# Impact of Computer Literacy on Secondary School Students Achievement in Computer Science in Makurdi Local Government Area

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*Abstract:* **This Study investigates the impact of computer literacy on Secondary School students achievement in computer science.Three research questions were asked in the study and 2 research hypotheses were formulated and tested at 0.05 level of significance. This study used causal comparative design**. **The area of study is Makurdi Local Government Area of Benue State, Nigeria. Makurdi is the capital of Benue State**. **The target population for this study consisted of final year senior secondary school 3 students in Makurdi, Benue state. The sample of 60 students was randomly selected from the population of 1, 200 students. The sample size for the study is 60 Senior Secondary School 3 students. The sample was determined using random sampling techniques.The questionnaire titled Impact of Computer Literacy on Academic Achievement of Secondary School Students in Computer Science Questionnaire is made up of two sections. Section A and section B. Section A is concerned with bio data of the student while section B is made up of six (6) items. The instrument was validated and a pilot test was carried out in a school outside the target schools for the study and the reliability of the instrument was determined. The research questions were answered using mean and standard deviation while the hypothesis was tested using T-test. The study shows that there is significant impact of computer literacy on secondary school students achievement in computer science and also that there is a significant impact of computer literacy on male and female secondary school students achievement in computer science.**

*Keywords:* **computer literacy, achievement, computer science and gender**

## I. INTRODUCTION

In a rapidly changing world, basic education is essential for a student to be able to access and apply information. Computer science is the study of algorithmic processes, computational machines and computation itself. As a discipline, computer science spans a range of topics from theoretical studies of algorithms, computation and information to the practical issues of implementing computational systems in hardware and software. Computer science in secondary school is an increasing interest and concern to educators as well as to computer science professionals (Eme *et al*., 2015).

Computer literacy as an essential program in schools from elementary to high school which teaches students how to use computer and navigate some computer programs. The addition of computer literacy in the education system has not

only been found to improve access to learning by all and the quality of knowledge delivery, its application has likewise been effective in the teaching-learning process (Robert, 2005; Kareem, 2015).

skills, increase Several studies (Serin, 2011; Karamti, 2016; Cakiroglu *et al*., 2017) suggest that computer knowledge improves learners' performance, develops their problem-solving their satisfaction among others. High rate of access to computing technology and computers by learners (such as tablets, smartphones, and e-book readers) which Prensky (2001) referred to as 'digital natives' have led policy makers and even learners themselves to conclude that learners entering higher institutions are already computer literate and thus computer literacy training is not necessary (Mark, 2013; Cakiroglu *et al*., 2017).

Essentially, gender refers to sets of relationships attributes, roles, beliefs and attitudes that define what being a man or a woman is within the society. It is a socially ascribed attribute as opposed to sex which is a biological attribute (Oghiagbephan & Asamaigo, 2010). As a result of gender roles assigned by different cultures many women have been brought up to see technology and its use as reserved for on the male gender. According to Munusamy & Ismail (2009) women look at computers and see more than machines, thus considering computers as masculine and complicated to use. According to Asuquo & Onasanya (2006), many factors in and outside the classroom result in girls being turned away from computer technology.

The following research questions will guide this study:

i.   What is the computer literacy level of secondary school students in Makurdi Metropolis?
ii.  What is the impact of thecomputer literacy on the academic achievement of secondary schoolstudents in Makurdi Metropolis?
iii. How is computer literacy skill acquired by libraryusers?
iv.  What is the impact of computer literacy on male and female secondary schoolstudent's achievement in computer science in Makurdi Metropolis?

The following hypothesis will be formulated and tested at 5% level of significance.

v.   $H_{01}$: Computer literacy has no significant impact on secondary school students' achievement in computer science.

vi.   $H_{02}$: There is no significant difference in the impact of computer literacy on male and female secondary school student achievement with a 0.05 level of significance.

