# Trends in Students' Achievement in Senior School Certificate Examination (SSCE) in Chemistry between 2008 And 2012

**Adamu Ademola. S[1], Boris Olufunke.O[2], Kenni Amoke. M[3]**

[1, 2, 3] College of Education, Ikere-Ekiti, Ekiti State, Nigeria.

Correspondence: Adamu A. S., Department of Chemistry, College of Education, Ikere-Ekiti, Ekit State, Nigeria

**Abstract:** ***This study investigated the trends in students' achievement in Senior Secondary School Certificate Examination (SSCE) in Chemistry in Ekiti State of Nigeria between 2008 and 2012 years. The study adopted a survey research design of ex-post facto type, the design centered on looking back at the performances of the students in chemistry. The sample comprised of all Chemistry students in 141 public secondary schools in Ekiti State that registered and sat for SSCE Chemistry between 2008 and 2012 years. The investigation of the study reveals that there is neither significant fall nor significant students' academic achievement in Chemistry in West African School Certificate Examination results over the year of study (that is, it shows fluctuation in the performance over the period of study). Two research questions were answered in the study. Data were analyzed using frequency counts and percentages. It is recommended among others that the Teaching Service Commission (TESCOM) of the state should Endeavour to provide opportunities for refresher courses for Chemistry teachers for them to be better informed about how to improve the academic performance of their students in the subject for technological advancement of the nation. And the Ministry of Education ditto the School Principals should ensure adequate and effective supervision of the teaching of Chemistry in Secondary Schools in the Ekiti State. Government should also provide modern science laboratory equipments to schools and information communication technology centre to all the schools.***

**Keywords:** chemistry, senior school certificate examination and students' achievement.

## 1. Introduction

Nigeria depends on what science, technology and mathematics could offer for her national economic empowerment and development [5]. The relevance of science to national goals, aspirations and economy dictates, to a large extent, the huge commitment and support which most nations give to science and technological development [11]. Science and technology play an important role in nation building and development [1]. The contemporary word is driven by science and technology and the two are interrelated. Science has become such an indispensable tool that no nation, developed or developing, wishing to progress in the socio-economic sphere will afford to relegate the learning of science in schools to the background. Theory upon which the technology is built, without Science; there cannot be intuition for technology[10]. Also, to confirm the assertion, [9] claims that while science probes into the question "Why?" technology probes into the "How?" aspect. Chemistry is among the three major pillars of science, that is,. Chemistry, Biology and Physics.

Within the context of science education, chemistry has been identified as a very important school subject and its importance in scientific and technological development of any nation has been widely reported. It was as a result of the recognition given to chemistry in the development of the individual and the nation that it is made a core-subject among the natural sciences and other science related courses in the Nigerian education system. Chemistry and indeed chemists are linked to everything on earth as aptly captured in a sloga: what on earth is not chemistry? Chemistry plays a pivotal role in engineering sustainable economic development and growth in any nation. Put succinctly, there is no aspect of human endeavour on natural phenomena that chemistry does not feature. It features prominently in the areas of oil and gas, agriculture, health, environment, solid minerals, textile, cosmetics, water supply, sanitation, crime detection, paper, waste management, just name it [13]. Chemistry is the catalyst of sustainable national growth and development. Chemistry is offered at the senior secondary classes in order to help student learn important aspects of scientific concepts that would enable them live effectively in their immediate environment [8]. Despite the importance of chemistry and its education value which is relevant to the need of individual learner, economics and technological breakthrough of a nation and the effort of researchers to improve on its teaching and learning, the performance of students in the subjects is not still encouraging, this shows that the level of performance is still not good enough.

The poor achievement of student in chemistry has continued to be a major cause of concern to all, particularly those in the mainstream of chemical education in Nigeria [12] and [3]. Among the factors that have been identified to be responsible for poor achievement in chemistry are poor methods of instruction, teacher attitude [4], laboratory inadequacy, poor science background [2] and non-availability of effective teaching and learning resources in classrooms [4]. Despite hug investment of the stakeholders in this sector, the performance of students continue to be generally poor. This was what prompted the present study, which try to find the trends in students' achievement in Senior School Certificate Examination (SSCE) in Chemistry between 2008 and 2012.

## 2. Research Questions

The following research questions were formulated and tested at $P< 0.05$:

1. Will there be any significant difference in academic achievement of students in Chemistry in Senior Secondary School Certificate Examination between 2008 and 2012 years?
2. Will there be any significant difference in the quality of grades of students in Chemistry in Senior Secondary School Certificate Examination between 2008 and 2012 years?

## 3. Methodology

The design was a descriptive survey of the ex-post facto research type. It involves the collection of data from records. The target population for the study was Chemistry candidates in all the 141 public secondary schools in Ekiti State of Nigeria, from 2008 to 2012 academic sessions. The sample of the study consisted of all Chemistry candidates in all the public Secondary Schools that registered and sat for SSCE in Chemistry between 2008 and 2012 academic sessions. The schools are controlled by the state ministry of Education and operated as prescribed by the National Policy on Education. The Schools also operate the same syllabus as prescribed by West African Examination Council.

Summary of the Chemistry results of all candidates that registered and sat for SSCE between 2008 and 2012 academic sessions were obtained from Ekiti State Ministry of Education, Science and Technology Department, Ado-Ekit, Ekiti State, Nigeria. The grades 'A1' to 'F9' of the West African Examination Council were used in this study for the analysis. The data for distinction and credit, that is, 'A1'-'C6', were put together and treated as the high quality grades, The grade 'D7'-'E8' were put together and treated as low quality grades while 'F9' was treated as failure. Two research questions were answered in the study. Data were analyzed using frequency count and percentages.

