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**ELECTRONIC-EXAMINATION AND STUDENT ACADEMIC ACHIEVEMENT
IN PUBLIC SECONDARY SCHOOLS IN IBADAN METROPOLIS, OYO STATE
NIGERIA**

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Abstract

It has been reported that most students in Public Secondary Schools (PSSs) perform poorly in Mathematics and English Language (EL) in Senior Secondary Certificate Examination. Studies have considered household factors, teachers' effectiveness and school location without given attention to e-examination. This study therefore, examined E-examination and Student Academic Achievement (SAA) in PSSs in Ibadan Metropolis (IM), Oyo State, Nigeria. Descriptive survey research design was adopted. Multi-stage sampling procedure was used to select 500 respondents of which 420 respondents returned the instruments. Simple random and proportionate to size sampling technique was used to sample two Local Governments (LGs) and 25 PSSs, while 20 respondents from each school were selected using purposive sampling technique. E-Examination Questionnaire and Achievement Test for Mathematics and EL were developed for data collection. Reliability coefficient for each instrument was 0.78 and 0.85. Descriptive and inferential statistics were used to answer research questions and test hypotheses. The result found that SAA was poor. Report revealed that the extent at which E-examination is being practiced in PSSs was high. The result equally indicated that, relationship was found between E-examination and SAA in PSSs while an insignificant difference was obtained between male and female SAA. Stakeholders in education should place more priority on academic achievement of PSSs.

Keywords: E-examination, Academic Achievement, Ibadan Metropolis

Introduction

Secondary education is an institution that plays a critical role in the educational system because it serves as a link between primary education and Higher Education Institutions (HEIs). This type of education prepares students for HEIs and labour market. For this reason, this level of education determines academic progress of secondary school students. Students at this level of education are expected to equip themselves with necessary skills and knowledge that would make them gain admission into HEIs and secure job. At this level of education, secondary school students will know whether they would proceed to next level of education or not based on previous performance in class right from entry into such a level. The objectives of secondary education are to prepare students for useful living and transition from post-basic education level to HEIs (Federal Republic of Nigeria, 2014). Success in the HEIs largely depends on the achievement in secondary school. Hence, secondary school plays a key role in the lives of every student.

It is for this reason that students' academic achievement in public secondary school should be paramount to educational stakeholders that want meaningful development socially, economically and politically in the country. Academic achievement is seen as one crucial measure of educational quality. Hence, academic achievement is a main issue among school administrators and managers, parents, teachers, students and the society at large. Ikpi, Enya and Johnny (2014) identified a lot of reasons for poor academic achievement among students. Some of these reasons include teaching methods, school type, location of school, instructional materials, teachers' quality and teaching experience, among others (Ikpi, Enya and Johnny, 2014). These could be the reasons for poor academic achievement among students in public secondary schools.

Academic achievement is defined as what the students have learnt. It is usually measured through standardized tests and performance assessments (Santrock, 2006). Academic achievement sometime refers to as academic performance in formal educational institution. Academic performance is the result of interactions among multiple indices such as teaching, teaching methods, intellectual capabilities of students, school environment, instructional materials and subject mastery by the teacher (Mangal, 2011). Parents care about

their children's performance because they are of the opinion that excellent results will bring about multiple career choices and job security. Likewise, schools invested in good academic performance for the same motive. It is believed that when their students excel in external examination, it is expected that school will not only gain recognition but also gain increase in enrolment size. High performance students also make school to be ranked among the best secondary school and minimize complaints by stakeholders.

