sat and for WAEC and 1655 students sat for NECO.

### **Data Collection**

The data used for this research was obtained from Gombe State Ministry of Education. The schools involved in the study are public schools. Because of their importance to everyday life and being the requirements for admission into the tertiary institutions Mathematics and English-language were selected for the study. The results of the students in the examinations were summarized into the different grades. The percentages of the grades were found for further analysis.

### Data Analysis

For each of the schools under study, absentees were excluded from the registered candidates. Percentages of candidates with credit and above (i.e C<sub>6</sub> and above) were calculated and tabulated. Passes and failure (i.e D<sub>7</sub>, E<sub>8</sub> and F<sub>9</sub>) were not counted as achievements.

**Table 1: Percentage Achievement in Mathematics in 2012 (WAEC and NECO) Results.**

S/N	SCHOOLS	CANDIDATES IN WAEC	CANDIDATES IN NECO	CANDIDATES WITH CREDIT AND ABOVE IN WAEC	CANDIDATES WITH CREDIT AND ABOVE IN NECO	% ACHIEVEMENT IN WAEC (x)	% ACHIEVEMENT IN NECO (y)
1.	Special Education Centre, Gombe.	36	21	1	1	2.78	4.76
2.	Government Arabic College, Gombe.	306	137	3	6	0.98	4.38
3.	Government Day Secondary School, Pilot, Gombe	844	471	16	3	1.90	0.64
4.	Government Day Secondary School, Orji Estate. Gombe	142	90	0	5	0	5.56
5.	Government Day Secondary School, Pantami. Gombe	644	223	3	17	0.47	7.62
6.	Government Day Secondary School, Gandu Gombe	879	276	65	6	7.39	2.17
7.	Government Day Comprehensive Secondary School, Gombe	927	365	540	39	58.25	10.68
8.	Government Science Secondary School, Gombe	563	313	1	3	0.18	0.96
9.	Government Girls College Doma. Gombe.	433	312	2	7	0.46	2.24
10.	Government Day Secondary School, Shehu Abubakar, Gombe.	425	238	45	25	10.59	10.50
	TOTAL	5199	2446	616	112	82.99	49.52

Using the Machine method of Pearson Product Moment Correlation Coefficient;

$$r = \frac{(n\sum xy - \sum x \sum y)}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2)}} \dots\dots\dots (***)$$

Substituting the values of x and y above, we have **r = 0.61**

Of course, there is a correlation between WAEC and NECO percentage achievement in Mathematics in 2012.

**Table 2: Percentage Achievement in English - Language in 2012 (WAEC and NECO) Results.**

S/N	SCHOOLS	CANDIDATES IN WAEC	CANDIDATES IN NECO	CANDIDATES WITH CREDIT AND ABOVE IN WAEC	CANDIDATES WITH CREDIT AND ABOVE IN NECO	% ACHIEVEMENT IN WAEC (x)	% ACHIEVEMENT IN NECO (y)
1.	Special Education Centre, Gombe.	35	21	0	1	0	4.76
2.	Government Arabic College, Gombe.	304	137	1	3	0.33	2.19
3.	Government Day Secondary School, Pilot, Gombe	834	468	15	5	1.80	1.07
4.	Government Day Secondary School, Orji Estate, Gombe	139	90	2	0	1.44	0
5.	Government Day Secondary School, Pantami, Gombe	644	223	2	7	0.31	3.14
6.	Government Day Secondary School, Gandu Gombe	875	276	17	19	1.94	6.88
7.	Government Day Comprehensive Secondary School, Gombe	927	365	520	52	56.09	14.25
8.	Government Science Secondary School, Gombe	564	318	3	5	0.53	1.57
9.	Government Girls College Doma, Gombe.	428	312	59	30	13.79	9.62
10.	Government Day Secondary School, Shehu Abubakar, Gombe.	455	238	15	23	3.30	9.66
	TOTAL	5205	2448	634	145	79.53	53.14

Using equation (\*\*\*),  $r = 0.77$ . This shows that there is correlation between WAEC and NECO percentage achievement in English – Language in 2012.

