

COMPUTER LITERACY SKILLS COMPETENCY AND E-EXAMINATIONS AMONG SECONDARY SCHOOL STUDENTS IN ODOGBOLU LOCAL GOVERNMENT AREA OF OGUN STATE

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Abstract

E-assessment is beginning to emerge in contemporary times in the technological age. As a result, students need to be computer literate and possess the skills needed in the use of the computer. Students are also expected to be able to make use of the internet to surf for information that will help them to excel academically. Therefore, this study assesses the computer literacy skills of secondary school students in Odogbolu Local Government Area of Ogun State. The descriptive survey method was used. Two hundred and fifty students were randomly selected from ten schools. The instrument used for the study was "Computer Literacy Skills Questionnaire" (CLSQ) which consisted of forty (40) items with a reliability coefficient of 0.65. The findings show that 60.4% of the students could use

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Microsoft word; 39.6% could use Microsoft excel; 24.4% Microsoft PowerPoint; 28.0% Microsoft accesses, and 36.0 Corel draw. It was also revealed that out of the 13 functions highlighted, a majority of the students, ranging between 51.6% and 66.8%, had never used eight of the functions. A minority of the students (14.4%) used the 13 functions every day or almost every day. It follows, therefore, that majority of the students did not surf the internet to obtain information. In addition, findings show that there was no significant difference in male and female levels of computer literacy and skills. To improve computer literacy and the ability which shows the skill, there is a need for the development of ICT friendly curriculum in computer studies and other school subjects; the training of teachers should be in line with the latest development in ICT and Education in Nigeria.

Keywords: Assessment, Computer literacy, Computer skills.

INTRODUCTION

Technology offers many new opportunities for innovation in instructional delivery and assessment through potentially powerful scoring, reporting and real-time feedback mechanisms. The benefit of technology has led to the introduction of the Computer-Based Test (CBT) which is increasingly used for the assessment of students' knowledge in many examinations. Goshit (2006) observed that CBT has emerged as one of the recent innovative approaches to assessments. However, reports, according to Murray and Blyth (2011), showed that students lacked competence in using several computer applications, including word-processing, spreadsheets and presentation software tools, and this may constitute jeopardy in the performance of students in such assessments.

Nonetheless, recent national and global developments have made computer literacy skills a requirement for all individuals, particularly students. Such developments include the introduction of the Computer Based Test

(CBT), which is a computer-based examination that requires adequate computer literacy skills to complete examinations, such as the yearly Unified Tertiary Matriculation Examination (UTME) conducted by the Joint Admissions and Matriculation Board (JAMB). As a result of the national and global development mentioned, it is necessary for students to acquire computer literacy skills (FGN, 2014)

Computer literacy is the ability to use the computer and identify some major components of the computer system, such as the monitor, keyboard, mouse, and system unit, among others. An individual is said to be computer literate only when he or she has knowledge of internet usage and can use the computer system to perform different functions, including e-examination. According to Mason and McMorrow (2006), there are two distinct components to computer literacy: awareness and competence. Awareness requires a person to have an understanding of how computers impact their day-to-day life, as well as the larger society, while competence is the ability to use the computer to perform different tasks, including e-examination.

According to Li (2008), as cited in Alakpodia (2014), computer literacy is the experience, ability and skill to operate computer software and hardware. It is the knowledge about the fundamentals of the internet (that is, what is Internet? What are the services offered by the Internet?); knowledge related to computer concepts, such as social, ethical and legal issues. However, according to Michael & Igenewari (2018), computer literacy is the knowledge and ability to efficiently use the computer. It can also refer to the comfort level in which someone can use the computer and its application in solving specific problems. It involves being able to operate the computer efficiently without aid and manipulate the software associated with it– Identifying computer parts; powering up and powering down the computer; opening and saving files; recognise different file types; skills in word processing – create/save/print documents; insert tables/charts/labels/symbols; format page layout (margins, page numbers, page borders); skills in spreadsheets – create/save/print spreadsheets; insert tables/charts; insert functions/formulas; skills in presentation graphics – create/save/print slide shows; insert new slide/layout/tables/charts; create ani-

mations; skills in databases – design basic databases with query and report/form; skills in internet and e-mail – surfing the Internet and sending e-mail messages.