In spite of this, observation shows that most public secondary school students perform low in core subjects in Senior Secondary Certificate Examination (SSCE). Ojurongbe (2012) reported that Nigerian secondary schools are characterized by low rate of students' academic achievement and this has brought national drawback. The researcher explained further that poor results in Mathematics and English language have continued to be stumbling-blocks in the realization of the educational and employment desire of many candidates because they represent a gateway to academic career. Odunsi (2015) equally observed that one of the hindrances to the development of education particularly secondary education in Nigeria is poor student academic performance in external examination. This is an indication that there is a downward trend in the students' academic achievement of public secondary schools. Komolafe and Yara (2010) confirmed that performance of students in core subjects, English language and Mathematics was considered to be low. The West African Examination Council -WAEC (2018) also stated that poor writing skill by students as one of the determinants attributed to students' poor performance in English language.

Table 1.1: Percentage of passes and failures in SSCE from 2017 to 2020 on the bases of a minimum of five credits including English Language and Mathematics in Oyo State

Year	Total no of Candidates	No of candidates with a minimum of five credits including English Language and Mathematics	% passed	No. of candidates without five credits including English Language and Mathematics	% failed
2017	53,850	28,852	53.58	24, 998	46.42
2018	65,340	24,742	37. 87	40, 598	62.13
2019	55,615	21,884	39.35	33,731	60.65
2020	44,430	18,844	42.41	25,586	57.59
2021	-	-	-	-	-

Source: Oyo State Ministry of Education, Science & Technology, 2020

Table 1.1 shows the performance of candidates who sat for SSCE from 2017 to 2021 in public secondary schools in Oyo state. The state recorded passes rates of 28,852, 24,742, 21,884 and 18,844 representing 53.6 in 2017, 37.9 in 2018, 39.4 in 2019, 42.41 and 2020 while 24,998, 40,598, 33, 731 and 25,586 candidates representing 46.4%, 62.1%, 60.7% and 57.6% failed the examination out of a total of 53,850, 65, 340, 55,615, 44,430 and 1117 candidates that sat for the SSCE. The analysis suggests that all is not well with students' academic achievement in secondary schools. Though, Oyo state performance above the average level in 2017 but there was decrease in percentage of candidate who obtained a minimum of five credits including English language and Mathematics from 2018 to 2020. Nevertheless, students' performance in both subjects is still poor because none of the years shows average performance of students. This implies that public secondary schools in Ibadan metropolis did not record percentages that are merely beyond average.

Teachers are expected to consider individual differences while teaching students in the classroom. Studies have revealed that gender is a significant factor to determine the students' performance in

learning task (Ofodu and Lawal, 2010). Available literature found that in some cases male students performed better than their female counterpart. Nevertheless, there is growing assumption that male and female students have different ways of learning and it is believed that both male and female students have good record of performance when they are taught separately. Olagbaju (2020) found out that cognitive style and gender were predictors of achievement of students in summary writing.

However, examinations conducted in May/June by the WAEC from 2007 to 2018 indicated that students' performance in public secondary schools in English language and Mathematics is on the high rate in Oyo State when compared with their counterpart in other states except in 2018 when the state recorded 37.89% of poor performance in both subjects (National Bureau of Statistics, 2019). This poor result can make it inconvenient for many admission seekers to gain admission into HEIs of their choice in Nigeria. The implication of this problem is that, most of the applicants who wrote SSCE may not be able to transit to HEIs because of their poor performance in the core subjects.

The public outcry of downward trend scenario of poor academic achievement of public secondary school students aroused eagerly to uncover identified root cause traced to electronic-examination. E-examination is a modern way of conducting examinations through the internet (Ayo, Akinyemi, Adebisi and Ekong, 2007). These researchers added that electronic examinations is also known as online examinations and formerly as computer-based assessment is seen as a system that deals with the examinations conducted through the internet. With the introduction of e-examination, it is expected that e-examination will improve student academic achievement.

Electronic examination might be the incitement for public secondary schools in helping their students for recording success (Alyahya and Almutairi, 2019). This type of modern way of examining students can acquire rapid results and improve academic performance of students. Alzu'bi (2015) used 58 students who offered English course to investigate the impact of electronic examination on achievement of students. The study showed that the scores of students were significant to academic achievement.