## II. METHODOLOGY

This study used causal comparative design. The area of study is Makurdi Local Government Area of Benue State, Nigeria. Makurdi is the capital of Benue State**.** The target population for this study consisted of final year senior secondary school 3 students in Makurdi, Benue state. The sample of 60 students was randomly selected from the population of 1, 200 students. The sample size for the study is 60 Senior Secondary School 3 students. The sample was determined using random sampling techniques. The choice of the schools was purposive in that they had to have computers used for instructional purposes and that the rest of the schools were without computers and are not part of the sample size of this study. The research instruments used were questionnaire and proforma. The questionnaire titled Impact of Computer Literacy on Academic Achievement of Secondary School Students in Computer Science Questionnaire is made up of two sections. Section A and section B. Section A is concerned with bio data of the student while section B is made up of six (6) items. Three experts will validate the instruments. Test and measurement expert, computer lecturer and secondary school computer teacher. Pilot test was carried out on the instruments to determined its reliability. findings helped to improve the instrument items before the actual research wasdone.

The researcher with the help of the research assistant will administer the instruments and collect the data for analysis. The research questions were answered using mean and standard deviation while the hypothesis was tested using T-test at 0.05 level of significance.

## III. RESULTS

*Research Question 1*

What is the computer literacy level of secondary school students in Makurdi metropolis?

Table 1: Mean and Standard deviation of the response to the level of computer literacy of secondary school students

| S/N | Items | $\bar{x}$ | SD | Remark |
|---|---|---|---|---|
| 1. | I can identify hardware components | 3.60 | 0.49 | Agreed |
| 2. | I  know the use of hardware components | 3.20 | 0.61 | Agreed |
| 3. | I know how to boot a computer system | 2.50 | 0.93 | Agreed |
| 4 | I can use Microsoft word | 2.50 | 0.81 | Agreed |
| 5 | I can explore the internet | 2.80 | 0.76 | agreed |
| 6 | I can make simple graphic designs, save and print out files | 2.20 | 0.40 | disagreed |
| | Grand mean | 2.80 | | Agreed |

Table 1 shows the level of computer literacy of secondary school students. Item one (1) which says I can identify hardware components is accepted with a high mean of 3.60 which is greater than 2.5 and a standard deviation of 0.49. Item two (2) which says I know the use of hardware components had a mean score of 3.20 which is greater than 2.5, with a standard deviation of 0.61. Hence, item two is accepted. Item three (3) which says I know how to boot a computer system is accepted with a mean of 2.50 and a standard deviation of 0.93. Item four (4) which says I can use Microsoft word is also accepted with a mean score of 2.50 and a standard deviation of 0.76. Item five (5) which says I can explore the internet had the highest mean score of 2.80 with a standard deviation of 0.76. Hence item five (5) is accepted. Item six (6) which says I can make simple graphic designs, save and print out files had the lowest mean score of 2.20<2.50 with a standard deviation of 0.40. Hence item six (6) is rejected. The Grand mean in is 2.80 which shows that, Secondary school students have a high literacy level of computer.

*Research question 2*

What is the impact of computer literacy on the academic achievement of secondary school students in computer science in Makurdi Metropolis?

Table 2: Mean and Standard deviation of the response to the impact of computer literacy on the academic achievement of secondary school students in computer science

| Item | N | $\bar{x}$ | SD |
|---|---|---|---|
| Literacy | 60 | 2.80 | 2.916 |
| Achievement | 60 | 61.02 | 11.859 |

Table 2 shows that the mean of the computer literacy is 16.80 with a standard deviation of 2.916 and the mean and standard deviation for the student achievement is 61.02 and 11.859 respectively.The mean for literacy is greater than 2.50 and the mean for achievement is above average which implies that computer literacy has a positive impact on the achievement of secondary school student in computer science.

*Research question 3*

What is the impact of computer literacy on male and female secondary school student's achievement in computer science in Makurdi metropolis?

