



A Survey on Development and Utilization of RFID on Information Technology Management Strategies in Nigeria's Colleges of Education by Colleges of Education Librarians

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ABSTRACT

The primary aim of this research was to carry out a survey on the Information Technology Management strategies /challenges of RFID in Colleges of Education libraries, how IT management improve operation and why some librarians are reluctant to adopt RFID. A total of 370 respondents were used for the study drawn from colleges of education in North-East Nigeria. Mean and standard deviation were used to analyze the data, results indicated that most librarians are interested in the new innovation. Then it was recommended that steps should be taken to improve RFID management operations of academic librarians. **Keywords:** Information Technology, RFID, academic librarians, Colleges of Education

INTRODUCTION

Brophy, (2007, p.1) posits that, Libraries accept major part in the world's frameworks of correspondence and education. The different resources and administrations that libraries give help individuals complete their work, study and recreation time exercises.

According to Oxford Dictionary (2014) library is a building or room containing accumulations of books, periodicals, and frequently movies and recorded music for utilization or acquiring by general society or the members of the institution.

Free Dictionary (2014) Library is an institution for gathering books or other created or printed materials and workplace in which they are housed and the establishment that is accountable for their upkeep. Advanced libraries may contain a broad mixed variety of materials which includes manuscripts, notices, photographs, films, and tapes, sound recordings, and machine databases in diverse structures.

Libraries created after the development of composing in the third thousand years before the common Era (BCE), clay tablets were utilized as a part of Mesopotamia to make records of business and authoritative transactions, individual correspondence and literature were put away in unified collections and went about as reference libraries for the leaders of society. In ancient Greece public libraries were made by Pisistratus and his successors. Comparable advancement found in Rome; were the papyrus scrolls of the Alexandrian library established by Ptolemy 1st at some point around 300 before common era (BCE) attempt to assemble the entire world information for the utilization of researchers. In medieval Europe parchment compositions in codex organization were guarded in monasteries (Brophy, 2007).

At the point when printing with movable type was developed there was a surge of composing and previously small libraries started to develop, as the science took hold University and royal and libraries

become significant on tackling numerous attributes that are conspicuous in today's libraries (Brophy, 2007).

Academic libraries developed with the modern university during the early medieval times. However, half to some degree were neglected by their parent institutions until at the eighteenth century and much later (Brophy, 2007) The medieval university or college library was small and developed gradually, Cambridge university library had just 122 volumes in 1424 however the number increased by duplicating, buy, gift and donation (Brophy, 2007).

Libraries utilize new innovation on the ground that the conditions in general that brings the headway of the innovation are the conditions in which the library works. By virtue of Radio frequency identification (RFID), overseeing physical objects needs to do item level capacities, for instance, sales or loaning more effectively and with less human mediation (Coyle, 2005).

Implementing Radio frequency identification (RFID) in academic libraries depends on particular library needs, aspiration, space and budget. Therefore, any academic library wishes to implement RFID need to consider the following essentials equipment's apart from sound financial capability:

RFID tags

Antenna

RFID reader

Computer system

Server/Network

There are three main types of tags, passive, semi-passive and Active tags. The most widely use tag passive because it is cheaper, but active tag is costly as such it is not common.

Any academic library wishes to implement RFID need to decide on the condition of tags and the reader, cheap tags require costly reader while expensive reader require cheap tag. The most commonly passive tags are: lower frequency (LF), High frequency (HF), Universal high frequency (UHF) and General frequency 2 (GEN2) which cost less than ten pence far tag, but active tag cost twenty times as much. The Antenna: folded dipole and patch antenna are the commonly use which are few centimetres long with UHF 868 MHZ not more than 17 centimetres. The signal power is proportional to reader power and sophistication.

RFID reader communicate, with tags through the antenna, this communication is reflected with a signal. Computer system is connected to the server and RFID reader that also regulates the use of the RFID components.

The servers supply the network which the computer and RFID reader use.

RFID is extraordinarily priceless technology for a wide range of inventory settings; whether libraries embrace RFID it will most likely keep on being profitable in retail inventory network. Moreover, it will help to the general acceleration of work worldwide, which influences libraries and different organizations. Without doubt library circulation, a key function where RFID utilization is growing while library budget and purchasing power are losing ground (Coyle, 2005).

Information technology: A Historical Review

Information technology has experienced a great deal progression since it first appearance in organizations around 50 years ago. Technologies have progressed; organizations have changed; Information technology usage has changed and hence the management of Information technology has influenced (Guillemette and Pare, 2012).

Since changes in organizations and Information technology are guiding, the arrangement of the Information technology with business goals must not only be understood but constantly renewed and adjusted (Guillemette and Pare, 2012).