The role of computer literacy in the life of every average Nigerian student cannot be underestimated. Idowu, Adagunodo and Idowu (2004) indicated that knowledge, skills and confidence with computer technology are now an asset for entering the competitive employment market. They pointed out that every aspect of life from education, leisure and work environment to social interactions is influenced by computer knowledge and skills. With the increasing use of Information Communication Technology (ICT) in education globally, new skills and competencies among students are required to learn and make progress. In Nigeria today, computer skills have become so important that students who are deficient in them are likely to lag further behind their peers who are proficient in them. To be successful in academic programmes and careers, according to Ilyyas (2016), it is essential that students possess improved computer skills.

Most universities have also adopted the use of the computer in conducting examinations and in course registration. Therefore, it becomes imperative that students should be equipped with literacy competencies to be able to function effectively in the changing world. Notably, some Nigerian state governments have implemented some sort of computer literacy instruction in secondary schools to prepare students for the obstacles that lie ahead in their academic pursuits; however, the impact has yet to be determined (Adomi & Kpangban, 2010).

The Internet in education is a two-edged sword since it benefits both students and instructors by allowing them to access information, and it also allows users to share their knowledge with others across the world via social media. Internet, if appropriately used by students, can motivate them in the learning process. This is because it captures their attention and prevents them from being bored. Again, online education and self-education are enhanced through the use of the internet (Adil, 2021). This was the experience during the outbreak of COVID-19 when some schools had to adopt online classes. However, many schools and many students could not benefit from this type of education then because they were un-

skilled in the use of the internet. Moreover, in some schools where virtual teaching was in place, it was observed that some students/pupils, particularly female students, were having challenges coping with virtual learning (Agbatogun & Oyewusi, 2009)

Furthermore, previous studies with respect to gender and computer access and usage indicate that there is a persistent gender difference in computer attitude (Kumar & Kumar, 2008; Alakpodia, 2014); girls are less enthusiastic than boys. Levin & Gordon, cited in Agbatogun & Oyewusi (2009), found that men and boys had a significantly more positive attitude towards the computer and more stereotyped attitudes regarding who is capable of using them. Male students had a higher level of computer software use than female students. This finding aligns with Tella & Mutula (2008) who pointed out in their study that there was a marked significant gender difference in the application of the computer by male and female subjects. Males have more confidence in using technology for learning than do female students (Norazah, (2014); Timothy & Sani (2020). Uzoechi (2015) found that male students were better than their female counterparts in skills acquisition of communication skills, planning and organisation, self-management, decision-making, computer skill and overall employability skills; males are less anxious and more confident about computer usage. Recent studies on gender differences in computer literacy however show equal performance by both genders or even higher performance by female students (Egunjobi & Fabunmi (2017); Eveline, Sue, Joha, & Kyline (2019).

Nonetheless, the acquisition of computer skills is germane for every student irrespective of their gender particularly when the skill is needed for use during e-examinations and job proficiency. Employees need to be computer literate because they are sometimes expected to communicate through email, participate in the discussion board, analyse data, use SPSS, and make presentations using PowerPoint. Hence, this study, therefore, sets to assess the computer literacy skill of students in Odogbolu Local Government Area of Ogun State.

Statement of the Problem

Innovative use of Computer for instructional purposes and especially Computer-Based Testing (CBT) has created misconception as to whether students' poor achievement in examinations, such as UTME and post-UTME, can be attributed to poor mastery of the contents by the students or deficiency in computer literacy and skills during the examinations. Hence the need for this study to assess students' level of computer literacy skills to clear the misconception and identify where necessary intervention is required among secondary school students in Odogbolu Local Government Area of Ogun State in Nigeria.

Research Questions

The following are the questions guiding the study

1. What is the degree of computer knowledge among the secondary school pupils in Odogbolu Local Government Area of Ogun State, Nigeria?
2. What is the computer skill level of the secondary school students in Odogbolu Local Government Area of Ogun State, Nigeria?
3. To what extent do students in Odogbolu LGA of Ogun State use the computer and the internet to foster learning?

Research Hypotheses:

1. There is no significant difference in the computer literacy level between male and female students in Odogbolu Local Government Area of Ogun State, Nigeria.
2. There is no significant difference in the computer skills level between male and female students in Odogbolu Local Government Area of Ogun State, Nigeria.

Methodology

The descriptive survey research design was adopted for this study, while the population comprised all the senior secondary school students in Odogbolu Local Government Area, Ogun State, Nigeria. The simple random sampling technique was used to select five secondary schools, and 50 students from each of the schools were used, making a total sample size of 250 students.

