

The Effect of Computer Literacy on University of Maiduguri Students' Attitude towards Computerized Record System

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Abstract

Computerized record systems have been viewed as being desirable and have undeniable advantages over the manual system of record keeping. However, oftentimes these may not be appreciated by students, especially in environments where overall penetration of ICTs is low and as such computer literacy is also low. This paper aims to investigate how computer literacy affects University of Maiduguri students' perception of a computerized record system. It studied the views of sampled students of the university in order to ascertain how their level of computer literacy affects their desire for their record system to be computerized. Research questions were analyzed with a view to determining the association that exists between level of computer literacy of students and their desire for a computerized record system, and the desirability of such a system among computer literate and non computer literate students. Simple percentage analysis and Chi Square test were used to investigate the level of desirability of computerization, and the association between computer literacy and desire for computerized record system, respectively. It was found that among both computer literate and non computer literate students, the computerized record system was highly desired. It was also found that there is no association between level of computer literacy and desire for computerization among students sampled. This implies that even in areas where there is low ICT penetration and computer literacy, computerization can still be highly desired by university students.

Keywords: computer literacy, computerized record system, computer anxiety, technophobia

1. INTRODUCTION

Efficient and effective management of information has always posed a challenge in organizations, especially those that produce large number of records on a regular basis. Manual record management systems work well for smaller organizations, while computerized record management systems are advantageous to larger organizations. These advantages can be gained mainly in the entry, editing and report production. They can also be gained in terms of amount of space required to maintain such a system. An academic institution managing a large number of students' records gains significant advantages that encompass all aspects of data entry as well as retrieval, editing and report production.

A server-based record system is a record system that utilizes server technology and incorporates a Database Management System (DBMS) to store data and provide functionality necessary for the reliable management and maintenance of such data over a period of time. Thus, data that would otherwise have been stored in a hard copy format i.e. using paper files, can be stored, managed and retrieved in an electronic format and, if required in hard copy format, can be printed. The computerized record system should incorporate all the functionality of the manual system otherwise a computerized system would be of no benefit. This should include efficiency, effectiveness, timeliness and efficient utilization of space.

Records of students of the University of Maiduguri Diploma programmes have been maintained in paper files. This makes record entry, retrieval, sorting and updating cumbersome, coupled with problem of file deterioration due to aging and mishandling, and possibility of rodent and insect infestation. Other factors to be considered are – possibility of loss of files due to large number of folders, large amount of space required to store files for programmes that are getting larger by the year. This has led to a noticeable need to computerize the database to alleviate these problems. This study aims to investigate the attitude of diploma students of the University of Maiduguri towards the computerization of their record system, and what effect computer literacy has on their perception.

2. LITERATURE REVIEW

Records, as defined by the American Heritage Dictionary (1980), are “information or data on a particular subject collected and preserved”. This definition implies that any processed or unprocessed datum that is collected and kept for future use constitutes a ‘record’. Also, records, according to Emerson (1989, cited in Afolakemi, 2008) have been described as documents in any medium that are received or created by an organization in carrying out its business due to information contained therein. On regular basis, information on students is collected. This information includes both personal details as well as academic information; this information may need to be updated at different time intervals, to have authentic student records. Student records are therefore information

or data which are collected on various aspects of a student's life while in school and preserved for future use. The information or data which are written manually or electronically are preserved in books, files, diskettes, CDs and other electronic materials. The information collected on students varies but generally would consist of basic personal details, such as, information on past qualifications, status while in the school, and academic details. This information can become quite bulky especially in an institution with a large number of students, and the management of this information manually can be quite cumbersome resulting in inefficient utilization of time, as well as time spent in searching for and retrieving students records wastes management time. Furthermore, manual record keeping is fraught with a lot of problems such as inadequate expertise in interpretation of scores from assessments, and preparation of reports, inadequate facilities for record keeping and shortage of personnel. (Rosen & Weil, 1995, cited in Afolakemi 2008) It has been observed that a large number of establishments in Nigeria, including educational institutions, still keep files in cabinets, where they accumulate dust and are liable to damage by rodents and cockroaches thus making information irretrievable. Furthermore, in most Nigerian schools, officials still go through the drudgery of manually registering students, keeping record of pupils, performance, keeping inventory of supplies, doing cost accounting, paying bills, printing reports, and doing architectural designs, all of which could be made easier by using ICT to enhance management procedure. (Samuel & Ede, 2005)

