

COMPUTER UTILIZATION AND STUDENTS' ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS IN ILORIN-WEST LOCAL GOVERNMENT AREA, KWARA STATE: MANAGEMENT IMPLICATIONS

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### Abstract

*This study investigated the influence of computer utilization on students' academic performance in secondary schools in Ilorin-West Local Government Area of Kwara State. The research design used was a descriptive survey of correlational type. Four hundred secondary school students were randomly selected as respondents. The instrument used to collect data for this study was questionnaire titled "Computer Utilization and Students' Academic Performance Questionnaire" (CUSAPQ). Three research hypotheses were formulated and tested using t-test and ANOVA at 0.05 level of significance. The findings revealed that there was a significant relationship between computer utilization and students' academic performance based on gender, class and parental economic status. It was concluded that gender, class and parental economic status play an important role in the academic performance of students when subjected to utilization of computer in their learning process. To this end, it was recommended that parents, teachers, school management and government bodies should always put into consideration, these three factors, when students are to make use of computer in their learning processes.*

**Keywords:** *Computer, Utilization, Students, Academic performance and Management*

### Introduction

The significance of computers cannot be overemphasized in education. Computers have been generally accepted as modern instruments that enable the teachers/lecturers to select the teaching methods that will increase students' (learners') interest in learning (Salako *et al.*, 2015). Computer is an electromechanical device designed to sequentially accept, process and store data on the basis of set of instructions to produce useful information. The students' academic performance can be referred to as the competencies, skills acquired and attitudes learned through the education experience. According to Aharon (2013), the fast progress of technology and its wide integration in education has been changed in recent years. The advancement in technology has facilitated in the development of many Information and Communication Technology (ICT) tools that necessary and useful in education. According to Oye *et al.* (2012), the knowledge of ICT usage improves human capacity in every fields of endeavour such as educational programmes and activities. In the last two decades, the educational institutions have invested heavily on ICT tools by procuring facilities such as projectors, installation of internet facilities and importantly the purchase of computers for teaching and learning processes. The advantages of using technology in education include: making learner more interested, decreases learning time and provide opportunities to learn in non-traditional methods (Abbas, 2013).

Students' academic performance represents students' outcomes in both internal and external examinations. It is a tool that could be used to measure the extent to which students have mastered a given content at a particular time. Approved examination bodies like West Africa Examination Council (WAEC), National Examination Council (NECO) and National Business and Technical Examinations Board (NABTEB) among others conduct Senior School Certificate Examinations on yearly basis. These examination bodies certificate students to portray their level of mastery of subjects offered at this level of education. The direct link between computer as resource utilization and students' academic performance was in the heart of an extensive literature during the last two decades. Several

studies have tried to explain the roles and the added values of those technologies in classrooms and on students' performance (Salako *et al.*, 2015). Since the internet revolution, there is a shift in the literature that focuses more on the impact of online activities; use of internet; use of educative online platforms; digital devices such as phones, calculators etc. in education. These new technologies are central to contemporary society and therefore referred to this era as information technology age. Rockoff (2010) pointed out that the education community is not left out in the consequences of computer utilization on academic performance of students.

Olobamise (2014) showed the factors that affect students' academic performance which include teachers' characteristics, students' characteristics, educational environment, selection of teaching/instructional aids, utilization of instructional materials/resources, selection of suitable teaching methods, government policies on education, etc. Leuven (2013) showed that there is no evidence relationship between increased educational use of computers and students' performance. In fact, his findings showed a consistently negative and marginally significant relationship between computers' applications and some students' achievement. Kulik (2010) revealed that on average, students who use computer-based instruction scored higher than students without computers. The students also learnt more in less time. Thus, this paper examined the influence on computer utilization on students' academic performance in Ilorin-West Local Government Area of Kwara State.

### Statement of the Problem

Ineffective of computers in secondary schools has been a major concern to stakeholders in education. Majority of available computers are not functioning which has been negatively affecting students' academic performance. The performance of students over the years in both internal and external examinations in secondary schools in Ilorin-West Local Government Area of Kwara State has been dwindling. Some students use computers to increase their leisure time and have less time to study. Online gaming and increased communication channels do not necessarily mean increased academic performance.