Computer Literacy Skills Questionnaire (CLSQ) designed by the researchers was used for data collection. It sought demographic information and also measured respondents' level of computer literacy and skills. It consisted of 40 items with Yes/No and (a) never or hardly ever (b) once or twice a month (c) once or twice a week (d) every day or almost every day responses. Data collected were analysed using frequency and percentage and t-test at 0.05 level of significance.

Results

The results are presented in line with the research questions and hypotheses.

Research Question 1: What is the degree of computer knowledge among secondary school pupils in Odogbolu Local Government Area of Ogun State, Nigeria?

Table 1a: Students' Knowledge of Computer

| S/N | Items | Ability to identify the major hardware | | | | Usage of computer hardware | | | |
|-----|-------------------------------|--|------|-----|------|----------------------------|------|-----|------|
| | | Yes | % | No | % | Yes | % | No | % |
| 1 | Keyboard | 239 | 95.6 | 11 | 4.4 | 231 | 92.4 | 19 | 7.6 |
| 2 | Mouse | 241 | 96.4 | 9 | 3.6 | 222 | 88.8 | 28 | 11.2 |
| 3 | Central Processing Unit (CPU) | 206 | 82.4 | 44 | 17.6 | 172 | 68.8 | 78 | 31.2 |
| 4 | Monitor | 230 | 92.0 | 20 | 8.0 | 207 | 82.8 | 43 | 17.2 |
| 5 | Printer | 219 | 87.6 | 31 | 12.4 | 190 | 76.0 | 60 | 24.0 |
| 6 | UPS | 121 | 48.4 | 129 | 51.6 | 72 | 28.8 | 178 | 71.2 |
| 7 | Scanner | 125 | 50.0 | 125 | 50.0 | 86 | 34.4 | 164 | 65.6 |

Table 1a shows the responses of the students on the identification and usage of computer hardware devices. From the table, majority of the students ranging between 82.4% and 96.4% could identify the keyboard, mouse, Central Processing Unit (CPU), monitor and printer. Only 48.4% of them could identify UPS, and 50% could identify the scanner. It can also be observed that majority of the students used (68.8% and 92.4%) had knowledge of the usage of keyboard, mouse, CPU, monitor and printer. Only 28.8% and 34.4% had knowledge of the usage of UPS and the scanner respectively.

Table 1b Knowledge of the Usage of the Computer Application Software

| S/N | Items | Yes | % | No | % |
|-----|---|-----|------|-----|------|
| 8 | I can operate effectively on Microsoft word | 151 | 60.4 | 99 | 39.6 |
| 9 | I can operate effectively on Microsoft excel | 99 | 39.6 | 151 | 60.4 |
| 10 | I can operate effectively on Microsoft PowerPoint | 61 | 24.4 | 189 | 75.6 |
| 11 | I can operate effectively on Microsoft access | 70 | 28.0 | 180 | 72.0 |
| 12 | I can operate effectively on Corel draw | 90 | 36.0 | 160 | 64.0 |

Table 1b reveals that 60.4% of the students had the knowledge of the usage of Microsoft word; 39.6% have the knowledge of the usage of Microsoft Excel; 24.4% Microsoft PowerPoint; 28.0% Microsoft access, and 36.0 Corel draw. A good number of the students had the knowledge of the usage of Microsoft word, how to use the Microsoft Excel and the Corel draw (60.4%), as well as Microsoft PowerPoint, Microsoft access (75.6% and 72.0%)

Research Question 2: What is the computer skills level among the secondary school students in Odogbolu Local Government Area of Ogun State, Nigeria?