The adoption of web-based technology is a significant component of innovative trend that drive assessment of students. It is common nowadays to see some of the schools across the country use electronic examinations to admit students into secondary schools and HEIs (Sadiq and Onianwa, 2011). The use of e-examinations otherwise known as Computer Based Test (CBT) and Computer Based Assessment (CBA) for admitting students into HEIs, military training, and professional bodies, recruitment process, promotion, cannot be overestimated. The introduction of Information and Communication Technologies in education is expected to modify the traditional way of conducting examination in Nigeria. However, this will reduce the burden of teachers and ease the conduct of examinations.

E-examinations have advantages over paper-based tests. It is now common for most secondary schools and HEIs to use e-examination for their students through the internet. Similarly, different examination bodies like WAEC, National Examination Council and National Board for Technical Education. These bodies are expected to register their applicants through electronic means.

A large number of HEIs in Nigeria has implemented e-examination in order to reduce the stress being undergone by students during traditional paper-based test. Among these are Open and Distance Learning, National Open University of Nigeria and some other Nigerian institutions have adopted e-examination for registration of general courses, such as use of English, land use, agriculture and animal husbandry, science and technology, among others. These general courses are offered each semester in the HEIs and this e-examination has replaced paper-based assessment practices. The main aim of e-examination for difference courses is to evaluate achievement of students and provide automatic result. Alraja and Uddin (2016) opined that many HEIs have begun to consider electronic examination over traditional pencil and paper methods to enable a better learning and assessment of students.

However, previous studies (Ojurongbe, 2012; Omenka and Otor 2015; Olagbaju, 2020) have considered household factors, teachers' effectiveness, school location, cognitive styles and gender without due consideration to e-examination. The paper therefore investigated e-examination and student academic achievement in public secondary schools in Ibadan Metropolis, Oyo State, Nigeria

Statement of the Problem

It has been reported that students perform poorly in both Mathematics and English language in external examination in general, and in public schools in Ibadan Metropolis, Oyo state in particular. The implication of this poor performance could then lead to an inability of students to transit to HEIs, while future ambitions and expectations of parents, guidance and students may be jeopardised. Parents, teachers, curriculum experts, school administrators, government and the society at large have expressed considerable concern about the poor academic achievement of students as it is considered to be inimical to the overall aims and objectives of secondary education.

However, previous studies have focused on household factors, teachers' effectiveness and school location without due consideration to e-examination which seem to be a factor that was responsible for poor students' academic achievement in public secondary schools. This paper therefore, investigated e-examination and student academic achievement in public secondary schools in Ibadan Metropolis, Oyo state, Nigeria.

Purpose of the Study

Generally, the study examined the relationship between e-examination and student academic achievement of public secondary school students in Ibadan Metropolis, Oyo State. Specifically, it examined the level of student academic achievement and find out the degree to which e-examination has been adopted in public secondary schools in Ibadan Metropolis, Oyo State.

Research Questions

The following research questions were answered:

1. What is the level of student academic achievement (Mathematics and English language) in public secondary schools in Ibadan Metropolis, Oyo State?
2. To what degree has e-examination been practiced in public secondary schools in study area?

Hypotheses

The following hypotheses were tested:

Ho₁: There is no significant relationship between e-examination and student academic achievement in public secondary schools in Ibadan Metropolis, Oyo State.

Ho₂: There is no significant difference between academic achievement of male and female students in coverage area

Methodology

The study employed survey research design of ex-post facto type. The population comprised 143, 692 Senior Secondary School (SSS) Two students in 133 schools in the five LGs (Ibadan North-IN, Ibadan North-East-INE, Ibadan North-West-INW, Ibadan South-East-ISE and Ibadan South-West-ISW) in the study area, while 500 respondents were selected through multi-stage sampling procedure. Simple random sampling was used to select 49 (IN-13 and INW-36) secondary schools in IN and INW local governments respectively. Proportionate to size sampling technique was used to select 50% of public senior secondary schools in each local government. Purposive sampling technique was used to sample 20 students from SSS two students. These students were purposively chosen because they are preparing to move to the next class (terminal class) and write SSCE in which they must have covered 80% of their syllabus. Therefore, the sample size was made up of 2 local governments, 25 public senior secondary schools and 500 students.

