



Access to and use of computers among clinical dental students of the University of Lagos

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Abstract

Objectives: To determine current access to and use of computers among clinical dental students at the College of Medicine, University of Lagos.

Methods: A cross-sectional, descriptive study was carried out by means of self-administered questionnaires among clinical dental students from year four to six at the College of Medicine. The questionnaire had questions on demographic, access to computers, prior computer training and self-assessed computer skills.

Results: One hundred and one students returned properly filled questionnaires. Only 35(34.7%) of them owned a personal computer and 39(37.6%) had formal training on computer applications. Thirty-three(32.7%) assessed their computer skills as good and this was significantly associated with formal training and access to computers. Only 28(27.7%) used the computer almost daily and majority, 82(81.2%) used the computer to surf the internet. Word processing was the most frequently used while the use of library/educational resources was reported in only 14% of the respondents.

Conclusion: Computer ownership and subsequent access to computers is low. Also, use of the computer for educational purpose is low. The need to improve access to computers and the internet should be one of the highest priorities of training institutions in Nigeria.

Keywords: Computer use, access, dental students

Introduction

Computer availability and its use has impacted greatly on many aspects of medicine⁽¹⁾ and dentistry^(2,3). The development and availability of computer technology has changed the face of medical and dental education worldwide. There are enormous benefits from information technology for dental education. New teaching methods in dental education have been developed which include Computer Assisted Learning (CAL). This may enhance education and provide learning opportunities that cannot be taught by traditional strategies⁽⁴⁾. There is also the concept of "teledentistry"⁽⁵⁾ as well as the use of the CD-ROM to deliver training resources⁽⁶⁾.

Thus, the increase in the use and availability of the computer and subsequently, the internet has resulted in easy access to medical and dental knowledge and information for research⁽⁷⁾, education^(8,9) and clinical practice. The computer has great potentials for dental education especially in areas where access to study materials and resources are poor. An earlier study from Nigeria had reported that non-availability of reading materials was identified as one of the highest stressors for a group of dental students⁽¹⁰⁾. A solution to this can be found in the wide array of medical literature available electronically which had been made even more accessible by the free access to journals and books via portals such as the World Health Organization's HINARI network⁽¹¹⁾. However, the optimal use of computers in medical and dental education requires easy access to and a level of

proficiency in computer applications. Most high schools in Nigeria have in recent times introduced computer education into their curriculum but there is a lack of uniformity in the scope of such studies. Thus dental students in Nigeria who are usually admitted directly from high school have varied levels of competence in computer usage. Previous researches among health care professionals in Nigeria reported that ownership of computers was between 26% to 58%^(12,13) in different settings. It was further reported that doctors significantly owned more computers than medical students⁽¹²⁾. A study focused mainly on medical students reported that none of the students owned a personal computer⁽¹⁴⁾.

The medical library at the College of Medicine, University of Lagos had provided free access to computers via a computer laboratory since 1999. In addition, internet access and Medline services are provided for a fee for both the staff and the students. However, utilization of these services was reported to be poor due to structural inadequacies and lack of awareness, amongst other reasons⁽¹⁵⁾. While it was found that 52% of the medical students were aware of the Medline on CD-ROM, only 24% of them had ever used it⁽¹⁶⁾. The reasons attributed to this included limited number of computers and cost. The low use of CD-ROM resources was corroborated by a study involving postgraduate doctors at the College of Medicine, University of Lagos⁽¹⁷⁾, which went further to identify inadequate computer facilities as a major constraint. The internet service at the Medical library has been ineffective in recent times due to breakdown of the



facilities. Hence, the student and staff population had to source for other means of accessing the internet.

Earlier studies had reported that majority of the study population in Nigeria accessed the internet at cyber cafes (13,17,18)

The aim of this study is therefore to determine current access to and use of computers among clinical dental students at the College of Medicine of the University of Lagos.

Materials and Method

A cross-sectional and descriptive study involving all clinical dental students in years four to six at the College of Medicine, University of Lagos was conducted between May and June 2006 by means of an anonymous self-administered questionnaire.

The questionnaires containing questions on demographic details, access to computers, frequency of use of computers and self-assessed proficiency in computer operations were distributed to students during their lecture periods and collected at the end of the lecture. Data analysis was done using the EPI-info version 6.04 software (CDC, Atlanta). The Chi-square test of association was used to compare differences between categorical variables and such differences were said to be significant if p is less than 0.05.

Result

One hundred and one questionnaires were returned properly filled out of 125 distributed giving a response rate of 80.8%. Fifty-five per cent were male, 45% female and 66.3% were less than 25 years (Table 1).

Table 1: Demographic characteristics of respondents.

