STUDENTS' USAGE OF ELECTRONIC JOURNALS AT THE KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

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Abstract

This paper examined the level of patronage of electronic journals/information in the Electronic Information Department (EID) of the Kwame Nkrumah University of Science and Technology Library. Data for the study was collected from the request forms available at the EID as at the time of the study. Data collected was analyzed using SPSS software. It was revealed by the data available that there is first and foremost under utilization of the electronic journals that have been subscribed by the University Library. It was also revealed that many of the requests that were made came from postgraduate and final year undergraduate students. Among some of the recommendations made were further sensitization of students about the importance of the resources, and the intensification of user education in the form of an online training manual in both audio and text and its incorporation into the curriculum of the proposed information literacy skills programme to be run by the University Library.

Keywords: ELECTRONIC INFORMATION, USE STATISTICS, E-RESOURCES, UNIVERSITY LIBRARIES

Introduction

Electronic journals, for that matter electronic information are sources of information which are very important in academia. They are used variously by lecturers and students. For lecturers, electronic journals help them to give current information in their areas of specialization and to equip them teach their students from locations far and near. It thus helps them to upgrade their knowledge and be abreast with developments in their fields of study. Students also get current and relevant information or literature in their respective areas of study through the use of electronic journals. This helps them in their assignments, projects and theses. Electronic journals have the potential to change the future of scholarly research -- both in their function as the distribution organ of research results and in their function as the basis for scholarly research and information (Rusch-Feja and Siebeky, 1999).

There have been a lot of studies on user and usage statistics. This according to Moghaddam and Talawar, (2008) "started in the late 1990s and were mostly carried out among the academic staff of institutes and colleges, who were the most frequent users of scholarly journals". Many of these studies have also been vendor-based.

The compilation of usage statistics is very important for libraries. Through the statistics, one would be able to understand the trend and use of materials that have been subscribed by the library. This would also help the library to plan and budget appropriately for the future.

Cheng, Bischof and Nathanson, (2002) intimated that "we need information that will help us provide services to satisfy the needs and expectations of our users. Instead of simply reacting to the latest trends, we should use a statistical infrastructure that helps us accurately interpret data about library services and collections". Again, in the opinion of Cheng, Bischof and Nathanson (2002) "it is critical that we find ways to understand the shifting usage patterns and behaviors of our users in order to satisfy their research needs".

We collect user statistics for the following reasons: to help the library with promotion and user support; for budgeting and decision making; collection development; and to aid bench-marking (Conyers, 2006; Kidd, 2002). Librarians often use statistics as performance measures: to ascertain how many volumes are housed in libraries; how many journals are subscribed to; how many people come into the library; how many times books and journals have been checked out; how many reference questions are asked (Mercer, 2000). Librarians need to know about different aspects of use (including the quantity, patterns and the quality of use) in order to be able to justify their expanding budgets, improve their services and increase the value they add to their mother organizations (Jamali, Nicholas and Huntington, 2005).

The University Library of the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana has over the past years been subscribing to e-journals in several databases in the sciences and social sciences to assist students in their studies. A close observation has shown that not many students make use of these journals.

The objectives of this paper are the following:

1. to assess the level of usage of e-journals by students of Kwame Nkrumah University of Science and Technology (KNUST) at the Electronic Information Department of the Main Library;
2. to identify the causes and challenges facing students in using the e-journals; and
3. to make recommendations to increase the patronage and use of e-journals.

The KNUST Main Library
The KNUST Main Library is made up of six departments; namely Lending, Serials, Electronic Information, Reference, Acquisitions and Cataloguing. The Library has a staff strength of ninety one, comprising the University Librarian, thirteen senior members, fifteen senior staff and sixty three junior staff. The Library holds a collection comprising about 290,000 volumes of printed books and 3,840 journal titles. Of the journal titles, 340 are current. In addition to these, the Library has paid access to over 9,000 online journals in databases, CD-ROMS in specific subject areas and access to about 8,000 free online journals.

The Electronic Information Department
The Electronic Information Department (EID) of the KNUST Main Library is responsible for the selection, management and dissemination of e-resources in the University. In order to promote awareness and use, the Department also engages in sensitization and user education programmes of e-resources. The Electronic and Information Department provides Internet and e-mail services to the University community and the general public. The Department also has facilities for accessing online journals and databases. It has a computer laboratory with forty (40) computers all with Internet connectivity. For administrative purposes, the Department generates usage statistics of all databases. Currently the EID has a staff strength of two - one senior member who is a professional librarian and one senior staff with a diploma in librarianship.

