

Determinants of Library use among undergraduate students of school of science: A case study of University of Eldoret.

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ABSTRACT

The academic library serves as an important role in sustaining the primary functions of research and scholarship of higher education. Our current study examines factors associated with library use among undergraduate students in the school of science. The study also examined whether the students perceived the library to be valuable and satisfying given the state of its environment. We conducted a descriptive cross-sectional study where primary data was collected using self-administered questions which contained both closed ended and open ended questions. The study subjects were mainly the second, third and fourth year undergraduate students who in session during the interview period. To select respondents in our study, multistage sampling technique was used where students in the school of science were selected in several stages.

Of the 384 study subjects included in the analysis, 58.3% were male while a slightly lower proportion were female (41.7%). Median income spent by student per semester was Kshs.25,000 with interquartile range of (IQR=Kshs.20,000-35,000). A higher percentage 334 (87.0%) of respondents reported having utilized the library in the past one month and 50 (13.0%) did not while a higher proportion (87%) of the study subjects were in their younger age group (18-25 years). Those who were single in the study population accounted for (92.0%) while their counterparts who were married were (7.5%) respectively. It's evident that most students were under government Sponsored Programme (56.8%).

At multivariate level, factors such as student year of study and type sponsorship were significantly associated with library use after adjusting for age, gender, type of department and distance to student residence. There is need to identify factors associated with Library use among undergraduate students in both Public and Private Universities in Kenya.

INTRODUCTION

During the last decade, the interest in students' library use and information needs has increased mainly due to increased number of students and libraries needs to meet their client's demands. Studies of students' attitudes to and use of university libraries have been conducted in several countries (Eskola 1998). (Williams 1995) surveyed Canadian undergraduate library use, and found that active learners who participate more in class and who read, write and study more are regular and active library users.

Academic libraries are essential to the core mission of colleges and universities across the nation. To that end, (George D. Kuh and Robert M. Gonyea 2003) noted that "the library is the physical manifestation of the core values and activities of academic life [...] the library's central role in the academic community is unquestioned." Questioning the importance of libraries to student learning is, according to Kuh and Gonyea, "almost heretical"; yet, along with other higher education colleagues, academic librarians face increased external pressure for accountability while also undertaking ongoing internal commitments to improvement (Richard P. Keeling et al. 2008).

The academic library serves as an important role in sustaining the primary functions of research and scholarship of higher education. Besides the traditional way of providing access to knowledge, library also offers a congenial ambience as a meeting place that allows users to complete their assignments, undertake their individual projects or revise their studies. As such, the value of the academic library in institutions of higher learning is well-established (Tenopir 2009).

The main users of this information in higher education settings consist of students, researchers, and academic staff. Nevertheless, the needs of each of these users may vary according to their information or literature-seeking behaviour. As a result, there exists a need for the continuous assessment of the myriad of services provided by university libraries so as to more effectively sustain its services and programs (Metoyer 2000). (Gelfand 2005) noted that the growing emphasis on usability studies and libraries trying to respond to user needs by becoming a more user-centered organization forces an institution to listen carefully to its users. (Fowowe 1989) notes that a library can fulfill its function best by pursuing a policy of constant self-evaluation in order to be alert to the changing needs of its users. Library services must create a balance between specific research and information needs and make use of available information materials to meet the needs of the institution's academic programmes (Oseghale 2008).

At the same time the advancement of research cannot take place without adequate availability of the relevant information. In this sense libraries take part directly in research process and hence are components of knowledge innovation, and are involved in the diffusion and conversion of knowledge thereby acting as bridges for turning the results of knowledge into realistic productive entities (Cao 1999)

Libraries being centre's for collection, processing, storage and distribution of information and knowledge represent an important link in the development of knowledge and are important ideological and cultural force with far reaching implications for the society (Wedgeworth 1996). Teachers need various kinds of information for teaching and research for the purposes of impacting knowledge to students and for self development.