Age Group	Frequency	%
< 25 years	67	66.3
> 25 and above	34	33.7
Sex		
Male	56	55.4
Female	45	44.6
Year of Study		
Year Four	30	29.7
Year Five	35	34.7
Year Six	36	35.6
Total	101	100.0

Access to Computer

Ninety-four (93.1%) of the students had access to computers for use while seven of them claimed they had no access to any computer. However, only 33(32.7%) of them currently owned personal computers. Others accessed computers through other sources as shown in **Figure 1**.

Training and computing skills

Fifty-nine students (58.4%) reported that they had received some form of training on basic computer literacy, 39(66%) of which was a formal training. On their self-assessed competence, only 33(32.7%) said their current computer

skills was good, 48(47.5%) assessed their skill as fair while 20(19.8%) felt they had poor computer skill. This assessment was significantly associated with having received formal training (p=0.000) and having access to a personal computer (p=0.002). There was however no difference between gender and year of study and self assessed competence.

Eighty-four (82.2%) claimed they understood the basic terminology and concepts of computing. For specific skills and knowledge of computer usage, respondents were asked to indicate which skill they possessed. Ninety-nine (98%) of the students could boot a computer as well as use the mouse. Other aspects of computer usage such as using statistical soft ware and page design were indicated by less than 20% of respondents. (Table 2).

Male students were found to be significantly more knowledgeable in certain aspects than females. Differences between genders in the different computer skills are shown in Figure 2.

Use of Computer

Frequency of use: Twenty-eight (27.7%) of the students claimed to use the computer almost every day, 47(46.5%) had used it within the last week while the rest of them had not used the computer in about a month.

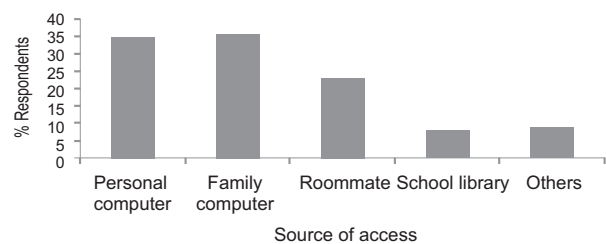
Eighty-two (81.2%) used the computer mainly to surf the internet. Other uses include games, 63(62.4%), assignments, 70(69.3%) as well as watching videos and listening to music. Year 6 students were found to significantly utilize the computer for assignments than the other years (p=0.02).

Word processing soft wares were the most frequently used while data analysis software was the least used. The use of

Table 2 Self-identified computer skills

Computer skill	N(%) respondents
1. Boot a computer	99(98)
2. Can use a mouse	99(98)
3. Cut and paste information from one application to another	82(81.2)
4. Save data into a diskette	80(79.2)
5. Print out a document	73(72.3)
6. Format a diskette	66(65.3)
7. Set up folders or file directives	49(48.5)
8. Install a software package	32(31.7)
9. Analyze data using a statistical package	20(19.8)
10. Understand different file formats(PDF,JPEG,GIF)	16(15.8)
11. Design a page	15(14.9)

Figure 1: Sources of computer access for respondents



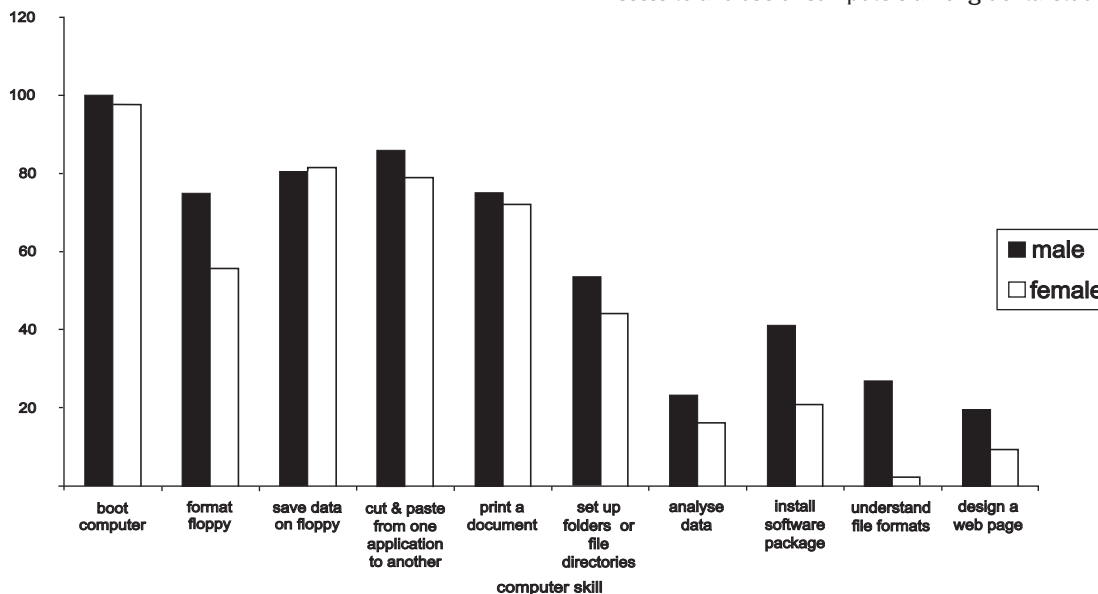


Figure 2. Distribution of computer skills by gender

educational and library resources was low. Figure 3 shows the distribution of soft wares used by the students.