Methodology
Several tools can be used for carrying out research in usage statistics. Among them are questionnaire, interview, transaction log, and citation study (Moghaddam and Talawar, 2008).

This study relied on data gathered from the request forms from the Electronic Information Department of the KNUST Main Library. The request form elicits data on users among others, on their bio-data, programme, department, faculty, and the topic to be researched into.

Even though the total number of journal articles accessed by all categories of users, both within and outside the Library, from 2006 to 2008 was 342,808, this study made use of requests made by students physically at the EID during this period. This excludes the actual number of full text articles downloaded for users.

In all four hundred and eighteen (418) request forms being the number of requests made by students for the period under review was used for this study. The population sampled for this study was students of the Kwame Nkrumah University of Science and Technology (KNUST). The total student population was 24,924 as at 2008 as reported by the Vice-Chancellor during the 42nd Congregation of the KNUST. The Statistical Package for the Social Sciences (SPSS) Version 11 was used for the analysis. Descriptive statistics was used to summarize the data. The data was presented in percentages and illustrated in tables and pie charts where appropriate.

Data Analysis

Sex
The gender of the respondents was considered as being very paramount to the better understanding of the patterns of request of electronic information by the students. From the statistics available the male population dominated with a percentage of 73.68. The female population constituted 26.32% only. From the statistics presented it may appear as though the male students are the ones who resort to the use of electronic journals but that is not the case. According to KNUST Basic Statistics (2009), the female to male student ratio is 1:3. This shows that statistically both male and female have fairly made use of the resources to improve upon their academic work - be they assignments, project work or theses.

Usage by year of study
Figure 1 below illustrates usage of the e-journals with reference to the year of study of the students. Year 1 to year 4 constitutes those offering undergraduate programmes and the postgraduate constitutes those offering masters and doctoral programmes. As can be seen in the figure, those in year 4, that is final year undergraduate students had the highest percentage usage of 53.59. This was followed by those offering postgraduate programmes with 32.30% usage. The usage by other year groups are as follows: third year students- 11.24%, second year students- 2.15% and first year students- 0.72% respectively.

It is to be noted that a lot more final year undergraduate students and postgraduate students constitute the highest number of students who requested for electronic information during the period under study. The reason is not far fetched. They are the ones writing project works and theses as part of their degree requirements. Therefore, they need these materials which normally contain current information to be able to carry out their research work successfully. Other year groups, even though it is important from the data available to use these materials did not find it very necessary to resort to the use of these electronic materials for their studies. Several reasons could be adduced to explain this trend, one of which is the fact that some students may not be aware of the availability and usefulness of these resources. Again, this group of students may rely mostly on lecture notes and textbooks for their assignments and mini projects.

Fig 1: Usage by year of Study
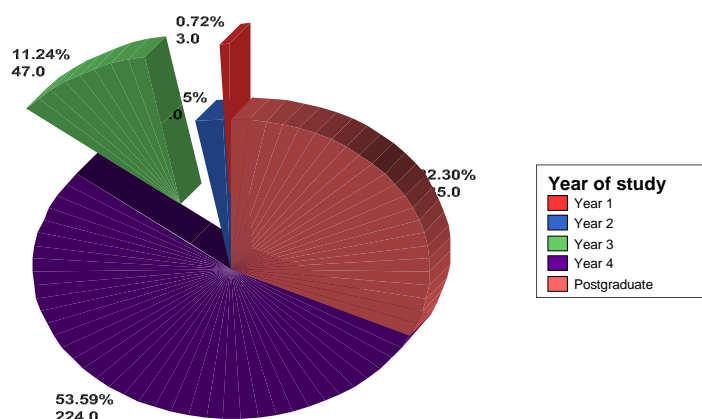
Source: EID, 2008

Programmes of study
Table 1 below shows the percentages obtained for the programmes of study of the students. Students offering BSc. Chemistry had the highest percentage of 11. BA Sociology and Social Work followed with 5.7% with MBA scoring 5.5%. BSc Planning, BSc Land Economy, BA Geography and Rural Development, BSc Agriculture, PHD Business Administration and BSc Building Technology scored 5.3%, 4.5%, 3.6%, 3.1%, 2.9%, and 2.9% respectively. The rest of the percentages for the various programmes can be seen in the table. BSc Mechanical Engineering and several others recorded the lowest percentage of 0.2.