E-examination Questionnaire (EQ) and Achievement Test (AT) for Mathematics and English language were the main instruments used to collect data from students. The researcher administered five hundred instruments to respondents. However, 420 instruments were successfully retrieved from the respondents. The EQ was designed with four Likert scale of Strongly Agree (SA) = 4; Agree (A) = 3; disagree (D) = 2; and Strongly Disagree (SD) = 1. The AT was carried out on English Language and Mathematics, questions were generated in accordance with the curriculum for senior secondary school III students. Each subject had 10 multiple choice questions. The Cronbach's coefficient of 0.75 obtained was considered reliable for the internal consistency of EQ. Descriptive statistics of standard deviation, mean, simple percentage and frequency count was used to answer research

questions, while hypotheses were tested through independent T-test and Pearson's Product Moment Correlation at 0.05 level of significance.

Presentation of Results

Research Question 1: What is the level of student academic achievement (English language Mathematics) in public secondary schools in Ibadan Metropolis, Oyo State?

Table 1: Level of Student Academic Achievement in Public Secondary Schools

English Language	Level	Range	Frequency	Percent
	Low	1-5	219	52.1
	High	6-10	201	47.9
Mathematics	Low	1-5	281	66.9
	High	6-10	139	33.1

The level of academic achievement in the core two subjects as shown in table 1 showed that 52.4% of the public secondary school students scored low in English language with frequency of 219 while 47.9% of the students sampled had high grade in English language. This showed that students' academic achievement in English language was low which can be interpreted as poor performance. The table also revealed that 66.9% of sampled students in achievement test had low academic performance in Mathematics, while 33.1% of respondents recorded high performance in Mathematics. This implies that majority of students had low performance in Mathematics which can also be interpreted as poor. Considering this analysis, the level of academic achievement of students in public secondary schools in Ibadan metropolis was poor. This finding is consistent with findings of Komolafe and Yara (2010) who reported that performance of students in Mathematics and English Language is very low. Similarly, this finding is in support of Ojurongbe (2012) and Odunsi (2015) who observed that secondary education are characterized by poor students' academic achievement in SSCE. This finding equally concurred with statement made by WAEC Chief Examiners (2018) that poor writing skill is one of the pointers that contributed to poor performance of students in English language. However, this finding negates the report of (National

Bureau of Statistics, 2019) who submitted that there was high rate of students' academic performance in external examination.

Research Question 2: To what degree has e-examination been practiced in public secondary schools in Ibadan Metropolis, Oyo State?

Table 2: E-Examination Practices in Public Secondary Schools in Ibadan Metropolis, Oyo State

S/N	Items	4	3	2	1	(\bar{x})	SD
1	ICT personnel are trained to conduct electronic examination in my school	255 (60.7)	118 (28.1)	32 (7.6)	15 (3.6)	3.46	0.785
2	There is well-equipped computer laboratory in my school	155 (36.9)	199 (47.4)	52 (12.4)	14 (3.3)	3.18	0.772
3	There are computers for examination in my school	219 (52.1)	129 (30.7)	56 (13.3)	11 (2.6)	3.30	0.882
4	Functional computers can accommodate the candidates of SSCE at once.	137 (32.6)	216 (51.4)	42 (10.0)	20 (4.8)	3.10	0.846
5	School is prepared adequately to conduct e-examination.	140 (33.3)	185 (44.0)	56 (13.3)	10 (0.8)	3.17	0.835
6	There is generator as a source of power supply to conduct electronic examination in my school	206 (49.0)	147 (35.0)	44 (10.5)	17 (4.0)	3.26	0.905
Weighted Average		3.89					

Key: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1

Decision bench mark=2.50

Table 2 indicates that a total number of 420 students responded to 10 items. The table showed that 80.8% of the respondents agreed that ICT personnel were trained to conduct electronic examination in their

schools ($\bar{X} = 3.46$), while 84.3% of the respondents agreed that there was well-equipped computer laboratory in their schools ($\bar{X} = 3.18$). More than 80.0% of the sampled students agreed that there were computers for examination in their schools ($\bar{X} = 3.30$).

