

SRI LANKA LIBRARY REVIEW



SRI LANKA LIBRARY ASSOCIATION

VOLUME 30

JUNE 2016

SRI LANKA LIBRARY REVIEW

விபாகுசலி நூலகம்
யாழ்ப்பாணம்.

நா. ப. சாமிநாதன்
நா. ப. சாமிநாதன்

Volume 30 (2016)

Public Library
Jaffna.



9205(P)
PC

Sri Lanka Library Association (SLLA)
275/75, OPA Centre,
Stanley Wijesundara Mawatha,
Colombo 07.
Sri Lanka

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ISSN – 1391-2526

To Subscribe:

Sri Lanka : LKR 200.00

Foreign : USD 20.00

Rates include postage. Payment must accompany all orders. Remittances should be in favour of the Sri Lanka Library Association.

Printers

Samayawardhana Printers (Pvt.) Ltd.

53, Ven. Hikkaduwe Sri Sumangala Nahimi Mawatha,
(Maligakanda Road) Maradana,
Colombo 10.

Preface

The Library Review is one of the oldest local professional journals dedicated to Library and Information Science and published since 1962 by the Sri Lanka Library Association (SLLA). As in previous years, contributions in this issue include views/comments, research conducted and experiences of both senior and junior SLLA members.

The journal content in this issue is wide ranging from peer reviewed articles in Sinhala, Tamil and English with an appreciation of the late Prof. Russell Bawden, who contributed immensely to the library and information profession.

The Editorial Board this year introduced a new set of guidelines with the approval of the SLLA Council, mostly regards contributed articles and formats for submission with the intention of enhancing the quality of the journal to fit in as a professional and academic journal. The guidelines are printed at the end of the journal and also made available through the link <http://www.slla.org.lk/index.php/slla-publications/sllr>

Although technology is improved and there exist many advanced communication methods, the production of a professional/learned journal is not an easy task, by any means. It is a cooperative effort between authors and reviewers/editors. When it comes specially to a tri-language version there arise many conflicts with fonts, word processing, formatting, vetting and editing. However, after all the strenuous work and tireless effort, the present volume is published as a successful achievement. This gives much satisfaction, particularly to me, as Editor.

We hope the current issue will be of benefit not only to the professionals but also to the students of library and information science, particularly to the students of the LIS Diploma Course conducted by the SLLA. Many articles deal with pragmatic issues of currency and interest to all.

On behalf of the Publication Committee, it is my pleasure to thank all the authors and the reviewers/editors for their tremendous contribution. While expressing appreciation for the help given so willingly by the entire Publication Committee, my special thanks go to Mrs. Nanda Wanasundera and Mrs. Dilmani Warnasuriya, senior members of the Committee for their untiring support in language editing. Finally, I extend my sincere thanks to the President of the SLLA and the Council, and the SLLA office staff for all the support and encouragement given.

Sunethra Kariyawasam
Editor / June 2016

SRI LANKA LIBRARY REVIEW

PUBLICATION

One volume is published annually in June by the Sri Lanka Library Association.

SCOPE OF THE REVIEW

Papers reporting results of original research, review articles, short communications, pertaining either directly or indirectly Library and Information Sciences, their utilization and management will be considered for publication in the review.

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Influence of Socio-Economic, Educational Status of School Children on their Information Seeking Behaviour and School Library Usage (A Study among G.C.E Advanced Level Students of the Jaffna Educational Zone)

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Abstract

School libraries play a major role in seeking information for knowledge enhancement, by developing reading habits and information literacy skills among children, which are essential for life-long learning. This exploratory study intends to assess the influence of educational and socio-economic status of G.C.E (A/L) children on their information seeking behaviour, in addition to usage of school libraries. Randomly selected 442 students from G.C.E (A/L) classes of 20 schools in the Jaffna educational zone participated in the study. Multi-stage stratified random sampling method was adopted. Self-administered structured questionnaire was distributed to the sample population for data collection. In addition, data extraction form was used to evaluate the libraries in these selected schools. Collected data were analyzed using SPSS 17.0. Results revealed that school libraries are heavily used by the G.C.E (A/L) children for information seeking, irrespective of their educational and economic status of family. Descriptive analysis showed that reading textbooks is the prime purpose of visiting the school library, and majority visit the library 2-3 times in a week. Moreover, textbooks, newspapers and magazines were heavily used compared to other information resources available at school libraries. Evaluation of school libraries disclosed that most of the selected schools have adequate printed information resources and building facilities, whereas fund allocation, staff strength, electronic resource collection and infrastructure facilities are inadequate. Since this study revealed that school libraries are heavily used by the G.C.E (A/L) students, the respective authorities should take necessary action to enhance the library collection and accomplish the requirements mentioned above for the effective functioning of school libraries.