BSc. Chemistry accounts for a high percentage usage because most lecturers in this department seem to be aware of the resources and thus refer their students to the Library to use them. This suggests that the resources have been meeting the needs of these students.

Table 1: Use of E-journals by Students by Programmes

Programme	Frequency	Percent
LL.B	7	1.7
BA Industrial Art	1	.2
Mphil Materials Eng	3	.7
Phd Wood Tech	1	.2
Msc Landscape	1	.2
Phd Biological Science	1	.2
Msc Food & Postharvest Eng	2	.5
Mphil Mechanical Eng	1	.2
Phd Chemical Pathology	3	.7
Mphil Chemical Pathology	1	.2
Msc Animal Nutrition & Mgt	2	.5
Phd Med Entomology & Parasitology	1	.2
Mphil Pharmagnosy	1	.2
Phd Plant Virology	1	.2
Phd Entomology	1	.2
Msc Analytical Chemistry	1	.2

MPhil Development Planning	1	.2
MPhil Agric Engineering	1	.2
Msc Chemistry	2	.5
MPhil Painting and Sculpture	1	.2
BA Publishing Studies	9	2.2
BFA Painting & Sculpture	2	.5
Bachelor of Business Administration	7	1.7
BSc Land Economy	19	4.5
BSc Building Technology	12	2.9
BSc Architecture	3	.7
BSc Chemical Engineering	6	1.4
BSc Mechanical Engineering	1	.2
BSc Civil Engineering	7	1.7
BSc Materials Engineering	1	.2
BA Sociology & Social Work	24	5.7
BSc Agricultural Engineering	5	1.2
BSc Geomatic (Geodetic) Engineering	1	.2
BSc Mathematics	5	1.2
BSc Biochemistry	7	1.7
BSc Environmental Science	2	.5
BSc Food Science & Technology	2	.5
Bsc Computer Science	1	.2
BA Geography & Rural Development	15	3.6
BSc Theoretical & Applied Biology	4	1.0
BSc Statistics & Actuarial Science	1	.2
BSc Chemistry	46	11.0
BSc Medical Laboratory Technology	6	1.4
B Pharm (Pharmacy)	3	.7
BSc Herbal Medicine	3	.7
BSc Agriculture	13	3.1
BSc Natural Resource Mgt	9	2.2
BSc Forest Resources Technology	1	.2
Msc Soil Science	3	.7
BA Textiles	2	.5
Msc Environ Resource Mgt	8	1.9
Msc Construction Mgt	7	1.7
Msc Devt Planning and Mgt	8	1.9
Post Dip in Architecture	1	.2
Bsc Planning	22	5.3
Bsc Accounting	1	.2
PHD Business Administration	12	2.9
Mphil Pharmacology	2	.5
MA Art Education	3	.7
Msc Environmental Science	4	1.0
BA Art Education	6	1.4
Bsc Crop Science	7	1.7
Bsc Animal Science	3	.7
MFA	1	.2

BA Languages	2	.5
MPhil Land Economy	3	.7
Ph.D. Geomatic Engineering	1	.2
MA Geography and Rural Development	6	1.4
MSc Animal Science	1	.2
MPhil Land Mgt	5	1.2
BA Economics	9	2.2
MPhil Business Adm.	2	.5
MPhil Sculpture	1	.2
Ph.D. Agric Economics	1	.2
MBA	23	5.5
BSc Biological Science	2	.5
MSc Geodetic Engineering	1	.2
MPhil Agric Economics	1	.2
BA Political Science	1	.2
MSc Food Science and Technology	5	1.2
Ph.D. Geography	1	.2
BA Communication Design (Graphic design)	2	.5
MPhil African Art and Culture	1	.2
MSc Materials Engineering	1	.2
BSc Water Resources Eng and Mgt	1	.2
MA Africa Art & Culture	2	.5
MSc Agronomy	1	.2
BSc Agric Econs	2	.5
MSc Biochemistry	1	.2
MSc Water Resources Eng and Mgt	1	.2
MSc Biotechnology	1	.2
Ph.D. Crop Science	2	.5
Total	418	100.0

Source: EID, 2008

Usage by Departments
In order to enable the authors to properly and clearly understand the patterns of request of the electronic journals by the students, the departments to which they belong were also examined. Table 2 below shows the percentages for the various departments. The Chemistry Department came out as the first with the highest percentage of 11.7 for the period under review. The Business School followed closely with 10.8%, with the Department of Planning scoring 7.4%. The Departments of Land Economy, Sociology and Social Work, Geography and Rural Development, Building Technology, Material Science Engineering, Crop and Soil Science and Biochemistry respectively had the following 6.5%, 5.5%, 5%, 4.5%, 4.1%, 3.6% and finally 3.1%. The other percentages for the other departments can be seen in the table.

