# SSCE and UTME Chemistry Results as Predictors of Students' Academic Achievement in Akwa Ibom State University, Akwa Ibom State, Nigeria

**Eme Uwemedimo Etukakpan**
**Iniobong Fred Akpan, Ph.D**
Department of Science Education
Akwa Ibom State University
Ikot Akpaden, Mkpat Enin LGA

***Abstract***
*The study was carried out to determine SSCE and UTME results as predictors of students' academic achievement in Akwa Ibom State University. Three research questions and three corresponding hypotheses guided the study. The study adopted the Ex-post facto research design. The population for this study comprised of 258 first year undergraduate students of 2020/2021 academic session in Science Education Department, Faculty of Education, Akwa Ibom State University, Nigeria. A sample size of 112 students were selected for the study using criterion sample technique. The data for the study were collected from admissions office of the university. The instruments are standardized which makes its validity and reliability assured. The data collected were analysed using linear and multiple regressions to answer the research questions and to test the hypotheses at 0.05 level of significance. The results revealed that SSCE chemistry result is not a significant predictor of first year students' academic achievement in Akwa Ibom State University, it was also revealed that UTME chemistry results is not a significant predictor of first year students' academic achievement in Akwa Ibom State University and that SSCE chemistry results and UTME chemistry results are not significant joint predictors of first year students' academic achievement in Akwa Ibom State University. It was concluded that SSCE and UTME results do not significantly predict students' academic achievement in chemistry education in Akwa Ibom state University. It was recommended among others that admission of students who applied to study chemistry education in the university should be based on their SSCE and UTME results.*

**Key Words:** SSCE, UTME, Results, Predicators, Academic Achievement.

## Introduction

Students' academic achievement occupies a very important place in education as well as in every learning process. It is considered a key criterion for judging one's total potentialities and capacities which are frequently measured by the examination results of which it is used to pass judgment on the quality of education offered by academic institutions (Nuthana & Yenagi, 2009). However, it is still the most typical debate in higher learning institutions that caused great concern to educators and researchers due to the alarming low examination achievement of students (Mendezabal, 2013).

Academic achievement could be defined as the learning outcomes of a student. These include the knowledge, skills and ideas acquired and obtained through their course of study within and outside the classroom situation. Molokomphale (2014) opined that academic achievement is the achievement of the students in their study in school; this determines the students' status in the class. This gives students an opportunity to develop their talents to improve their grades and prepare for future academic challenges. It refers to a person's achievement in a given academic area for example, as in Language Arts, Mathematics, Science and other areas of human learning.

Senior School Certificate Examination (SSCE) and Unified Tertiary Matriculation Examination (UTME) is what applicants need to write before getting admitted into any Nigerian University and institution of other countries. There are also certain requirements that one would have to meet before registering for the JAMB examination. Recent increase in the number of Nigerian students seeking admission into higher institution of learning in developed countries calls for adequate information on higher education entrance examination in these developed countries. University education entrance examination is generally considered as the major pillar that enhances individual educational goals and development worldwide (Robin, 2008). The strategy involved in selection of the students into higher institution is what is called admission or higher institution entrance examination which depends on the standard set by every country.

SSCE and UTME are considered as seemingly potentials to influence future scholastic achievements. They provide ways of comparing a student's achievement with those of others in the same situation. They provide a profile of strength and weaknesses of the students, they assess differences among individuals, they discover hidden talents in some students and they are valuable tools for education.

In general, SSCE and UTME results have several major functions: Universities and other higher institutions of learning use SSCE and UTME to select students into school programmes, it can be used to predict job training programmes. Educators use SSCE and UTME to help develop realistic expectations for students' achievement and to help students understand their own strengths and weaknesses.

The focus of the study is on SSCE and UTME results testing to find out whether SSCE and UTME results could predict students' academic achievement in their first year in the University. Scholars agree that students' academic achievement is a net result of their cognitive and non-cognitive attributes ( Alabi, 2001). It is the outcome of education and the extent to which students, teachers or institutions have achieved their educational goals. It also involves factors such as the intellectual level, personality, motivation, skills, interest, study habits self-esteem or the teacher-student relationship, attitudes towards school and learning that are associated with academic achievement. Students with poor academic achievement have a more negative attitude towards learning and believe that school and learning will not help them being successful in the future (Rebelo & Oliveira, 2010). A negative attitude limits achievement, saps

motivation, and inhibits learning. Attitudes towards learning are important factors on the learners' level of goal setting, problem solving abilities, their beliefs towards learning, their inner and external motivations in the process of learning and all the academic achievements they perform (Odukoya, Adeyeke & Atayero, 2015).