### Research Objectives

The following are the objectives of this study:

- i. To examine the influence of computer utilization on academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on gender.
- ii. To examine the influence of computer utilization on academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on class.
- iii. To examine the influence of computer utilization on academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on parental economic status.

### Research Hypotheses

Ho<sub>1</sub>: There is no significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on gender.

Ho<sub>2</sub>: There is no significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin West Local Government Area of Kwara State based on class.

Ho<sub>3</sub>: There is no significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin West Local Government Area of Kwara State based on parental economic status.

### Review of Related Literature

Mehdipour, & Zerehkafi, (2013) argued that the benefits of using computer in education from teachers and students perspectives is sometimes negative since computer in education leads to increased moral degradation within the local communities, from computer uses now days students are affected by internet pornography, cyber bullying and other anti-social behaviors is a worrying emerging problem to the uses of computer for education. ICT is a priority in global education and Nigeria is not left out. The Federal government of Nigeria in the National Policy on Education (FRN, Revised 2014) recognizes ICT as a product of technological change and as an innovation in education (Nwana *et.al.*, 2017). It is in this view that Computer Education was introduced as an integral part of ICT in the Nigerian educational system. The main purpose was for acquisition of computer literacy and computer skills that are needed in all facets of human life in the 21st century. For instance, the media houses viz: radio, television and newspapers are connected to the internet for reading the news online. In the same way it was viewed that the curriculum contents should be read online (Nwana *et.al.* 2017). The author further aptly pointed out that, the new curriculum is ICT – driven with emphasis on practical, concrete and hands – on experiences. Also (Pandolfini, 2016) remarked that both the teachers and the students should achieve better curriculum outcomes with the use of ICT resources.

According to (European Commission, 2015), educational innovation is considered as a top priority all over the world, and the potential for Information and Communication Technology (ICT) to foster it increasingly is recognized. The Europe 2020 strategy acknowledges that an essential change of education and training is needed to address the skills and competences that will be required to remain competitive, overcome the current economic crisis and grasp new opportunities. The new priorities for European cooperation in education and training report (European Commission, 2015), drafted within the Education and Training 2020 strategic framework, identifies six new priorities that include improving people's skills and employment prospects and creating open, innovative and digital learning environments, at the same time cultivating fundamental values of equality, non-discrimination and active citizenship. So, innovating in education and training is a key priority of European Union member states and is linked directly to the Europe 2020 educational headline targets regarding early school leaving and tertiary attainment levels (Kampylis, 2012). In such a scenario, it is important first to specify what educational innovation means. The OECD/Centre for Educational Research and Innovation (OECD/CERI) defines educational innovation as 'any dynamic change intended to add value to the educational processes and resulting in measurable outcomes, be that in terms of stakeholder satisfaction or educational performance (Pandolfini, 2016). This widely diffused definition means that educational innovation cannot be simply something new but it must be a change that creates a positive value.

Psychological factors are important in educational research; they have been linked with improving student academic performance (Fernandez-Castillo & Gutierrez, 2009; Ruiz & Lupianez, 2009). Psychological factors are also important in correcting deviant behaviours of young people (Scandroglio, Lopez-Martinex, Jose, 2008). Therefore, in considering computer utilization, it is important to consider psychological factor like computer anxiety. Studies have shown that computer anxiety, lack of confidence, and lack of enjoyment influence both the acceptance of computers and their use as teaching and learning tools (Fletcher & Deeds, 1994; Gressard & Loyd, 1986). The need to therefore disabuse the mind of both teachers and their students from such fears and replace these misconceptions with confidence-building measures is more than ever paramount. In this regard, computer ownership and computer experience are two very important and interrelated factors that can help in mitigating fear and anxiety about computers from the minds of teachers and students. The teacher if guaranteed total access and freedom to experiment with the use of a computer as a teaching tool, then comes the reciprocal outcome of computer experience that provides the technical know-how and the intellectual ability to manipulate and discover the pedagogical power of the computer. The importance of knowledge and experience in the use of computer have been echoed and reiterated in many studies. Loyd and Gressard (1984) asserted that computer experience is gaining wide recognition as crucial component of the educational process.