Table 2: Use of Electronic Journals by Departments

| Departments	Frequency	Percent
Agric Economics and Farm Mgt	8	1.9
Building Technology	19	4.5
Chemical Engineering	6	1.4
Chemistry	49	11.7

Civil Engineering	9	2.2
Crop Science and Soil Science	15	3.6
Design and General Art Studies	4	1.0
Agricultural Engineering	11	2.6
Economic and Industrial Mgt	9	2.2
Fresh Water and Watershed Mgt	1	.2
General and African Studies	1	.2
Geodetic Engineering	2	.5
Horticulture	3	.7
Industrial Art	3	.7
Land Economy	27	6.5
Languages	2	.5
Agroforestry	1	.2
Material Science Engineering	17	4.1
Mathematics	3	.7
Mechanical Engineering	2	.5
Molecular Medicine	4	1.0
Painting and Sculpture	5	1.2
Pharmaceutical Chemistry	1	.2
Pharmacognosy	1	.2
Animal Science	8	1.9
Pharmacology	4	1.0
Planning	31	7.4
Renewable Natural Resources	5	1.2
Social Sciences	2	.5
Wood Science and Technology	4	1.0
Business School	45	10.8
Medical Lab	6	1.4
Architecture	4	1.0
Sociology and Social Work	23	5.5
Law	7	1.7
Environmental Science	2	.5
Computer science	1	.2
Geography and Rural Development	21	5.0
Theoretical and Applied Biology and Environment	7	1.7
Geomatic Engineering	1	.2
Food Science	3	.7
Herbal Medicine	3	.7
Political Science	1	.2
Art Education	9	2.2
Silviculture	1	.2
Agriculture	1	.2
Biochemistry	13	3.1
Biological Sciences	4	1.0
Book Industry and Publishing	9	2.2
Total	418	100.0

Source: EID, 2008

Usage by Colleges

Figure 2 illustrates requests made by users on College by College basis. The aim was to get a cumulative percentage of requests made by the students of the various Colleges in order to ascertain the rate of requests made by each College. From the figure it can be seen that students from the College of Art and Social Sciences had the highest percentage of 33.49. The students from the College of Science followed with a percentage of 19.86, with the College of Architecture and Planning recording 19.38%. College of Health Sciences had the least percentage of 4.78%. It is not surprising to see the College of Art and Social Sciences obtaining the highest number in terms of usage. This is because it has the highest number of students as attested to in the Vice-Chancellors report to the 43rd Congregation of KNUST.