A major criterion for admission into all institutions of higher learning is academic excellence, all government owned and private Universities in Nigeria admit candidates on the basis of their achievement. In the Post-Unified Tertiary Matriculation Examination (POST-UTME) aptitude test after the Unified Tertiary Matriculation Examination (UTME) conducted by the Joint Admission and Matriculation Board (JAMB) and SSCE conducted by the West African Examination Council (WAEC), experience in many Universities in Nigeria has shown that the achievement of students admitted into the universities in many cases do not positively correlate with their senior school certificate examination (SSCE) and Unified Tertiary Matriculation Results (UTME).

Amatereotubo (2006) described how the Federal Government of Nigeria introduced the policy of Post-JAMB screening for Universities in 2005 and this policy made it mandatory for all tertiary institutions to screen candidates after their JAMB examination and before giving admissions. Candidates with a score of 200 and above would be shortlisted by JAMB and their names and scores sent to their Universities of choice which would again used aptitude test, oral interviews or even another examination for their final selection. Okpala (20001) explained that candidates score 280 and above in JAMB but could not score 20% in the Post-JAMB examination, believing that those students must have cheated on their JAMB examination and could not pass the Post-JAMB examination because there was no avenue to cheat. The overall admission of candidates into any institution in Nigeria is guided by the figures approved by NUC that agrees to the 70:30 Science/Arts ratio proposed by JAMB.

Mart (2016) explained that the cut-off point by JAMB is a Minimum of 180 for Universities Admission. Mart (2016) further states that some individual universities set their own cut-off point base on their standard. Alonge (2008) stressed that the reason for introduction of PUTME screening was due to short-comings from JAMB in conducting their examination and high rate of examination Malpractices in JAMB examination. Meanwhile, Ajala (2007) explained that since the establishment of WAEC in 1952 there has not been 100% achievement recorded in terms of candidate achievement in their SSCE results. This situation according to him led to the introduction of a more vibrant examination body (National Examination Council in 2000) that could correct the abnormality observed by stakeholders in education sector towards the conduct of examination especially by WAEC which included undue seizure of candidates results and examination malpractices. Murphy (2002) stressed that the evaluation of teachers' instructional method will also affect learning outcomes.

However, attainment of minimum of five credits passes in SSCE as a requirement for participating in JAMB and candidates' placement into Nigerian school of higher learning irrespective of whether institution is federal, state or privately owned is dependent on achieving

the cut-off score in the UTME. In several cases, the prospective candidates will be required to undergo University aptitude examination as further condition for their admissions. It is believed that these entry qualifications and entrance examination will lead to institutions admitting the right caliber of applicants. UTME selection over the years has been fraught with criticisms. These guidelines provided a mandatory institution to examine the candidate after JAMB examination and before issuing admissions to them. Lehman (2007) stressed that UTME was characterized by massive examination malpractice and other irregularities which affected the credibility of JAMB to conduct examination for potential students. A situation which attracted a wide criticism across the nation and led to call for individual Universities to screen its own candidates for admission. Educators stressed that examination malpractice among students also pose a major problem that affects students' interest in working hard in order to meet up with their goals in life (Babayemi, Akpan & Babalola, 2017).

There has been rise in complaints about students' poor academic achievement. Most students perform poorly even after going through a series of examination and screening SSCE & UTME Examination Results, 2015-2019). This poor achievement has made some students to spend extra years before they could graduate with a pass degree at best.

**Statement of the Problem**

Over the years in Nigerian tertiary institutions, there has been rise in complaints about students' poor academic achievement. Students' academic records show that after admissions into tertiary institutions, some students perform poorly even after going through a series of screening of their SSCE results, and writing of UTME before offering them admissions. This poor achievement has made some students to spend extra years before they could graduate.

It is also a point of concern that in spite of these rigorous screening exercises, many of the students still graduate with poor grades while some graduate with good grades. Educators also stressed that the examination malpractices among students' also pose a major problem that affects students' interest in working hard in order to meet up with their goals in life. In view of the above, the problem of the study is to investigate to what extent does SSCE and UTME results predict students' academic achievement in Chemistry Education in Akwa Ibom State University?

**Purpose of the Study**

This study investigated SSCE and UTME results as predictors of students' academic achievement in Akwa Ibom State University. Specifically, the study sought to achieve the following objectives:

1. To ascertain the extent to which SSCE Chemistry results predict first year students' academic achievement in Akwa Ibom State University
2. To ascertain the extent to which UTME chemistry results predict first year students' academic achievement in Akwa Ibom State University.