University libraries set up their services to enhance the teaching and research missions of the institutions, particularly for students. (Fraschetti 2007) conducted a survey to determine the level of usage by students

and current resources of the library while (Tear 1999) showed that distance from the library is an important factor in frequency of use and indicated that positive experience with library staff at early age is a determining factor of library use at adulthood. (Fraschetti 2007) establish that the introduction of better working environment and availability of relevant materials in the library will enable the student to use the library more.

Specific user related characteristics that have been measured in the past according to (Powell 1997) includes frequency of library and information use, attitudes and opinions regarding libraries, reading patterns, levels of satisfaction, demographic data, personality, lifestyle and awareness of library services. (Majid 2001) found that the adequacy of collection, services and facilities were closely linked to the perceptions of library effectiveness.

The role of gender in determining university library use appears to be inconclusive. While (Grimes 2000) and (Whitmire 2001) found out that older minority females were more frequent library users when compared to their male counterparts, (Jiao, 1997) and (Onwuegbuzie, 1997) noted the opposite to be true. On the other hand, Wolf (Wolf 2005) found no statistical difference between gender and library use frequency.

The educational background of a student's parents may play a statistically significant role in the likelihood of library visits by the student (Wolf 2005). This stems from the fact that better educated parents realize the values of the library and may have inculcated this notion in their children in the past. (Williams 1995) and (Whitmire 2001) found students' library use to be dictated by academic programmes. Specifically, students whose coursework require significant writing of academic papers and reports are found to have a higher frequency of library use. These findings corroborate the earlier assertion of (Kramer 1968) that undergraduate students in engineering or science programs place less importance in library resources than their cohorts in liberal arts. First year students (freshmen) are the least likely library users while those in their final year (seniors) of studies are most likely to do so ((Williams 1995); (Whitmire 2001)).

In contrast, (Geffert 1998) noted that freshmen are more likely to use the library than seniors. This is primarily because incoming students are more amenable to library instructions and information, and would thus be more receptive to library visits. Hence, the effect of student's academic year on library utilization appears to be mixed.

The present study examines factors associated with library use among undergraduate students in the University of Eldoret, Kenya.

STATEMENT OF THE PROBLEM

Proportion of students who are currently using University library services remains relatively low when compared to the required standard by the ministry of education. Very few studies in Kenya and Africa have focused on the library service usage. There is need to identify factors associated with Library service usage at Public Universities in Kenya.

OBJECTIVES:

1. To investigate whether students perceive library to be valuable.
2. To determine the association between socio-demographic characteristics and library use
3. To assess factors associated with Library use among undergraduate students in the school of science.

METHODOLOGY

STUDY DESIGN

Cross-sectional descriptive study design was used.

Study site

The study site was the University of Eldoret Library which is in Uasin Gishu County, Eldoret town, Rift Valley Province, Kenya. Eldoret is a predominantly agricultural Town with fast growing population which is currently estimated to be close to 894,179 people (UasinGishuCounty) . University of Eldoret which is one of the leading Public Universities in Kenya serves as both a teaching and research Institution. The University has a student capacity of above 10,000 comprising of both Public and Privately Sponsored students. Approximately 3,000 students are admitted every year to various schools.

SAMPLING TECHNIQUE;

Multistage sampling technique was employed where students in the school of science were selected in several stages. First Stage involved the purposeful selection of three of the five departments in the School. The Departments selected were Department of Mathematics and Computer Science, the Department of Chemistry and Biochemistry and the Department of Biology and Biological Sciences. The second stage involved the selection of the Degree Program Courses being offered in the respective departments. The two Degree Programme Courses chosen were mainly Bachelor of Science in applied statistics with computing and Bachelor of Science in microbiology. The last stage involved was the random selection of students from each of the selected Degree Program Courses in the Department by probability proportional to size sampling technique. The proportionality factor was computed as follows:

$X_j = (p_j / P) * N$ where;

N=required study population size in the chosen Degree Programme

p_j = the number of students in each Departmental Course, j

P = the sum of all the number of students in the two Degree Programme Courses

X_j = the number of students sampled from each Departmental Course, j

STUDY POPULATION

The study only focused on students from school of science at the University of Eldoret.