Figure 2: Use of Electronic Journals by Colleges
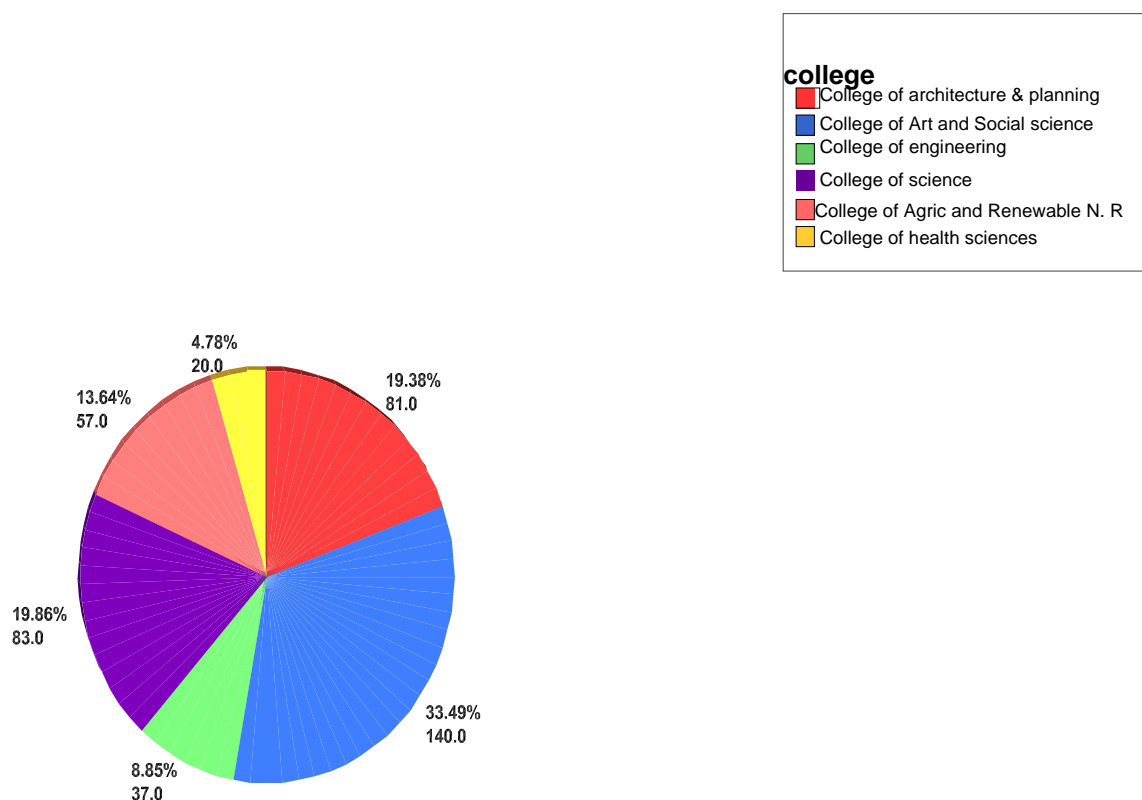
Source: EID, 2008

Conclusion

From the results of the data analyzed, there is an under utilization of the e-resources at the Electronic Information Department of the KNUST Library. This is evidenced by the number of requests for the period under review as against the entire student population. Secondly, many of the students who made requests were final year undergraduate and postgraduate students but the e-resources available to the University are supposed to be exploited and used by all students, regardless of the year of study.

Recommendations

This study has thus revealed some challenges facing e-resources as regards its patronage by the students of KNUST. In the light of the above the following recommendations are made to enhance the optimal use of e-journals by students of KNUST.

As a first measure, it is suggested that further sensitization be done about the existence, availability and potential use of e-resources to the students. This can be done in many ways. The usual orientation granted to first year students can be supported with flyers, leaflets, seminars and lectures possibly at college, faculty and departmental levels. The University radio station (Focus FM) can also be used to educate and encourage students to make good use of the electronic information that has been subscribed to by the University Library. It is the authors' fervent belief that if this is done, it will go a long way to improve patronage of the electronic journals.

The role of the Electronic Information Department is not only to sensitize but also to facilitate user education by way of training. The aim is to equip the user to be able to access the databases independently. The current arrangements where users rely on selective dissemination of information (SDI) where literature search is done for students puts so much pressure on the few staff available. If user education is done effectively, requests will reduce drastically. This can be done by developing an online training manual in both audio and text formats. To make it user-friendly, it should be simple and very easy to use. The user-education on e-resource use can also be integrated into the information literacy skill curriculum that is being introduced by the Library.

The University Library from time immemorial had relied on user education for its users to promote usage of e-resources. Whilst this has recorded some modest successes over the years much needs to be done for its real impact to be felt. About fifteen of the Library's professional staff have had some trainers' training. What is left now is a coordinated programme between the Main and the College Libraries to deploy the trainers to impact the knowledge to faculty members and students.

One main hindrance to running an effective user education is inadequate ICT infrastructure. For a University of about 24,924 students and 735 faculty members, the current number of student-computer ratio which is about 3,000 computers (KNUST, 2007), that is 1 computer to 8 students appears encouraging yet internet connectivity is poor. In order to promote the use of e-resources there is the need to expand and improve internet access by the University. Besides, internet services in terms of bandwidth size and the attendant speed should be looked at. Wireless connectivity can also be expanded to go beyond its present coverage area.

It is finally suggested that further research be conducted on the usage of these materials in the coming years. This will go a long way to help assess patronage over the years. This will also help the University Library to know whether patronage has improved or declined.

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