Students' opinion on the use of computers in dental education

Ninety-five (94.1%) of the students thought that the computer should be used as a supplement for teaching and the same proportion of students expressed the wish to be able to ask teachers questions via e-mails and 93(92.1%) would like to use the computer for distance learning from home.

Self-reported need for training in computer usage

Forty-three (42.6%) of the students expressed a wish to increase their skills in all aspects of computer usage. Others would like more training in specific aspects especially graphic applications.

Discussion

There appears to be no improvement in computer ownership in this study compared with previous Nigerian studies on medical students and other health professionals (12,13). There was however a marked difference between the present findings and that reported from a study conducted in a Northern Nigerian university, where none of the students owned a computer. Although considering that the aforementioned study was conducted in year 2004, there may be a need for a data update on that population before any valid comparison can be done. Quite a number of students in this study claim to have access to a computer at home. However, it is doubtful if this would be useful for regular academic purpose as all clinical students at the College of Medicine are accommodated in the hostels. Findings from this present study and the other studies from Nigeria are in sharp contrast from reports from Europe, North America and the Middle East where majority of the respondents had easy access to computers (3,19,20,21). Access to computers was found to be significantly associated with self assessed competence. It is essential that concerted efforts are made to improve access to personal computers for undergraduate students in Nigeria through cooperation

between academic institutions, manufacturers and policy makers.

Self assessed computer skills in this study was similar to reports from a previous Nigerian study (22) with just a slight increase in proportion of students who perceived themselves to have good skills(32.7%) compared with 21.3% in the earlier study. Those who perceived themselves to have poor skills were 19.8% and this is in agreement with 19.9% reported earlier (22). This implies that there has been no improvement in the six years since the first study was conducted. As competence was self assessed in this study, there may even be an overestimation of their competence. Further studies to objectively assess the students' competence with computers covering a variety of computer applications are desirable.

There was evidence of the effect of formal training on assessed competence in this study. According to Schitteck et al (4), the use of computers cannot be optimized until

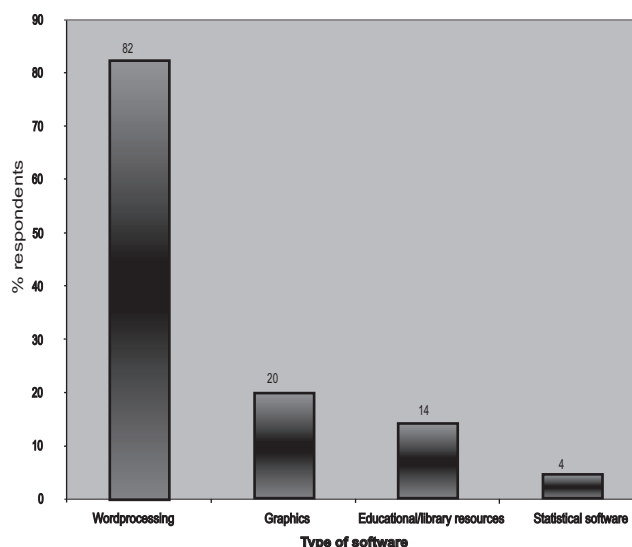


Figure 3. Distribution of software used by the students



education in computer skills is included in the undergraduate courses and therefore computer education should be mandatory in the dental curriculum. The authors are in agreement with this view.

Evidently in this study, the computer was used mostly for non-academic purposes. Academic uses were mostly limited to word processing. This is in agreement with other studies in developing countries^(2,2,23). In comparison with the United Kingdom, use for other educational purposes was low⁽²⁴⁾.

Final year students significantly utilised the computers more for assignments because they have to submit a dissertation as a requirement for graduation.

This study also found that similar to previous findings, use of educational and library resources were quite low⁽¹⁶⁾. This is unfortunate because these resources are useful and up to date alternatives to the outdated textbooks which the students depend on currently.

The usefulness of the computer in dental education cannot be overemphasized. A review comparing CAL and traditional books and lectures considered CAL better in that it stimulates the student to interactive learning compared with the one way communication mode of the traditional text books and lectures. The result is that, the student has the opportunity to go through the material at his own pace and repeat parts without involving a teacher or other students⁽⁴⁾. CAL packages in dentistry are now available at a low cost and may be free of charge when accessed via the internet.

In conclusion, access to computers among this group of students is low and educational use of computers is also low. The need to improve access to computers and the internet should be one of the highest priorities of training institutions in Nigeria to enable both staff and students to effectively utilize the myriad of educational opportunities available. This will ultimately improve the quality of health care delivery in Nigeria.

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