INCLUSION CRITERIA:

Students who were in session for the academic year 2013/2014 were only included.

EXCLUSION CRITERIA;

Students who were not in session during the study period were excluded from our study sample.

SAMPLE SIZE DETERMINATION:

We estimated our study sample using the following descriptive sample size formula by (Cochran 1963) as shown below. The estimated proportion of students who are currently using Library services at the University of Eldoret is unknown and we used a conservative proportion of 50%.

$$n = \frac{Z_{\alpha / 2} * p * q}{d^2}$$

Where:

n = minimum required sample size

$Z = 1.96$, is the normal deviate corresponding to a confidence interval of 95%

P = Estimated proportion of University students who are currently utilizing University Library services.

$$q = 1 - p$$

$d = 5\%$, degree of precision or accuracy

$$n = \frac{1.96^2 * 0.5 * 0.5}{0.05^2} = 385 \text{ Subjects}$$

Hence this gives us the required sample size of approximately 385 students to be studied.

DATA COLLECTION METHODS AND TOOLS

Data were mainly collected using designed survey questionnaires. The relevant socio-demographic variables were collected which included age, gender, marital status, year of study, either public or privately sponsored student, library usage services, average income spent per semester.

The information obtained was entered into a data collection form detailing demographic data, utilization of Library services, and other important factors known to be associated with Library service usage. Data was handled with confidentiality.

DATA MANAGEMENT AND ANALYSIS

Data collection forms were checked for completeness and coded accordingly. Data was first entered into Excel database before being exported to STATA version 13.0 for analysis.

Frequency tables were generated for categorical variables while means and standard deviation were generated for continuous variables. To test for non-normality of continuous variables, Shapiro-Wilk test for normality was used as well as histograms plotted. Chi-square test was used to check for association between categorical variables and Library usage. To assess factors associated with Library usage, a binary logistic regression model was employed. P-values less than 0.05 were considered statistically significant.

THE LOGIT MODEL

The Logit model used was denoted as:

$$\text{Log}\left[\frac{P}{1-P}\right] = b_0 + b_1x_1 + b_2x_2 + \dots + b_nx_n \text{ (Hosmer 2000)}$$

Where, P = probability of a student to use the library in the past one month; X = explanatory variables hypothesized to influence this probability and $P/(1 - P)$ = represents the odds that the student is a library user.

RESULTS

Socio-demographic characteristics

From the 384 total respondents, 334 (87.0%) reported having utilized the library in the past one month and 50 (13.0%) did not. A higher proportion (87%) of the study subjects were in their younger age group (18-25 years). The median income spent by students in session per semester was Ksh.25,000 with interquartile range of (Ksh.20,000-Ksh.35,000) respectively. Distribution by gender showed a higher percentage of students to be male when compared to their female counterparts (58.3% vs. 41.7% respectively). Those who were single by marital status were the majority in the study population which accounted to 351 (92.0%) while slightly lower percent were married 28 (7.5%). Approximately 60.8% of the total students are from the department of biological sciences while the remaining 39.2% are from department of mathematics and computer science. Among the respondents who were in session during the interview period, students in the second and third year had higher proportions when compared to their colleagues in fourth year of study (38.8%, 33.6% vs. 35.1% respectively) . It's evident that most students were under government Sponsored Programme when compared to the group that was privately sponsored (56.8% vs. 43.2% respectively) .

Table 1: Socio-demographic characteristics of the study population, N=384.