IT managers face challenges when keeping an eye on the issue of agreement; they need to make respectable understanding of their organization's prerequisites and desires about Information technology. But research has provided IT managers with, a couple of well-known frameworks for making a finer understanding of these desires for the issue of business-IT agreement from strategic perspective (Guillemette and Pare, 2012).

IT manager's strategy is the most highly perceived and broadly used to assess managers' view of the vital strategy of IT in organization (Guillemette and Pare, 2012).

Libraries have seen more technological change in the last decade than during the whole history since Gutenberg printing press. Improvements in computer hardware, software and the web have changed libraries into information centres, additionally the profession itself has experienced a significant movement where the traditional library are continuously replaced by web-master e-resources managers, learning manager and so forth (Koteswara Rao, 2002).

Information Technology management in Libraries

The new Information technology continuously utilized for a variety of function from OPAC to online journal delivery framework; individuals are accustomed to acquiring information from their desktops. It worth noting that most of these technologies were not created for libraries purpose, yet in some way or another these items are broadly utilized within numerous types of libraries for instance RFID in 1940, Xerox in 1950, Fax in 1983, CD-ROM in 1985, and Internet in 1993 are some of the best developments which changed libraries. The effects of these innovations on libraries are so much that the individuals' impression of libraries has changed.

Purpose of the study

The primary aim of this research is to make survey on the Information Technology Management strategies challenges of RFID in colleges of education libraries, how IT management improve operation and why some librarians are reluctant to adopt RFID.

Research Questions

What are the IT management strategies challenges faced RFID within College of education libraries?

What are the IT management challenges faced in RFID within your academic libraries?

Why are some College of education librarians reluctant to adopt RFID in their libraries?

How does RFID management improve the operation of College of education libraries?

Scope of the study

The study will be delimited to colleges of education in North-East Nigeria to allow for enough and thorough research, hence other colleges of education outside North-East will not be covered.

Significance of the study

The study will be of significance to policy makers, administrators, Librarians and students whereby new horizon will be explored, thus enhancing the usage of the libraries.

RESEARCH METHODOLOGY

The methods that were employed in carrying out the study under the following subheadings; Research Design, Area of the study, Population, Sample and Sampling Techniques. Instrument for Data collection, Validation of the Instrument, Reliability of the Instrument, method of Data collection as well as Method of Data Analysis.

Research Design

The study was conducted using correlation Survey research design. Adeyemi (2008) described a correlation survey as a collection of data from members of a population in order to determine the relationship between the populations with regards to one or more variables. A direct observation of schools' libraries was carried out during the study using a questionnaire.

Area of the study

The area of the study were all colleges of education in North-East Nigeria.

Population

The target population of the study were all 10,231 students in Colleges of Education in North-East Nigeria (Federal and State owned)

Sample and Sampling Technique

The total 370 respondents was drawn from six colleges of education in North-East Nigeria. Three (3) Federal colleges and three (3) state owned colleges, namely: FCE (T) Potiskum, Yobe state, FCE (T) Gombe, Gombe state, and FCE Yola, Adamawa state, Sir Kashim Ibrahim COE Maiduguri, Borno state,

COE Kashere, Bauchi state, and COE Zing, Taraba state. The table provided by Krejeie and Morgan (1970) was used to estimate the sample size of respondents. The table determined the needed size of a randomly chosen sample from a given finite at 95 percent level of significance. Stratified random sampling technique will be used to obtain the sample of NCE students using schools' libraries. Six schools will be randomly chosen and also for convenience.

Instrument for Data Collection

The instruments that was used for data collection in the study was a structured questionnaire the questionnaire consisted of section A, B, & C. section A was a Letter of Introduction, section B consists of a column that elicited information from the respondents, section C consists of (20) items meant to give information on libraries requiring strongly agree (4), Agree (3), disagree (2), and strongly disagree (1).

Validation of the Instrument

The instrument was face and content validated. The instrument was validated by a Principal lecturer from department of Library science, Federal University Dutsinma and two Senior lecturers from department of Library science, Aminu Saleh College of Education Azare who were expected to examine the instrument to check the appropriate of the items on the check list to ensure that the wordings of the contents were correct to avoid ambiguity.

Reliability of the Instrument

The instrument was pilot tested in Umar Suleiman COE Gashua Yobe state and COE Waka Biu, Borno state which are outside the study area to determine the reliability of the instrument. Six lecturers were used, two from each school as well as fifteen students, five from each school.

The reliability of the instrument was determined using the Cronbach Alpha (a) which estimates the coefficient of the internal consistency of the items on the instrument.

Method of Data Collection

The data for the study were generated using a questionnaire. The instruments were administered to the respondents in the schools. The researcher together with six research assistants administered the items to the respondents under the study area and retrieve same immediately after their completion.