3. To ascertain the extent to which SSCE chemistry and UTME Chemistry results jointly predict first year students' academic achievement in Akwa Ibom State University.

**Research Questions**

The following research questions directed the study.

1. What is the extent to which SSCE Chemistry results predict first year students' academic achievement in Akwa Ibom State University?
2. How well does UTME chemistry results predict first year students' academic achievement in Akwa Ibom State University?
3. To what extent does SSCE Chemistry results and UTME Chemistry results jointly predict first year students' academic achievement in Akwa Ibom State University

**Null Hypotheses**

1. SSCE Chemistry results is not a significant predictor of first year students' achievement in chemistry in Akwa Ibom State University.
2. UTME Chemistry results is not a significant predictor of first year students' academic achievement in Chemistry in Akwa Ibom State University.
3. SSCE Chemistry results and UTME chemistry results are not significant joint predictors of first year students' academic achievement in Akwa Ibom State University.

**Methodology**

The design of this study was expost facto design. The researcher employed this design to investigate the degree of prediction that exists between students' academic achievement in public examinations. The data were SSCE and UTME results of Chemistry Education students admitted in 2020/2021 as well as their first semester results. The design focused on SSCE and UTME as seemingly potentials to influence students' academic achievement in Akwa Ibom State University.

The study was conducted in Akwa Ibom State University, Mkpat Enin Local Government Area of Akwa Ibom State, Nigeria. The University is bounded by Eastern Obolo Local Government Area, Eket Local Government Area and Ikot Abasi Local Government Area in Akwa Ibom State. The area is occupied mainly by civil and public servant and different businesses are being carried out by people. The area was used on the fact that students in this area make up the population for this study.

The population of the study use all education science students of the year under study. (Admission's Unit of the University 2020/2021). The sampled students were those who sat for SSCE (either NECO or WAEC) and UTME in 2020/2021 and gained admission into the University. The sample size of the study was 112 students selected from the Science Education Department, Faculty of Education, Akwa Ibom State University. This study employed the criterion sampling technique. This was done by obtaining the students' data from the admission

office of the University. The students are those that wrote Chemistry in SSCE and UTME and their Chemistry results of their first year in the University 2020/2021 academic session. Their raw scores were extracted, transformed and used for this study.

The research instruments used to obtain data for the study were the SSCE and UTME results of 2020/2021 academic session, and first year academic standing of students of same year in Chemistry Education. Since the results are standardized secondary data, thus, its content validity, the items, clarity of the items and total coverage of the entire topics in the syllabus are valid as reported.

There is internal consistency in the use of these items, it measures how well different constructs are addressed and results reliably delivered. This makes its reliability assured. The researcher collected a letter of introduction from the Head of Department for the release of students' records for 2020/2021 from students files, the request described why the students' records were needed and what it would be used for. Permission for the researcher to use the students' files to extract the results was granted. The number needed was selected and used for the study.

The process of data analysis involved the coding using the university grading system. The data coded was tabulated and processed with the data analysis software, SPSS developed since 2009. SPSS is an acronym for Statistical Package for Social Sciences; it was used in the research study.

**Results**

**Hypothesis 1 :** SSCE Chemistry result is not a significant predictor of first year students' academic achievement in Chemistry in Akwa Ibom State University.

**Table 1:** Mean and standard deviation of SSCE Chemistry results and University Chemistry results.

**Descriptive Statistics**

| | N | Mean | Std. Deviation |
|---|---|---|---|
| UNIChem | 112 | 2.90 | 1.237 |
| SSCEchem | 112 | 3.29 | .666 |

It revealed that the mean of SSCE Chemistry results is 3.29 while the mean of University Chemistry results is 2.90. Moreso, the standard deviation of SSCE Chemistry results and University Chemistry results are 0.666 and 1.237 respectively.

**Table 2**: ANOVA of SSCE Chemistry results and first year students' academic achievement in Chemistry in Akwa Ibom State University.

| S/N | Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1. | Regression | .557 | 1 | .557 | .362 | .549[b] |
| | Residual | 169.362 | 110 | 1.540 | | |
| | **Total** | **169.920** | **111** | | | |

The difference in the mean scores in table 1 is not statistically remarkable (see table 2 )

(a) Dependent Variables: UNIChemistry

(b) Predictors: (Constant), SSCEChemistry

It revealed that the sig. value of 0.549 is greater than 0.05 alpha level of significance. This implies that the null hypothesis is retained at 0.05 level of significance. Therefore, there is no significant relationship to which SSCE Chemistry results predict first year students' academic achievement in Akwa Ibom State University.