Anxiety by definition is intense dread, apprehension, or worry. Computer anxiety as defined by Carlson and Wright (1993) is the fear of impending interaction with a computer that is disproportionate to the actual threat presented by the computer. Computer anxiety is a concept specific anxiety type, which regularly occurs in a specific type of situation (Harris & Grandgenett, 1997). Computer anxiety has been associated with decrease use and worse, avoidance of information technology. Avoidance can seriously affect some students' academic progress, lower performance in business settings and ultimately affect career opportunities (Brown & Vician, 1997). Those who have computer anxiety may experience fear of the unknown, feeling of frustration, possible embarrassment, failure and disappointment (Fajou, 1997). Carpenter (2011) noted that Technology has invaded every aspect of our lives, including the school. Many educators incorporate technology into the classroom any way they can, and classrooms often include a computer for students to share. Students who learn in a classroom with computer access gain a number of educational advantages. From expanding their world views to engaging in projects with their peers, students with computer access stay well connected with the benefits of Access to More Information, increased Likelihood to Write, improved Technology Skills, Collaborative/Group Learning and learning Enhancement.

Oviawe and Oshio (2011) and Mike (2003), in their findings of the studies revealed that ICT facilities serve as a major contributor to effective teaching and learning. Mbaeze, Ukwandu and Anugu (2010), posited that there is influence of information and communication technology (ICT) on students' academic performance. Students ought to have been exposed to technology in the class room daily to have computer knowledge. It is the job of all educators to facilitate computer literacy for no society can grow to its fullest without computer literacy in the whole world today. Oseghale & John, 2014, based on the findings of their study, concluded that it is true that students computer literacy utilization enhances their academic performance in secondary schools generally, that computer literate students perform better academically than the non-computer literate, that female computer literate students perform better academically than the male counter-part, that the non-computer addicted students perform better

academically than the addicted ones, and that the literate computer students in co-educational secondary schools perform slightly better than those in the single sex secondary schools.

### Methodology

A descriptive research design was used in the study. This allowed the researchers to describe situations as they existed. There were total of 35 public secondary schools out of which four were randomly selected. Four hundred students were also randomly selected out of these four secondary schools. These four secondary schools have students population each of 462, 592, 364 and 379 respectively, making a total population of 1,797 students. To determine the required sample size for the population, Taro Yamane's (1967) statistical formula was used to determine the adequate sample size of 1,797 Respondents. The formula is given as follows:  $n = \frac{N}{1+N(e^2)}$ .

Questionnaire tagged "Computer Utilization and Students' Academic Performance Questionnaire" (CUSAPQ) was used to elicit information from the respondents. This consisted of two sections (section A & B), section A dealt with respondents' personal data such as, name of school, gender, and class and parental status. Section B deals with measurable variables about the topic under the study. A copy of the questionnaire was given to experts in the areas of Educational Measurement and evaluation. The instrument was subjected to test re-test method of reliability. The coefficient of 0.81 reliability was obtained and this was adjudged to be reliable for the conduct of the study.

The questionnaire was administered by the researchers and two research assistants complemented the efforts of the researchers. Inferential statistics of t-test and ANOVA were used in data analysis. All hypotheses were tested at 0.05 level of significance.

### Results

Ho<sub>1</sub>: There is no significant relationship computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on gender.

**Table 1: Computer Utilization and Academic Performance Based on Gender**

Variable	N	Mean	SD	df	Cal. t-value	Cal. p-value	Decision
Male	211	2.99	1.39	398	6.421	0.000	<i>H<sub>0</sub></i> Rejected
Female	189	2.27	0.84				

Table 1 shows the influence of computer utilization on academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on gender. The calculated p-value (0.000) is less than the set p-value (0.05) for 398 degrees of freedom. Hence, the null hypothesis is rejected. This implies that there was a significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on gender.