Method of Data Analysis

The data generated for the study were analyzed using the statistical Package for Social science (SPSS) version 22. The research question were answered using descriptive statistic (Mean and Standard deviation)

RESULTS AND DISCUSSION

4.1 Research Question 1. *What are the IT management strategies in RFID within academic library in your institution?*

Table 1. Descriptive statistics of the IT management strategies in RFID within academic library in your institution

Item	N	Mean	SD
Frequency use of RFID system	370	2.78	0.99
Rating of circulation system	370	3.05	0.75
Ranking of user's preference for RFID use	370	3.09	0.77
Positive change in the attitude of users	370	2.89	1.07
Positive change in the attitude of library staff	370	3.22	0.89
Grand Mean	370	3.00	0.89

The descriptive statistics in Table 1 indicated 370 respondents, responded to 20 items on the questionnaire indicating IT management strategies in RFID within academic library in the institutions. The grand mean of 3.00 with standard deviation of 0.98 showed that the level of IT management strategies in RFID within academic library in the institutions is low as supported by a study conducted by Coyle, K. (2005).

Research Question 2. *What are the IT management challenges faced in RFID within your academic libraries?*

Table 2. Descriptive statistics of the IT management challenges faced in RFID within your academic libraries

Item	N	Mean	SD
Educational qualification of library users	370	4.17	1.17
Age group of users	370	3.09	0.79
Gender of users	370	3.09	0.88
Source of awareness for RFID	370	3.56	0.79
Use of RFID	370	4.22	1.18
Grand Mean	370	3.63	0.96

The descriptive statistics in Table 2 indicated that 370 respondents, responded to 20 items on the questionnaire indicating IT management challenges faced in RFID within academic libraries. The grand mean of 3.63 with standard deviation of 0.96 showed that the level of IT management challenges faced in RFID within the academic libraries is high as supported by Koteswara Rao (2004) in his study.

Research Question 3. *Why are some librarians reluctant to adopt RFID in academic libraries?*

Table 3. Descriptive statistics of some librarians reluctant to adopt RFID in academic libraries

Item	N	Mean	SD
Positive change in the attitude of the library staff	370	3.52	0.91
Use of RFID in other area	370	2.98	0.74
Effectiveness of RFID system for security of books	370	4.28	1.13
Assistance by staff in use of smart cards	370	3.08	0.65
Arrangement of training/user education for use of RFID	370	3.03	0.61
Grand Mean	370	3.38	0.81

The descriptive statistics in Table 3 indicated that 370 respondents, responded to 20 items on the questionnaire indicating some librarians are reluctant to adopt RFID in academic libraries. The grand mean of 3.38 with standard deviation of 0.81 showed that a good number of librarians are reluctant to adopt RFID in academic libraries to be low, a position supported by Guillemette and Pare, (2012)

Research Question 4. *How does RFID management improve the operation of academic libraries?*

Table 4. Descriptive statistics of RFID management improve the operation of academic libraries

Item	N	Mean	SD
Awareness of issue-Return through smart card	370	3.16	0.85
Use of drop-box for return of books	370	3.54	0.90
Method of returning books	370	3.09	0.79
Ranking of user's preference for RFID use	370	3.56	0.88
Use of RFID in different library collection	370	2.95	0.72
Grand Mean	370	3.26	0.83

The descriptive statistics in Table 4 indicated that 370 respondents, responded to 20 items on the questionnaire indicating RFID management improved the operation of academic libraries. The grand mean of 3.26 with standard deviation of 0.83 showed that the level at which RFID management improve the operation of academic libraries is low as postulated by Azizan Suda, K. and Abdul Rani, S. N. (2013)

Summary of findings

The result of the findings showed that the level of IT management strategies in RFID within academic library in the institutions is low.

Also grand mean of 3.63 with standard deviation of 0.96 showed that the level of IT management challenges faced in RFID within the academic libraries is high.

In addition, grand mean of 3.38 with standard deviation of 0.81 showed that some librarians are reluctant to adopt RFID in academic libraries to be low.

Lastly, grand mean of 3.26 with standard deviation of 0.83 showing that the level of RFID management improve the operation of academic libraries is observed to be low

CONCLUSION

From this research it was observed that an insight for libraries and librarians who are thinking of implementing the RFID system or who are worried about the outcome/future of the technology needed be addressed. Most librarians are always interested in new innovation in technology in order to improve the quality and efficiency of service. Furthermore, RFID technology save cost of operation and management of material flows. RFID technology offers potentials for access to library services and security in the library, RFID will reduce the amount of time required to perform circulation operation, better housekeeping control, reliability, minimise theft of books and provide much access and storage of information.

RECOMMENDATIONS

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

1. That the IT management strategies in RFID within academic library in academic institutions should be enhanced for more efficiency.
2. That the IT management challenges faced in RFID within academic libraries should be reduced through encouragement of librarians to embrace new emerging technologies.
3. That there is need to address some librarian's reluctance to adopt RFID in academic libraries.
4. That steps should be taken to improve RFID management operation of academic librarians

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