**Null Hypothesis 2:** UTME Chemistry result is not a significant predictor of first year students' academic achievement in Chemistry in Akwa Ibom State University.

**Table 3:** Mean and standard deviation of UTME Chemistry results and University Chemistry results.

**Descriptive Statistics**

| | N | Mean | Std. Deviation |
|---|---|---|---|
| Chem | 112 | 2.90 | 1.237 |
| UTMEChem | 112 | 1.82 | 1.092 |

It revealed that the mean of UTME Chemistry results is 1.82 while the mean of University Chemistry results is 2.90. The standard deviation of UTME Chemistry results and University Chemistry results are 1.092 and 1.237 respectively. This difference in the mean scores is not statistically remarkable (see Table 4).

**Table 4**: ANOVA of UTME Chemistry results and first year students' Chemistry results.

| S/N | Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1. | Regression | .908 | 1 | .908 | .591 | .444[b] |
| | Residual | 169.012 | 110 | 1.536 | | |
| | **Total** | **169.920** | **111** | | | |

*(a) Dependent Variables: UNIChemistry*

*(b) Predictors: (Constant), UTMEChemistry*

It revealed that the sig. value of 0.444 is greater than 0.05 alpha level of significance. This implies that the null hypothesis is retained at 0.05 level of significance. Therefore, there is no significant relationship to which UTME Chemistry results predicts first year students' academic achievement in Akwa Ibom State University.

**Null Hypothesis 3:** SSCE Chemistry results and UTME Chemistry results are not significant joint predictors of First year students' academic achievement in Akwa Ibom State Univer

**Table 5:** Mean and standard deviation of SSCE Chemistry results and University Chemistry results.

**Descriptive Statistics**

| | N | Mean | Std. Deviation |
|---|---|---|---|
| UNIChem | 112 | 2.90 | 1.237 |
| UTMEchem | 112 | 3.29 | .666 |

It revealed that the mean of SSCE Chemistry results is 3.29 while the mean of University Chemistry results is 2.90. Moreso, the standard deviation of SSCE Chemistry results and University Chemistry results are 0.666 and 1.237 respectively. This difference in the mean scores is not statistically remarkable (see Table 6).

**Table 6:** ANOVA of SSCE Chemistry results, UTME Chemistry results and First year Chemistry results.

| S/N | Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1. | Regression | 1.230 | 2 | .615 | .398 | .673[b] |
| | Residual | 168.689 | 109 | 1.548 | | |
| | **Total** | **169.920** | **111** | | | |

*(a) Dependent Variables: UNIChemistry*

*(b) Predictors: (Constant), UTMEChemistry, SSCEChemistry*

It revealed that the sig. value of 0.673 is greater than 0.05 alpha level of significance. This implies that the null hypothesis is retained at 0.05 level of significance. Therefore, there is no significant relationship to which SSCE Chemistry results and UTME Chemistry results jointly predict first year students' academic achievement in Akwa Ibom State University.

**Discussion of Findings**

Finding of Hypothesis 1, Tables1 and 2 revealed that SSCE Chemistry result is a significant predictor of first year students' academic achievement in Akwa Ibom State University. This result is in line with the earlier research carried out by Osuagwu (2014) and Ewomazino (2009) which reported that SSCE Chemistry results have no significant relationship with students' academic achievement in Chemistry degree examination.

The findings of Hypothesis 2, Tables 3 and 4 revealed that UTME Chemistry results is not a significant predictor of students' academic achievement in Chemistry in degree examination. This is in line with the findings of Isobel (2001) who studied the frequency distribution of 2000 admitted students using Chemistry and Physics results found out that the students did well in Physics and worst in Chemistry, this showed that there was no significant relationship between UTME Chemistry results and academic achievement in University and that UTME Chemistry result was not a significant predictor of students' academic achievement in degree examination.

Finding of Hypothesis 3, Table 5 and 6 revealed that SSCE Chemistry results, UTME Chemistry results and Chemistry degree results are not significant joint predictors of First year students' academic achievement in the University. This finding is in line with the study by Obioma and Salau, (2010) which showed that SSCE Chemistry results and UTME Chemistry results poorly predicted students' academic achievement in the degree examination.