## 4. Results and Discussion

### 4.1 Research Question 1

Will there be any significant difference in academic achievement of students in Chemistry in Senior Secondary School Certificate Examination between 2008 and 2012?

**Table 1:** Summary table showing the Analysis of Enrolment, Number and Percentage Passes and Failure of Students in Chemistry in Senior Secondary Certificate Examination in Ekiti State of Nigeria between 2008 and 2012.

| *Year* | *No of Candidates Registered* | *Grade A1- C6* | *Grade D7- E8* | *Grade [ F9 ]* |
|---|---|---|---|---|
| 2008 | 4382 | 1143 (26.1%) | 1250 (28.5%) | 1989 (38.9%) |
| 2009 | 4674 | 2565 (54.9%) | 971 (20.8%) | 1138 (24.3%) |
| 2010 | 5683 | 2923 (51.4%) | 1755 (30.9%) | 1005 (17.7%) |
| 2011 | 7144 | 4025 (56.3%) | 2160 (30.3%) | 959 (13.4%) |
| 2012 | 5239 | 1733 (33.1%) | 1943 (37.1%) | 1563 (29.8%) |

*Source: [7].*

A cursory look at the Table 1 shows the persistent low academic performance of students in Chemistry over the years of study in Senior Secondary Schools in Ekiti State. Since credit pass ('A1'-'C6') grade is adjudge a better grade that is, above average and usually requested for in the admission process as requirement for a related course of study in tertiary institution, not very many of the candidates were able to score the grade. The analysis of the number of the candidates that scored 'A1'-'C6' was as follows: In the year 2008, it was 1143 (26.1%); year 2009 was 2565 (54.9%); also in year 2010 was 2923(51.4%); in year 2011 was 4025 (56.3%); and finally, in 2012 was 1733 (33.1%). It is observed that there was fluctuation in the performance of the students in Chemistry over the period involved in this study. Resultantly, there is no significant difference in academic achievement of students in Chemistry in Senior Secondary School Certificate Examination between 2008 and 2012. At an average, the performances call for urgent attention for better academic performance.

### 4.2 Research Question 2

Will there be any significant difference in the quality of grades of students in Chemistry in Senior Secondary School Certificate Examination between 2008 and 2012 years?

**Table 2:** The candidates with high quality grades ('A1' – 'C6'), low quality grades ('D7' –'E8') and those with 'F9' (failure) grade in Chemistry between 2008 and 2012.

| Year | No Of Candidates Registered | High Quality Grades A1- C6 | Low Quality Grades D7- E8 | Failure ' F9' |
|---|---|---|---|---|
| 2008 | 4382 | 1143 (26.1%) | 1250 (28.5%) | 1989 (38.9%) |
| 2009 | 4674 | 2565 (54.9%) | 971 (20.8%) | 1138 (24.3%) |
| 2010 | 5683 | 2923 (51.4%) | 1755 (30.9%) | 1005 (17.7%) |
| 2011 | 7144 | 4025 (56.3%) | 2160 (30.3%) | 959 (13.4%) |
| 2012 | 5239 | 1733 (33.1%) | 1943 (37.1%) | 1563 (29.8%) |

*Source: [7].*

From the analysis in the Table 2, it shows there is neither significant increase in the quality of performance nor significant decrease in the performance of Chemistry students in Ekiti State over the year of study. The only noticeable event is that there was fluctuation over the years in the quality of the grades.

For instance, in 2008 out of 4382 candidates that sat for SSCE in chemistry, 1143 (26.1%) had high quality grades, 1250 (28.5%) had low quality grade and 1989 (45.4%) candidates had failure (F9) grade. Also, in 2009, out of 4674 candidates that sat for SSCE in chemistry, 2565 (54.9%) had high quality grades, 971 (20.8%) had low quality grade and 1138 (24.3%) candidates had failure (F9) grade. Likewise, in 2010, out of 5683 candidates that sat for SSCE in chemistry, 2923 (51.4%) had high quality grades, 1755 (30.9%) had low quality grade while 1005 (17.7%) candidates had failure (F9) grade. In the year 2011, out of 7144 candidates that sat for SSCE in chemistry, 4025 (56.3%) had high quality grades, 2160 (30.3%) had low quality grade while 959 (13.4%) candidates had failure (F9) grade. Finally, in 2012, out of 5239 candidates that sat for SSCE in chemistry, 1733 (33.1%) had high quality grades, 1943 (37.1%) had low quality grade while 1563 (29.8%) candidates had failure (F9) grade.

## 5. Conclusion

The results of the study indicated that there was no substantial rising in the performance of students in the West Africa Schools Certificate Examination with respect to Chemistry as a subject and that it cannot be categorically stated that there is a fall in the performances of students in West African Certificate Examination in Chemistry as a subject within the period under study. What emerged however from this study was that in quantitative term, there was fluctuation in academic performance of students in Chemistry in Ekiti State of Nigeria over the years of study.

## 6. Suggestions and Recommendations

Since the investigation of this research work revealed that there was no fall in students' performance in Chemistry in West Africa Senior School Certificate Examination over the year 2008 to 2012 in public secondary school in Ekiti state, it is therefore necessary that the Teaching Service Commission (TESCOM) of the State should Endeavour to provide opportunities for refresher course for teachers so as to better the academic performance of students in Chemistry and improve their level of attainment. The Ministry of Education ditto the School Principals should ensure adequate and effective supervision of the teaching of this subject. Government should assist the secondary schools in providing modern laboratories equipments and information communication technology centre in schools.

A similar investigation should be carried out in other subjects offered in School Certificate Examination to examine the trend in academic achievement of Secondary School Students. This is necessary so that controversy over the continuous fall and deterioration in the standard of formal education in the state and in the country at large would be checked.

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