Table 3: Mean and Standard deviation of  the impact of computer science literacy on male and female secondary school student's achievement in computer science

| Item | N | Literacy mean $\bar{x}$ | SD | Achievement mean $\bar{x}$ | SD |
|---|---|---|---|---|---|
| Male | 36 | 2.70 | 2.597 | 59.75 | 12.661 |
| Female | 24 | 2.80 | 2.68 | 62.92 | 10.513 |

Table 3 shows that the mean of the male achievement is 59.75 with a standard deviation of 12.661 and the mean and standard deviation for the female achievement is 62.92 and 10.513 respectively the both mean is greater than 2.50.the literacy mean for the male and female is 16.33 and 17.50 which implies that computer literacy have an impact on the achievement of secondary school student in computer science. Although the female students have more computer literacy and achievement than the male student because of their higher literacy mean and achievement mean of 17.50 and 62.92 respectively.

*Hypothesis 1*

Computer literacy has no significant impact on secondary school student's achievement in computer science

Table 4: T-test showing the analysis of the impact of computer literacy on student's achievement in computer science

| Variable | Mean | Std. Deviation | Std Error mean | Df | T cal | Sig |
|---|---|---|---|---|---|---|
| achievement-literacy | 44.207 | 11.994 | 1.22 | 59 | 28.555 | 0.00 |

Table 4 shows that the Sig (-value) is 0.00. Hence Sig < 0.05, the null hypothesis is rejected. This implies that There is a significant impact of computer literacy on secondary school student's achievement in computer science.

*Hypothesis 2*

There is no significant difference in the impact of computer literacy on male and female secondary school students achievement in computer science.

Table 5: T-test showing the analysis of the impact of computer literacy on Male and Female secondary student's achievement in computer science

| Variable | Mean | Std. Deviation | Std Error mean | Df | T cal | Sig |
|---|---|---|---|---|---|---|
| achievement-gender | 60.417 | 11.934 | 1.541 | 59 | 39.215 | 0.00 |

Table 5 shows that the Sig value is 0.00. Hence Sig<0.05, the null hypothesis is rejected. This implies that There is a significant impact of computer literacy on male and female secondary school student student's achievement in computer science.This difference is in favor of the female students as reflected.It implies that female students have a higher achievement in computer literacy than male.

## IV. CONCLUSION

Table 1 shows the level of computer literacy of secondary school students. Item one (1) which says I can identify hardware components is accepted with a high mean of 3.60 which is greater than 2.5 and a standard deviation of 0.49. Item two (2) which says I know the use of hardware components had a mean score of 3.20 which is greater than 2.5, with a standard deviation of 0.61. Hence, item two is accepted. Item three (3) which says I know how to boot a computer system is accepted with a mean of 2.50 and a

standard deviation of 0.93. Item four (4) which says I can use Microsoft word is also accepted with a mean score of 2.50 and a standard deviation of 0.76. Item five (5) which says I can explore the internet had the highest mean score of 2.80 with a standard deviation of 0.76. Hence item five (5) is accepted. Item six (6) which says I can make simple graphic designs, save and print out files had the lowest mean score of 2.20<2.50 with a standard deviation of 0.40. Hence item six (6) is rejected. The Grand mean in is 2.80 which shows that, Secondary school students have a high literacy level of computer.

Table 2 shows that the mean of the computer literacy is 2.80 with a standard deviation of 2.916 and the mean and standard deviation for the student achievement is 61.02 and 11.859 respectively.The mean for literacy is greater than 2.50 and the mean for achievement is above average which implies that computer literacy has a positive impact on the achievement of secondary school student in computer science. Table 4 shows that the Sig (-value) is 0.00. Hence Sig < 0.05, the null hypothesis is rejected. This implies that There is a significant impact of computer literacy on secondary school student's achievement in computer science.

Table 3 shows that the mean of the male achievement is 59.75 with a standard deviation of 12.661 and the mean and standard deviation for the female achievement is 62.92 and 10.513 respectively.Themean for literacy is greater than 2.50. The literacy mean for the male and female is 2.70 and 2.80 which implies that computer literacy has an impact on the achievement of secondary school student in computer science. Although the female students have more computer literacy and achievement than the male student because of their higher literacy mean and achievement mean of 17.50 and 62.92 respectively. Table 5 shows that the Sig value is 0.00. Hence Sig<0.05, the null hypothesis is rejected. This implies that There is a significant impact of computer literacy on male and female secondary school, however more on females student's achievement in computer science.

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