VARIABLE	N (%)
Age category	
18-25	334 (87.0)
26-35	43 (11.2)
36 and above	7 (1.8)
Median income spent per semester, (IQR)	25,000 (20,000-35,000)
Gender	
Male	224 (58.3)
Female	160 (41.7)
Marital status	
Single	351 (92.0)
married	28 (7.5)
Divorced	2 (0.5)
Missing	3 (0.7)
Religion	
Christian	341 (89.3)
Muslims	35 (9.2)
Hinduism	6 (1.5)
Student year of study	
Second	149 (38.8)
Third	129 (33.6)
Fourth	106 (27.6)
Department category	
Chemistry and biological science	231 (60.2)
Mathematics and computer science	153 (39.8)
Type of sponsorship	
Government	218 (56.8)
Private	166 (43.2)

Table 2: Percent distribution on the perception of Library usage and satisfaction

VARIABLE	n (%)
Library is user friendly	
Strongly agree	68 (20.0)
Agree	152 (44.7)
Neutral	74 (21.8)
Disagree	33 (9.7)
Strongly disagree	13 (3.8)
Library services satisfaction	
Strongly agree	48 (14.0)
Agree	149 (41.2)
Neutral	90 (26.3)
Disagree	45 (13.2)
Strongly disagree	18 (5.3)

A higher percentage (64.7%) of students perceived library environment to be user friendly while slightly more than half, 197 (55.2%) of the respondents were well satisfied with library services.

Table 3: Bivariate association between Library usage and selected covariates among undergraduate students

Covariates	Library Usage		P-value
	yes	No	
Age category			
18-25	287 (85.9)	47 (94.0)	
>25	47 (14.1)	3 (6.0)	0.114
Gender			
Male	195 (58.4)	29 (58.0)	
Female	139 (41.6)	21 (42.0)	0.959
Marital status			
Single	304 (92.4)	47 (10.6)	
Married	25 (7.6)	3 (6.0)	0.687
Department			
Chemistry/Biological departments	201 (60.2)	30 (60.0)	
Mathematics and computer science	133 (39.8)	20 (40.0)	0.981
Year of study			
Second year	121 (36.2)	28 (56.0)	
Third year	115 (34.4)	14 (28.0)	
Fourth year	98 (29.3)	8 (16.0)	0.021

Distance to student residence

0-1 km	251 (75.2)	30 (60.0)	
<1-3 km	62 (18.6)	17 (34.0)	
>3 km	21 (6.3)	3 (6.0)	0.041

Type of sponsorship

Government sponsored programme	201 (60.2)	17 (34.0)	
Private sponsored programme	133 (39.8)	33 (66.0)	0.0005

Significance level, (p<0.05)

At bivariate level, student year of study, distance to student residence and type of sponsorship were significantly associated with library usage. Fourth year students were more likely to use a library service when compared to their colleagues who were not using the service (29.3% vs. 16.0%, p=0.021 respectively). Similar findings were also seen among students whose place of residence was less than one kilometer to the university library (75.2% vs. 60.0%, p=0.041) and those that were under government sponsorship when compared to their counterparts who were privately sponsored (60.2% vs. 34.0% respectively).

Table 4: Logistic regression of factors associated with Library Usage among under graduate students

Covariates	P-value	Unadjusted		Adjusted		
		UOR	95%CI	P-value	AOR	95%CI
Age category						
18-25	0.126	0.39	0.11-1.30	0.173	0.37	0.09-1.55
>25		Ref			Ref	
Gender						
Male	0.959	1.02	0.56-1.86	0.842	1.07	0.56-2.04
Female		Ref			Ref	
Marital status						
Single	0.688	0.78	0.23-2.67	0.850	1.15	0.27-4.85
Married		Ref			Ref	

Department						
Chemistry/Biological science	0.981	1.01	0.55-1.85	0.267	1.51	0.73-3.12
Mathematics and computer science		Ref			Ref	
Year of study						
Fourth year	0.014	2.84	1.24-6.50**	0.014	3.44	1.28-9.21**
Third year	0.068	1.90	0.95-3.79	0.041	2.18	1.03-4.60**
Second		Ref			Ref	
Distance to student residence						
0-1 km	0.783	1.20	0.34-4.25	0.224	2.46	0.58-10.47
<1-3 km	0.334	0.52	0.14-1.96	0.929	1.07	0.24-4.87
>3 km		Ref			Ref	
Type of sponsorship						
Government sponsored programme	0.0007	2.93	1.57-5.48**	0.003	2.62	1.38-5.00**
Privately sponsored programme		Ref			Ref	