Table 2 Computer Skills Level among the Secondary School Students

| S/N | Items | Unskilled | % | Basic level | % | Intermediate level | % | Expert level | % |
|-----------|--|-----------|------|-------------|------|--------------------|------|--------------|------|
| 13 | Turn on/off computer, monitor, and printer. | 106 | 42.4 | 80 | 32.0 | 40 | 16.0 | 24 | 9.6 |
| 14 | Use a mouse. | 86 | 34.4 | 100 | 40.0 | 41 | 16.4 | 23 | 9.2 |
| 15 | Use a keyboard. | 78 | 31.2 | 100 | 40.0 | 36 | 14.4 | 36 | 14.4 |
| 16 | Open a programme from a desktop icon. | 157 | 62.8 | 42 | 16.8 | 33 | 13.2 | 18 | 7.2 |
| 17 | Open a programme using the START menu. | 129 | 51.6 | 65 | 26.0 | 31 | 12.4 | 25 | 10.0 |
| 18 | Exit a programme | 120 | 48.0 | 71 | 28.4 | 32 | 12.8 | 27 | 10.8 |
| 19 | Create and save a document. | 133 | 53.2 | 57 | 22.8 | 34 | 13.6 | 26 | 10.4 |
| 20 | Open and close a document. | 136 | 54.4 | 63 | 25.2 | 29 | 11.6 | 22 | 8.8 |
| 21 | Use drop down menus. | 167 | 66.8 | 36 | 14.4 | 31 | 12.4 | 16 | 6.4 |
| 22 | Can move insertion point using the keyboard and the mouse. | 148 | 59.2 | 61 | 24.4 | 24 | 9.6 | 17 | 6.8 |
| 23 | Correct errors with backspace and delete keys. | 101 | 40.4 | 81 | 32.4 | 41 | 16.4 | 27 | 10.8 |
| 24 | Print document. | 152 | 60.8 | 45 | 18.0 | 38 | 15.2 | 15 | 6.0 |
| 25 | Use Save As | 135 | 54.0 | 54 | 21.6 | 35 | 14.0 | 26 | 10.4 |
| Average % | | | 49.5 | | 27.5 | | 13.5 | | 9.5 |

Table 2 shows that out of the 13 functions highlighted, majority of the students, ranging between 51.6% and 66.8%, were unskilled in the use of

8 of the functions. It follows; therefore, that majority of the students could not perform such operations on the computer. The Table also reveals that 49.5% of the respondents (almost half of the sample size) were unskilled in the use of the computer.

Research Question 3: To what extent do students in Odogbolu LGA of Ogun State use the computer and the internet to foster learning?

Table 3: Frequency of use of the computer by respondents to Surf the Internet for Information

| S/N | Items | Never | % | Once or twice monthly | % | Once or twice weekly | % | Every day or almost every day | % |
|-----------|---|-------|------|-----------------------|------|----------------------|------|-------------------------------|------|
| 26 | Browse the internet for school (e.g. preparing an essay) | 119 | 47.6 | 69 | 27.6 | 23 | 9.2 | 39 | 15.6 |
| 27 | Use e-mail/social media to communicate with other students about schoolwork | 101 | 40.4 | 56 | 22.4 | 18 | 7.2 | 75 | 30.0 |
| 28 | Use computer to download, upload or browse material from the internet | 123 | 49.2 | 57 | 22.8 | 22 | 8.8 | 48 | 19.2 |
| 29 | Use mobile phone to make voice call | 59 | 23.6 | 57 | 22.8 | 21 | 8.4 | 113 | 45.2 |
| 30 | Use computer to produce text document | 156 | 62.4 | 43 | 17.2 | 19 | 7.6 | 32 | 12.8 |
| 31 | Type a website address in Open Box. | 174 | 69.6 | 31 | 12.4 | 14 | 5.6 | 31 | 12.4 |
| 32 | Use Back and Forward buttons | 139 | 55.6 | 44 | 17.6 | 22 | 8.8 | 45 | 18.0 |
| 33 | Locate and click on Links on a web page | 153 | 61.2 | 38 | 15.2 | 26 | 10.4 | 33 | 13.2 |
| 34 | Print a web page | 167 | 66.8 | 37 | 14.8 | 20 | 8.0 | 26 | 10.4 |
| 35 | Can log in to check email messages | 133 | 53.2 | 49 | 19.6 | 27 | 10.8 | 41 | 16.4 |
| 36 | Write and send an email message | 115 | 46.0 | 51 | 20.4 | 27 | 10.8 | 57 | 22.8 |
| 37 | Receive and read new email messages | 108 | 43.2 | 53 | 21.2 | 25 | 10.0 | 64 | 25.6 |
| 38 | Reply to an email | 123 | 49.2 | 51 | 20.4 | 24 | 9.6 | 52 | 20.8 |
| 39 | Exit email program | 134 | 53.6 | 51 | 20.4 | 21 | 8.4 | 44 | 17.6 |
| 40 | Can save and delete email messages | 119 | 47.6 | 44 | 17.6 | 25 | 10.0 | 62 | 24.8 |
| Average % | | | 51.3 | | 19.5 | | 8.9 | | 20.3 |

Table 3 reveals that 49.2% of the students had never used the computer to download, upload or browse materials from the internet. More than half of the respondents never used the computer to produce text documents (62.4%), never located and clicked on links on a web page (61.2%), and 53.2% had never logged in to check email messages. On the average, 51.3% of the respondents had never used the computer to surf the internet. It follows, therefore, that many of the students did not surf the internet to look for information. However, the findings reveal that 20.3% of the respondents used the computer almost every day to surf the internet.