Computer literacy has been described as the ability to operate computer hardware and software in order to achieve a particular objective; it also refers to the ability to use a computer for educational management record keeping. (Afolakemi, 2008) Afolakemi (2008) has pointed out that computer literacy has a significant relationship with computer phobia which reflects on computer usage. He has further recommended that schools have a fully computerized record center. Simonson et al (1987), cited in Russel, (1995) have found "that a positive, anxiety free attitude toward computing was a necessary prerequisite of computer literacy". Furthermore, Russel (1995) has stated that "computer anxiety and computer literacy are closely aligned". However, Rosen & Weil (1995) have pointed out that lack of computer experience is not the only predictor of technophobia. It is commonly believed that technophobia is simply a lack of computer experience which can easily be overcome by giving a technophobic person computer experience, but the study conducted by Rosen & Weil (1995) has disproved this belief. They have pointed out that requiring that teachers become computer literate does not help them use computers with their students, nor does it remove their technophobia, because technophobia is caused by an "ingrained, psychologically- based belief system". The success recorded by efforts to integrate technology into learning is greatly affected by students' attitudes toward computers and their use. (Erlich, Gadot & Shahak, 2008)

3. RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

The research design used in this study was survey. In this research design a questionnaire was used to collect data from a selected sample of respondents, after which the data was collated and analysed. The questionnaire was designed using both open-ended and closed-ended questions. However, majority of the questions asked were closed-ended.

3.2 RESEARCH INSTRUMENT

The research tool used in this study was questionnaire containing open-ended and closed ended questions.

3.3 STUDY AREA

The study area is the University of Maiduguri campus located along Bama Road in the Maiduguri Metropolitan Council, Borno State, Nigeria. The DCS and DIT programmes are found under the University of Maiduguri Consultancy Service (Unimaid Consult) located within the University of Maiduguri Campus. They were created in 2001 with a total of 40 students. The programmes last for 2 years upon completion of which a diploma certificate is awarded.

3.4 PARTICIPANTS/POPULATION

The study was carried out using a population of 455 students of the year 2 programme of the Diploma in Computer Science (DCS) and Diploma in Information Technology (DIT) out of which 100 students were used as sample (participants).

3.5 SAMPLING TECHNIQUES

In this study, probability sampling was used to select a sample of 100 students. This type of sampling technique specifies that each population element has an equal non-zero chance of being selected in a sample. Furthermore, there was random sampling of elements in the population as no particular criteria was used to select which elements of the population were sampled i.e. there is no discrimination with respect to age, gender, etc.

3.6 DATA COLLECTION SOURCE

The source of data used in this study was the sample (participants) of the population of diploma students. The data was collected via questionnaires which were filled by the respondents and then retrieved. The data obtained via the questionnaires was then carefully collated.

3. 7 DATA ANALYSIS/STATISTICAL PROCEDURE

The tests used for data analysis were simple percentage analysis and the Chi-Square test. They were used to analyse data obtained from respondents. The 2x2 contingency Chi square test was performed using level of computer literacy versus research questions to ascertain the association between the level of computer literacy and the selected variables.

The Chi-Square test was used to test for independence between 2 categorical variables obtained from a single population. It was used to determine whether there is a significant association between the two variables.

4. ANALYSIS AND INTERPRETATION

One hundred (100) questionnaires were distributed and retrieved after being appropriately filled by the respondents. The analysis was carried out as follows:

Those respondents with 5 years or more of computer literacy were deemed to be fully computer literate and were termed “Computer Literate”.

Those respondents with less than 5 years of computer literacy were deemed not to be fully computer literate and were termed “Non-computer Literate”.

Three research questions were analysed, namely

1. Would you like your registration to be computerized?
2. Do you think your registration would be easier if it was to be computerized or done online?
3. Do you think that having your records online would increase efficiency and effectiveness of staff and lecturers?