**Table 3: Percentage Achievement in Mathematics in 2013 (WAEC and NECO) Results.**

S/N	SCHOOLS	CANDIDATES IN WAEC	CANDIDATES IN NECO	CANDIDATES WITH CREDIT AND ABOVE IN WAEC	CANDIDATES WITH CREDIT AND ABOVE IN NECO	% ACHIEVEMENT IN WAEC (x)	% ACHIEVEMENT IN NECO (y)
1.	Special Education Centre, Gombe.	33	17	1	2	3.03	11.76
2.	Government Arabic College, Gombe.	338	114	0	2	0	1.75
3.	Government Day Secondary School, Pilot, Gombe	690	308	1	8	0.14	2.60
4.	Government Day Secondary School, Orji Estate, Gombe	122	66	3	0	2.46	0
5.	Government Day Secondary School, Pantami, Gombe	505	198	5	6	0.99	3.03
6.	Government Day Secondary School, Gandu Gombe	776	109	21	10	2.71	9.17
7	Government Day Comprehensive Secondary School, Gombe	720	271	332	63	46.11	23.25
8.	Government Science Secondary School, Gombe	350	215	5	2	1.43	0.93
9	Government Girls College Doma, Gombe.	288	185	9	4	3.13	2.16
10	Government Day Secondary School, Shehu Abubakar, Gombe.	429	167	4	3	0.93	1.80
	TOTAL	4251	1650	381	100	60.93	56.46

Calculating the correlation coefficient, using equation (\*\*\*) above,  $r = 0.87$ . This shows that there is correlation between WAEC and NECO percentage achievement scores in Mathematics in 2013.

**Table 3: Percentage Achievement in English – Language in 2013 (WAEC and NECO) Results.**

S/N	SCHOOLS	CANDIDATES IN WAEC	CANDIDATES IN NECO	CANDIDATES WITH CREDIT AND ABOVE IN WAEC	CANDIDATES WITH CREDIT AND ABOVE IN NECO	% ACHIEVEMENT IN WAEC (x)	% ACHIEVEMENT IN NECO (y)
1.	Special Education Centre, Gombe.	33	17	2	3	6.06	17.65
2.	Government Arabic College, Gombe.	338	117	1	1	0.30	0.85
3.	Government Day Secondary School, Pilot, Gombe	692	301	3	3	0.43	1.00
4.	Government Day Secondary School, Orji Estate. Gombe	124	63	0	3	0	4.76
5.	Government Day Secondary School, Pantami. Gombe	505	196	2	3	0.40	1.53
6.	Government Day Secondary School, Gandu Gombe	778	106	30	21	3.86	19.81
7	Government Day Comprehensive Secondary School, Gombe	720	268	340	25	47.22	9.33
8.	Government Science Secondary School, Gombe	348	215	4	5	1.15	2.23
9	Government Girls College Doma. Gombe.	288	185	5	17	1.74	9.19
10	Government Day Secondary School, Shehu Abubakar, Gombe.	429	167	7	3	1.63	1.80
	TOTAL	4255	1635	394	84	62.78	68.24

Using equation (\*\*\*) above, the correlation coefficient  $r = 0.24$ . This shows that there is correlation between WAEC and NECO percentage achievement in English – Language in 2013.

### Discussion of Result

In this research, total percentage achievement in mathematics in 2012 in WAEC is 82.99% while in NECO, it is 49.52%. In English – language in the same year, the total percentage in WAEC is 79.53% and 53.14% in NECO. In 2013, the percentage achievement in Mathematics in WAEC is 60.93% and 56.46% in NECO. In English - language in the same year, the percentage achievement of Mathematics is 62.78 in WAEC and 68.24 in NECO. The correlation coefficient of WAEC and NECO in Mathematics in 2012 is 0.61. in English – language of the same year, the correlation coefficient is 0.77. In 2013, the correlation coefficient of Mathematics in WAEC is 0.87 while it is 0.24 in NECO.

### Conclusion

It can be seen that the correlation coefficient between the two examination bodies in 2012 are 0.61 in Mathematics and 0.77 in English – language. In 2013, the correlation coefficient between WAEC and NECO are 0.87 in Mathematics and 0.24 in English – language. Except for that of English – language in 2013, the other correlation coefficients are positive and close to perfect. This shows that there is a strong relationship between the achievements. The fact that there is correlation between the variables tested does not mean that the achievements between the schools are the same. Rather, it shows that the results obtained from the two examination bodies are reliable since we initially agreed that one is reliable. However, some of the WAEC examiners are also NECO examiners and the pattern of marking are similar. It will be good to note that the fact that there is a correlation between the two examinations in the two subjects under study does not generalize the situation. The study was conducted within schools in Gombe Metropolis and it cannot represent the nation. But since the results obtained from WAEC in Gombe metropolis is reliable, then the results obtained from NECO is also reliable.

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