Hypothesis 1: There is no significant difference in the computer literacy level between male and female students

Table 4: Comparison of Male and Female Level of Computer Literacy

| Gender | N | Mean | SD | Df | t | Sig | Remarks |
|--------|-----|-------|--------|-----|-------|-------|---------|
| Male | 138 | 24.30 | 10.115 | 248 | 1.217 | 0.225 | NS |
| Female | 112 | 22.75 | 9.839 | | | | |

Table 3 shows the t-value (1.217) which is not significant at 0.05, ($P > 0.05$). It means, therefore, that there is no significant difference in the level of computer literacy between the male and female students who participated in the study. However, the mean level of computer literacy of male respondents (24.3 ± 10.1) is higher than that of their female counterparts (22.75 ± 9.84).

Hypothesis 2: There is no significant difference in the computer skill level between male and female students

Table 5: Comparison of Male and Female Students' Level of Computer Skill

| Gender | N | Mean | Sd | Df | t | Sig | Remarks |
|--------|-----|-------|--------|-----|-------|-------|---------|
| Male | 138 | 30.88 | 12.252 | 248 | 1.661 | 0.098 | NS |
| Female | 112 | 28.33 | 11.890 | | | | |

From Table 4, the t-value (1.661) is not significant at 0.05, ($P > 0.05$). It means, therefore, that there is no significant difference in the male and female students' levels of computer skills to surf the internet. Despite the no significant difference result revealed, the mean values of 30.88 ± 12.3 for males and 28.33 ± 11.9 for females still show that the level of computer skills in surfing the internet by the male students used is better than that of the female.

Discussion of the Findings

The first finding of this study shows that majority of students in the selected schools could identify and use the major computer hardware, such as keyboard, mouse, CPU, monitor and printer. This is in contrast to Murray and Blyth (2011) who reported that students lacked competence in using several computer applications, including word-processing, spreadsheets and presentation software tools. The plausible reasons for these contradictory reports might be attributed to the fact that the previous study was conducted over two decades ago when computer usage was still new, unlike now when students' access to the computer has increased tremendously. Nonetheless, the literacy level and the usage of the respondents in computer application software like Microsoft Excel, Microsoft power point, Microsoft access and Corel draw are still very low. This may be because these applications are not in use at the secondary schools level

Another finding of this study reveals that students had low computer skills. Out of the 13 functions highlighted, majority of the students were unskilled in the use of eight functions. This implies that the students did not really have good computer skills. This finding aligns with FGN (2014) which revealed that there was a low level of skillfulness in the use of the computer among secondary school students. The plausible reason for this is due to inadequate computer facilities and trained teachers to enhance teaching and learning, using the computer among the students.

Furthermore, findings from this study reveal that over half of the respondents had never used a computer to surf the internet for information. This finding is not healthy for the education sector of any nation, particularly in

this digital age and makes it difficult for the students to enjoy the benefit of the internet as discussed by Adil (2021).

The result of the first hypothesis shows that there is no significant difference in the frequency of performing operations on the computer between male and female students. This is corroborated by Idowu, et. al. (2004) and Anna & Ikoja (2013) that both male and female secondary school students show similar traits towards performing operations on the computer.

The finding from the second hypothesis also shows that there is no significant difference in the ability of male and female students to surf the internet. This result corroborates the findings of Frailon et. al (2014) which is gender invariant, but contrary to the finding of Eveline, Sue, Joha & Kylene (2019) which states that female students have more ability and attitudes to use the computer and surf the internet than the male students. The plausible reason for this is that most students (both male and female) now see the reason for them to surf the internet to carry out more educational activities.

Conclusion

The findings show that there is poor knowledge of the usage of basic computer hardware, such as UPS and scanner, low knowledge of the usage of basic computer application software, poor skills in the operation of the computer system and poor knowledge and skills to surf the internet. The study also shows that there is no significant difference in performing operations on the computer and surfing the internet between male and female students.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. There is a need to get students more exposed to different computer hardware and software devices for proper identification and usage.

2. Provision of computer facilities by the government to schools and at home by the parents.
3. Provision of adequate internet facilities for the use of the students by the relevant authorities such as government, school management, parents, Parent Teacher Association, and Old Students, among others.

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