## Conclusion

This study investigated SSCE and UTME results as predictors of students' academic achievement in Akwa Ibom State University, Akwa Ibom State, Nigeria. The result shows that SSCE and UTME chemistry result do not significantly predict students' academic achievement in Akwa Ibom State University. It could then be deduced that previous examinations written before students' exposure to University degree examination may not necessarily determine the learning outcomes in the University but could continue to serve as basic requirements foundational to admission of any career of choice. It was concluded that SSCE and UTME chemistry results do not significantly predict students' academic achievement in chemistry in Akwa Ibom State University.

## Recommendations

1. Admission of students who applied to study Chemistry Education in the university should be based on their SSCE and UTME results.
2. Guidance Counselors should use the results of this study to advise both students and parent on what is expected of their wards in tertiary institutions.
3. Educational researchers should use the results of this study as a reference point to enrich their empirical review.
4. The examination bodies should involve subject specialists and professionals in test construction in all examinations to ensure.
5. Improvement should be made to curtail extraneous variables that could hamper achievement in standardized examinations like examination malpractice, as this may be one of the causes of discrepancies in achievement of candidates in the various examinations.

6. Various schools should endeavour to get their students ready and qualified to partake in SSCE and UTME.

**References**

Ajala, O. (2007). Impact of Parent Socio-economic Status and University Students' Academic Achievement. *Journal of Educational Studies, 7* (1), 31-39.

Alabi, T (2001). Curbing Examination Malpractice in the University System; a Management Perspective. *Education Research Journal, 14* (2), 30-43.

Alonge, E. F. M (2008). Measurement and Evaluation in Education and Evaluation in Education and psychology 2nd Edition, Ado-Ekiti.

Amatereotubo, M (2006). Students' Academic Achievement; The Role of Motivation, Strategies, and Perceived Factors Hindering School Students Learning. *International Journal of Educational Research, 1* (2), 14-16.

Babayemi, J. O; Akpan, I. F. & Babalola, G. T. (2017). Issues and challenges from science education benchmark in Nigeria: Comparative analysis of education in China and Nigeria for repositioning basic science and technology in Nigeria. African Journal of Educational Assessors, *3* (3), 31-40.

Ewomazino, A. M. (2009). Impact of Social Achievement of Students in Osun State University, Nigeria. A case study of University of Benin, *Journal of Social Science, 22* (2), 98-110.

Isobel, T. (2001), School Climate and Academic Achievement Publisher; Oxford University. 2 (1), 1-23.

Lehman, B. (2007). Achievement, Measurement and Evaluation. Retrieved from http/www. Ascd. Achievement discourse. Aspx. Html. 2007

Mart, K. (2016) Principal Leadership and Students Achievement, Proceedings of the 4th International Conference on Research of Educational Administration and Management. *The Journal of International Education Science. 3 (1), 526.*

Mendezabal, M.J.N (2013). Study Habits Meta Analysis. Perspectives on Psychological Science. *International Journal of Administration and Policy Studies, 3* (6), 425-453.

Molokomphale, L.(2014). An Investigation on Students Academic Achievement for Junior Secondary Schools. *Journal of Research and Educational Ressources, 2* (17), 11-24.

Murphy, B. (2002). Children from broken homes lagging behind *Journal of marriage of family, 60* (1), 101-105

Nuthana, P.G. & Yenagi, G. V. (2009). Influence of study habits, self concept on academic achievement of boys and girls *Journal of Agricultural Science 22,* (5), 1135-1138.

Obioma, G. & Salau, M (2010). The Predictive Validity of Public Examinations. *Nigeria Educational Research and Development Council (NERDC), 5* (1), 8-10.

Odukoya, J. A; Adekeye, A. A; & Atayero, A. A, (2015). The Predictive Validity of University Admission Examinations; A Case Study of Nigerian Unified Tertiary Matriculation Examination. *Covenant International Journal of Psychology (C.J.P), 3* (1), 1-10.

Okpala, P.N. (2001). School Based Assessment: Implication for National Development, Open Access Library Journal 3 (3), 15-26.

Osuagwu, T. (2014). Excessive Game Playing and Children's Academic Achievement. *Journal of media and communication, 2* (2) 12-18.

Rebelo, B. & Olivera, L. (2010). Academic Achievement of Grade 12 Students in Personal Development. *International Journal of Novel Research in Education and Learning*, 6 (3), 21-34.

Robin, M. H. (2008). University Admission Worldwide. Education working paper series, number 15. International bank for reconstruction and development, world Bank.