Question 1:

“Would you like your registration to be computerized?”

Table 4.1

	Yes	No	Total
Computer Literate	20 (20%)	10 (10%)	
Non-computer Literate	50 (50%)	20 (20%)	
Total	70 (70%)	30 (30%)	100 (100%)

Table 4.2

	Yes	No	Total
Computer Literate	20 (66.66%)	10 (33.33%)	30 (100%)
Non-computer Literate	50 (71.43%)	20 (28.57%)	70 (100%)

Chi-square analysis

The null hypothesis is designated Ho

The alternate hypothesis is designated Ha

Therefore,

Ho: The desire by students to have their record system computerized is independent of the level of Computer Literacy of the students.

Ha: The desire by students to have their record system computerized is associated with level of Computer Literacy of the students.

$$X^2 = 100[(20*20) - (10*50)]^2 / (20+10)*(50+20)*(10+20)*(20+50)$$

$$X^2 = 0.2268$$

$$Df = (2-1) * (2-1)$$

$$Df = 1$$

Our alpha level of significance is taken to be 0.05. Therefore, entering the Chi square distribution table with 1 degree of freedom, we find our value of X² lies below 0.445. This is below the conventionally accepted significance level of 0.05 so the null hypothesis, Ho, is verified.

Therefore, from this analysis, it has been determined that the desire by students to have their record system computerized is not associated with their level of computer literacy.

Question 2:

“Do you think your registration would be easier if it was to be computerized or done online?”

Table 4.3

	Yes	No	Total
Computer Literate	30 (30%)	0 (0%)	
Non-computer Literate	67 (67%)	3 (3%)	
Total	97 (97%)	3 (3%)	100 (100%)

Table 4.4

	Yes	No	Total
Computer Literate	30 (100%)	0 (0%)	30 (100%)
Non-computer Literate	67 (95.71%)	3 (4.29%)	70 (100%)

Chi-square analysis

The null hypothesis is designated Ho

The alternate hypothesis is designated Ha

Therefore,

Ho: The perception by students that registration would be easier if computerized is independent of the level of Computer Literacy of the students.

Ha: The perception by students that registration would be easier if computerized is associated with level of Computer Literacy of the students.

$$X^2 = 100[(30 \cdot 3) - (0 \cdot 67)]^2 / (30+0) \cdot (67+3) \cdot (0+3) \cdot (30+67)$$

$$X^2 = 1.3255$$

$$Df = (2-1) \cdot (2-1)$$

$$Df = 1$$

Our alpha level of significance is taken to be 0.05. Therefore, entering the Chi square distribution table with 1 degree of freedom and reading along the row, we find our value of X^2 lies between 0.445 and 2.706. This is below the conventionally accepted significance level of 0.05 so the null hypothesis, Ho, is verified.

Therefore, from this analysis, it has been determined that the perception by students that registration would be easier if computerized is not associated with their level of computer literacy.

Question 3:

“Do you think that having your records online would increase efficiency and effectiveness of staff and lecturers?”

Table 4.5

	Yes	No	Total
Computer Literate	26 (26%)	4 (4%)	
Non-computer Literate	53 (53%)	17 (17%)	
Total	79 (79%)	21 (21%)	100 (100%)

Table 4.6

	Yes	No	Total
Computer Literate	26 (86.67%)	4 (13.33%)	30 (100%)
Non-computer Literate	53 (75.71%)	17 (24.29%)	70 (100%)

Chi-square analysis

The null hypothesis is designated Ho

The alternate hypothesis is designated Ha

Therefore,

Ho: The perception by students that having their records online would increase efficiency and effectiveness of staff and lecturers is independent of the level of Computer Literacy of the students.

Ha: The perception by students that having their records online would increase efficiency and effectiveness of staff and lecturers is associated with level of Computer Literacy of the students.

$$X^2=100[(26*17)-(4*53)]^2 / (26+4)*(53+17)*(4+17)*(26+53)$$

$$X^2=1.5184$$

$$Df= (2-1) * (2-1)$$

$$Df=1$$

Our alpha level of significance is taken to be 0.05. Therefore, entering the Chi square distribution table with 1 degree of freedom, we find our value of X^2 lies between 0.445 and 2.706. This is below the conventionally accepted significance level of 0.05 so the null hypothesis, H_0 , is verified.