Ref=reference category

****significant at p=0.05**

From table 4 above, it is evident that year of study and type of sponsorship were the only significant factors associated with library usage after controlling for age, gender, marital status, type of department and distance to student residence. It is quite interesting that fourth year students were four times more likely to access library services when compared to their counterparts in their second year of study (AOR=3.44, 95% CI=1.28-9.21). Likewise, similar findings were also seen among third year students who were two times more likely to use a library service than their colleagues in second year (AOR=2.18, 95% CI=1.03-4.60).

However, students who were under government sponsorship programme were three times more likely to use a library service when compared to those under private sponsorship and the association was statistically significant (AOR=2.62, 95%CI=1.38-5.00). Similar findings were also seen among those who were single and those staying close to University College. Being single was associated with 15% higher chances of using a library service when compared to their counterparts who were married although the association did not reach statistical significance (AOR=1.15, 95%CI=0.27-4.85).

Staying closer to University facilities was also associated with higher likelihood of using a University library service when compared to their colleagues who were staying further away from University residence, although the effect was not statistically significant (AOR=2.46, 95%CI=0.58-10.47).

DISCUSSION AND CONCLUSION

The findings of this study have important implications in identifying the determinants of library use amongst undergraduate students in the School of Science. Our study demonstrates that nearly 88% of the students make use of a library in the University of Eldoret. Those most likely to use a library are students in their third and fourth year of study than their counterparts in second year. In addition, those students admitted to government sponsored Programme other than those in privately sponsored programmes were more likely to use a library service. Our findings are similar to other studies conducted in many parts of world as discussed below.

Meanwhile, factors such as age, gender, marital status, student place of residence, and type of department where the student undertook the course, were found not to have a significant effect on the likelihood of a library use. Based on these results, several notable observations are discussed vis-a-vis library use amongst university students. First, since a higher percent of students had a positive perception towards library services being user friendly and satisfying, this was found to increase the likelihood of library utilization. This finding is similar to the study conducted by (Powell 1997) which showed levels of satisfaction as essential in utilizing a library service. Therefore, university policy-makers need to understand that library induction programs targeting in-coming first year students as part of their orientation are indeed useful in promoting future library use. This follows (Callison 1997) suggestion that more intensive efforts should be made to expand student orientation programmes.

Second, it is interesting to note that fourth year students are more likely to utilize the library service when compared to their second year counterparts. This result is comparable to the findings of (Williams 1995) and (Whitmire 2001) which showed senior or final year students to be more likely to utilize the library for their upper-level project assignments. One plausible explanation is that some of the final year courses require term papers and in the University of Eldoret, fourth year course have lots of practical's and research projects which prompt students to utilize library services such as internet more. Hence, the likelihood for these final year students to utilize the library is higher when compared to those in their second year of study.

Third, it is fascinating that results suggest that students who are admitted to University through government sponsored programmes are more likely to utilize library services than their privately sponsored students. This may be explained by the fact that most students who get admissions through government sponsorship reside within University compound and therefore spent most of their time studying in the Library and thus have no cost implications in terms of transport and this may be contrary to their counterparts in private programmes who stay away from University residence.

Fourth, it is true that gender was found not to be significantly associated with library usage. This finding is consisted with a study conducted by Wolf (Wolf 2005) which showed gender not to have a significant effect on library use.

Finally, our study represents one of the first attempts to assess factors that influence library use among undergraduate students in the School of Science. With data availability, future studies should replicate our analysis using additional factors to assess the robustness of our findings.

AUTHOR CONTRIBUTIONS

KM, JK and BK led the development of the manuscript. KM and JK performed the statistical analysis. Kurui M, JK & BK conceived, designed and supervised the study. DR, BK, KM, VK & CA assisted in writing the manuscript and KM & JK contributed to the study design. All authors read and approved the final manuscript.

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