Keywords: Information seeking behaviour; School libraries; Library user studies

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Introduction

Nowadays, there is increasing awareness around the world with regard to reading. People read for different reasons and purposes, such as pleasure, leisure, relaxation, information and for knowledge. Their information needs are expected to be satisfied in a timely and preferred manner. Traditionally, libraries are in the forefront of information dissemination. Nowadays, information communication technology (ICT) is considered to be in the lead. However, it is well-recognized that technology for generating and sharing information is useless, without a system to locate, filter, organise and access it. Hence, libraries will continue to be there, but via altered and IT-driven means (Haber, 2011). With the changing environment of the information world from a library-centred to information-centred entity, libraries are expected to change from paper-based environment to digital interface (Haber, 2011).

In this connection, library user surveys need to be conducted periodically, in order to identify readers' needs and to provide satisfactory services to them. Several such user surveys reported at university level (Chandrasekar and Murugathas, 2012; Dharmaratne, 2009; Murugathas, 2009; Perera, 2005; Peterson and Jayasuriya, 2011; Sivathaasanet al., 2014; Wickramanayake, 2010; Yusuf and Iwu, 2010). However, user studies related to school libraries are very limited in Sri Lanka (Abeyrathna, 2004; Gunasekara, 2002; National Library and Documentation Services Board, 2014; Wickramanayake, 2016). Furthermore, reported studies too have not included the status of school libraries and reading habits of school children in the Northern and Eastern provinces of Sri Lanka, due to limited access to these areas owing to prevailed war situation.

School libraries are expected to play a key role in the development of reading habits among children. They should enhance information literacy skills among school children, which will pave the way towards life-long learning. In addition, School library guidelines developed by the IFLA also emphasized the need for physical and digital space in school libraries, since school library services and programs are very much influenced by the changes in digital and mobile technology, nowadays (IFLA, 2015).

However, it is observed that library usage among school students is showing a declining trend nowadays (Maynard and McKnight, 2001). Gunasekara (2002) identified major factors that hinder the promotion of reading habits among students of the secondary schools in Sri Lanka, namely:

- Students prefer to listen and chat rather than read
- Reading materials are inaccessible due to inadequate school libraries
- Influence of electronic media

Moreover, due to new technological innovations, school children prefer to seek required information via ICT, which they perceive more convenient and timely.

This present study proposed to examine the influence of educational and socio-economic status of G.C.E (A/L) students (attached to Jaffna educational zone) on their information seeking behaviour. In addition, usage of school libraries by these students will also be evaluated. Besides, this study also intended to assess the facilities available and services provided by these school libraries.

Methodology

This is a descriptive cross-sectional study intended to assess the usage of school libraries by the G.C.E (A/L) students, and examine the influence of educational and socio-economic status of these students on their information seeking behaviour. Jaffna educational zone was selected as the study area, which comprises Jaffna, Nallur and Kopay educational divisions. The participants in the study were G.C.E (A/L) students of the 2013 batch who studied at 26 schools in the selected study area. A quantitative approach, using structured questionnaires was chosen to obtain demographic and socio-economic details of the participants, their information seeking behaviour and perception with regard to school library facilities and services.

Multi-stage stratified random sampling method was used. Among the 26 schools in the selected study area, 20 schools were chosen for the study based on the student population of each educational division. In the selected schools, a division of a class is considered as a stratum. Further, participants (students) were selected randomly from each stratum.

In view of data collection, a self-administered structured questionnaire was developed with a series of open and closed-ended questions. After getting the ethical clearance for the study from the Ethical Review Committee of the Faculty of Medicine, University of Jaffna, the developed questionnaire was pre-tested among randomly selected 10 students who belonged to G.C.E (A/L) 2013 batch of the J/Chavakachcheri Hindu College. Based on the pre-test, suitability of the questionnaire was assessed and revised. After obtaining informed consent (in writing) from the selected sample population (n=422, 15.0%), revised questionnaire was distributed for data collection. In addition, a data extraction form was also prepared in order to assess the facilities available and services offered by the libraries of these schools.

Subsequently, collected data were analysed using the Statistical Package for Social Science (SPSS) version 17.0. The analysis commenced in a descriptive way by examining frequency and percentage with regard to library usage, and followed by cross-sectional analysis to determine the influence of educational and socio-economic status of G.C.E (A/L) students on their information seeking behaviour.

Results and Discussion

The empirical findings of the statistical analysis and cross-sectional analysis of the study are reported in this section.

1. Response rate and characteristics of sample population

A total of 422 questionnaires were distributed to randomly selected participants and all were duly completed and returned, giving a response rate of 100%. Table 1 shows the breakdown of responses with regard to sex, medium of education, stream of education, educational level of parents and economic status of the family of the sample population.