The result also showed that functional computers in their schools can accommodate all the SSCE candidates at once ($\bar{X} = 3.10$). The table equally revealed that 77.3% of the respondents agreed that school is adequately prepared to conduct electronic examination ($\bar{X} = 3.17$). The result of the analysis also indicated that there was generator as a source of power supply to conduct electronic examination in their schools ($\bar{X} = 3.26$). Based on the result from the above table, the cluster mean of above items was accepted as all rated above 2.50 decision bench mark. This implies that respondents agreed to 10 items and the weighted average to all the items were 3.89 which is greater than the decision bench mark of 2.50. This indicated that the degree at which e-examination is being practiced in public secondary schools in Ibadan Metropolis, Oyo State was high. This result is consistent with statement made by (Alyahya and Almutairi, 2019) that electronic examination might be the catalyst for school to help their students for recording success.

Hypothesis 1: There is no significant relationship between e-examination and student academic achievement in public secondary schools in Ibadan Metropolis, Oyo State.

Table 3: E-Examination and Secondary School Students' Academic Achievement (English language and Mathematics) in Public Secondary Schools

Variable	N	Mean	Standard Deviation	r	P	Remarks
E-examination	420	32.0	5.91	0.29	0.000	Significant
Academic Achievement	420	9.56	4.46			

($P < .05$)

The results in table 3 indicated positive and significant relationship between e-examination and student academic achievement, $r = (29)$, 0.000 , $P < .05$. Based on this hypothesis which states that there is no significant relationship between e-examination and student academic achievement was therefore rejected. This revealed that significant relationship exists between e-examination and student academic achievement. This result supports the finding of Alzubi (2015) who found that the scores of students were significant to academic achievement.

Hypothesis 2: There is no significant difference between academic achievement of male and female students in Ibadan Metropolis, Oyo State

Table 4: Difference between Academic Achievement of Male and Female Students using Independent T-Test

Variables	N	Df	Mean	S.D	t	P	Decision
Male Students	203		1.41	0.494	0.496	.325	Accept
Female Students	217	418	1.44	0.497			(H_{01})

$P > 0.05$

The result in table 4 revealed that male students had a mean score and standard deviation of 1.41 and 0.494 respectively while female ones had a mean score of 1.44 with standard deviation of 0.497 indicating that, no significant difference in the mean score of male and female students ($t = 0.496$; $df = 418$; $p > .05$). Therefore, the null hypothesis was accepted, showing that no significant difference in the student

academic achievement between male and female in Ibadan metropolis, Oyo State. The result is in line with the submission of Oladejo, Olosunde, Ojebisi and Isola (2011) who revealed that gender had no significant effects on the students' academic achievement in Physics. However, this study contradicts the finding of Ofodu and Lawal (2010) that showed that gender is a significant factor in predicting the students' performance in learning tasks.

Conclusion

The study concluded that responses derived from the research questions showed that student academic achievement was generally poor in both English language and Mathematics and this has implication on social vices. It was also established that academic achievement of female and male students is the same. This implies that both male and female students have the same record of academic achievement when they are taught under the same classroom and teachers. Likewise, e-examination could solve the associated problems with the traditional methods.

Recommendations

Government and other stakeholders in education sector should place more priority on student academic achievement of public secondary schools especially senior classes since it is means of proceeding to next level of education. E-examination should be seen as way of curbing with academic achievement of students. Equal treatment should be given to both male and female students in Nigerian public secondary schools for effective interaction in the classroom.

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