Therefore, from this analysis, it has been determined that the perception by students that having their records online would increase efficiency and effectiveness of staff and lecturers, is not associated with their level of computer literacy.

5. DISCUSSION OF RESULTS

From a total of 70 students that favoured computerization of their record system, 50 students (50% of the total respondents) were non computer literate students. This is opposed to 20 (20%) who were computer literate. There appears to be high enthusiasm for computerization, even among non computer literate students; this is slightly surprising because one would have expected a degree of skepticism from those students that were not experienced with using computers, possibly due to computer anxiety and technophobia. Furthermore, out of a total of 70 non computer literate students, 71.43% favoured computerization, as opposed to 66.66% of the computer literate students; again, this is a bit surprising because a higher percentage of non computer literate students favoured computerization, whereas one would have expected greater enthusiasm for computerization amongst computer literate students.

A total of 97 students (97% of the total students) felt that their registration would be easier if done online. Out of this 67 were non computer literate, which is 95.71% of the total number of non computer literate students, and 30 were computer literate, which is 100% of the computer literate students. We can observe a very high percentage of both computer literate and non computer literate students favouring online registration, again indicating high enthusiasm for computerization of the record system.

79 students (79% of the total students) felt that effectiveness and efficiency of staff and lecturers would be enhanced by having records online, out of which 53 students i.e. 53% of the total students, were non computer literate, and 26 students, i.e. 26% of the total students, were computer literate. It is observed that a majority of the students believe that having online records would enhance efficiency and effectiveness of staff, out of which the majority are non computer literate students. However, 86.67% of the computer literate students felt that efficiency and effectiveness would be enhanced, as opposed to 75.71% of the non computer literate students; it is observed that, in this case, the relative percentage of computer literate students that favoured computerization is higher than the non computer literate students.

From the percentage analysis, it can be seen that there is high enthusiasm among both computer literate and non computer literate students for computerization of the record system. This finding appears to support Rosen & Weil (1995) who assert that technophobia is not necessarily associated with level of computer expertise. In this case, it was observed that there appears to be low computer anxiety among students who are deemed to be non-computer literate. In fact, they appear to possess high enthusiasm for computerization.

From the Chi-Square Analysis conducted, it was observed that in all three cases, the attitude of the students was independent of their level of computer literacy, i.e. the desire by students for a computerized registration system, the perception that registration would be easier if it was to be computerized or done online, and the perception that having records online would increase efficiency and effectiveness of staff and lecturers, did not depend on the level of computer literacy of the students.

5.1 SUMMARY OF FINDINGS

In summary, it was found that computer literacy may not necessarily be a critical determining factor on whether students perceive computerization of record systems as being beneficial. It was observed that even among students who were not computer literate there was the perception that computerization would confer benefits.

6. CONCLUSIONS & RECOMMENDATIONS

In conclusion, this study, after investigating the attitude of University of Maiduguri diploma students to

computerization of their record system, has found that there is high enthusiasm for computerization irrespective of level of computer literacy. Furthermore, it has been found that there was no association between level of computer literacy and the desire by students for computerization of their record system. This implies that even in areas where computer literacy is low, computerization can still be highly desired among students of tertiary institutions.

It is recommended that the university consider computerizing their diploma student record system, as there appears to be high enthusiasm among students for computerization. However, it is also recommended that the problem of high computer illiteracy among students be addressed, by training on how to adequately use computers; this is necessary because, though majority of students appear to be enthusiastic about a computerized record system, they may not be sufficiently equipped to adequately use it due to lack of computer expertise.

It is further recommended that research be carried out on a wider scope with respect to this topic, as this study has been limited in scope to a small geographical region; as such the findings may be limited in scope. Also, demographic variables that may affect students' attitude to computerization should be investigated to obtain a more in-depth picture.

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