Ho<sub>2</sub>: There is no significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on class.

**Table 2: Computer Utilization and Academic Performance Based on Class**

	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between Groups	475.838	2	237.919	1133.605	0.000	<i>H<sub>0</sub></i> Rejected
Within Groups	83.322	397	0.210			
Total	559.160	399				

Table 2 shows the influence of computer utilization on academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on class. The calculated f-value (0.000) is less than the set F-value (0.05) for 398 degrees of freedom. Hence, the null hypothesis is rejected. This means that there was a significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on class.

Ho<sub>3</sub>: There is no significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on parental economic status.

**Table 3: Computer Utilization and Academic Performance Based on Parental Economic Status**

	Sum of Squares	DF	Mean Square	F	Sig.	Decision
Between Groups	334.944	2	167.472			
Within Groups	224.216	397	.565	296.529	.000	$H_0$ Rejected
Total	559.160	399				

Table 3 shows the influence of computer utilization on academic performance of Secondary School Students in Ilorin West Local Government Area of Kwara State based on parental economic status. The calculated f-value (0.000) is less than the set f-value (0.05) for 398 degrees of freedom. Hence, the null hypothesis is rejected. This implies that there was a significant relationship between computer utilization and academic performance of Secondary School Students in Ilorin-West Local Government Area of Kwara State based on parental economic status.

### Discussion

The findings from this study are quite revealing. The result revealed that the use of computer help the student of Ilorin-West Local Government Area of Kwara State to: improve their quality of work with deeper focus and concentration, enhance their rate of assimilation, increases retention of information, help students to develop effective communication techniques, enhance their computational skills and logical reasoning, allow students to learn independently, fascinate students and make learning interesting, give students more control in the classroom, make learning fast, encourages use of peer coaching and review of lessons, makes it easier to access educational resources towards achieving academic excellence, help students to support abstract issues or topics in teaching and learning process, provide meaningful and useful sources of information to learners, helps in them in developing a continuity of reasoning and coherence of thought, save time and reduces repetition of words, improve teaching and learning techniques, promote closer academic relations between teachers and students and enhance students' participation in the learning process. This is inline with the findings of Johnson& Christensen(2012) that computer will assist the students to perform better in the examinations. Abbas (2013) submitted that the use of information and communication technology will go a long way to assist both the teachers and students. According to Coates and Humphreys (2009), online instruction enables the students to effectively make use of the computer system.

However, the findings further show that there was significant relationship between computer utilization and academic performance based on gender, class and parental economic status. Students that their parents are middle or upper class in economic status performs better than students whose parents are of lower class economic status. This is based on the fact that parents of students in upper class can afford personal computers for their children to complement what they have learnt at school (Nwana, Ofoegbu& Egbe, 2017). The role of gender, class and parental economic status cannot be underscored in students mastering of the use of computer in secondary schools (Salako, Solomon & Muhammed, 2015).

### Management Implications

It is a truism to assert that educational managers will find it interesting when computer utilisation among teachers and students bring about high academic excellence. When available computers are put into effective use for teaching and learning, it will reduce wastage in terms of repetition and students drop outs in the school system.

### Conclusion

The use of computer for learning purposes has become very popular all around the world due to a great development of technology in recent years. The study showed that a significant relationship existed between computer utilization and academic performance of secondary school students in Ilorin West Local Government Area of Kwara State, Nigeria based on gender, class and parental economic status. Thus, gender, class and parental economic status play a very important role in determining the academic performance of secondary school students when it comes to computer utilization in their learning process.

### Recommendations

In the light of the findings of this study, the following recommendations were offered:

- i. These three factors: gender, class and parental status should always be considered while teachers are trying to discharge their duties through the use of computer so as to carry every student along.

- ii. The stakeholders (Ilorin West Ministry of Education Authorities, teachers, parents and guardians) should try and pay more attention to the female folks. Both male and female students need to be guided properly on the utilization of computer for academic purposes.
- iii. Students, especially those willing to record huge academic success should pay more attention to their ability to use computer for their academic activities.

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