Table 1: Demographic and socio-economic characteristics of the sample population

Demographic and Socio-Economic characteristics	Number of Responses	Response Rate (in percentage)
Sex		
Male	188	44.5%
Female	234	55.5%
Medium of Education		
Tamil	368	87.2%
Bilingual	54	12.8%
Stream of Education		
Arts	158	37.4%
Commerce	95	22.5%
Biological science	74	17.6%
Physical science	95	22.5%
Educational level of Parents		
Well-educated	178	42.2%
Fairly educated	74	17.6%
Less educated	170	40.2%
Economical status of Family		
High income	175	41.5%
Moderate income	180	42.6%
Low income	67	15.9%

Out of 422 responses, 44.5% (n=188) were from male students whereas 55.5% (n=234) were from female students. It was also observed that majority of the students (n=368, 87.2%) are educated in the traditional monolingual system of learning, i.e., only in the mother tongue (Sinhala/Tamil) compared to bilingual education system which was introduced in 2001. In the Sri Lankan education system, education is free for all children and it is compulsory. Moreover, they have to study all subjects up to G.C.E (O/L), and should sit for a public exam at their age of 16. This G.C.E (O/L) examination results are considered as basic educational qualification in Sri Lanka. On completion of G.C.E (O/L), children are allowed to select the stream of study according to their field of interest. This study revealed that comparatively high number of children (n=158, 37.4%) opted for the Arts stream, followed by Commerce, Physical Science and Biological

science streams. Regarding educational level of parents, it is noteworthy that 40.2% (n=170) have studied up to G.C.E (O/L) or less, i.e., less educated. Nevertheless, when considering the economical status of the families only 15.9% (n=67) fall in the low income range, i.e., monthly family income is less than 10,000 Sri Lankan rupees.

2. Influence of educational and socio-economic status on information seeking behaviour

Nowadays, seeking information for various purposes becomes an integral part of human activity, especially in the fields of education, research and development. Information seeking behaviour means the way people search for information and utilise it to satisfy their information needs. However, it differs from person to person, and among different fields. In this study, influence of educational level of parents and economic status of family on information seeking behaviour of school children was examined.

- **Educational level of parents vs information seeking behaviour**

It was presumed that educational level of parents would have an impact on information seeking behaviour of children. Hence, the educational level of parents was assessed, and categorized as well-educated (both parents studied up to G.C.E (A/L) or above), Fairly educated (either father or mother educated up to G.C.E (A/L) or above) or less educated (both parents studied up to G.C.E (O/L) or below). Then, Information seeking behaviour of G.C.E (A/L) children belonging to these categories were determined via cross-sectional analysis (Table 2).

Table 2: Information seeking behaviour of G.C.E (A/L) students of Jaffna educational zone vs. Educational level of parents

Information seeking behaviour	Well-educated (n=178, 42.2%)	Fairly educated (n=74, 17.5%)	Less educated (n=170, 40.3%)	Total
Use libraries	160	63	158	381 (90.3%)
Consult personal books	75	23	57	155 (36.7%)
Communicate with human-beings	84	31	58	173 (41.0%)
Access to internet	71	23	32	126 (29.8%)

This study revealed that sample population comprises students from different educational background, namely well-educated (42.2%), fairly educated (17.5%) and less educated (40.3%). Further, it was observed that 90.3% (n=381) of the sample population seeking information via libraries, and this predominates among other methods irrespective of educational background. Next to this, personal communication with human-beings is preferred by the G.C.E (A/L) children to seek information. Accessing internet to seek information was the least preferred method among children belonging to all categories. Even though students are very much attracted by ICT technologies, lack of preference towards information seeking via internet may be due to lack of facilities to access internet at schools and residences.

- **Economic status of family vs Information seeking behaviour**

Cross-sectional analysis was employed to examine the information seeking behaviour of respondents who belong to different economic backgrounds. Economic status of the families of respondents were categorized as high (> Rs.50,000.00), moderate (Rs. 10,000.00-50,000.00) and low (< Rs. 10,000.00) income. Results of the study are summarized in Table 3.

Table 3: Information seeking behaviour of G.C.E (A/L) students of Jaffna educational zone vs. Economic status of family

Information seeking behaviour	High income (n=175, 41.5%)	Moderate income (n=180, 42.6%)	Low income (n=67, 15.9%)	Total
Use libraries	164	162	56	382 (90.5%)
Consult personal books	76	54	25	155 (36.7%)
Communicate with human-beings	79	70	24	173 (41.0%)
Access to internet	68	47	11	126 (29.8%)

It was observed that only 15.9% (n=67) of the sample population falls in the low income group. However, this does not reflect the economic status of the entire region. Besides,

the results indicated that libraries are heavily used by the G.C.E (A/L) students (n=382, 90.5%) of Jaffna educational zone irrespective of their economic status. Followed by communicating with human-beings (n=173, 41.0%), consulting personal books (n=155, 36.7%) and accessing internet (n=126, 29.8%) are identified as sources for information seeking. Moreover, except respondents from moderate income families, there is no significant difference in information seeking via consulting personal books and communicating with human-beings. With regard to information seeking via internet usage, low income group has showed little interest compared to other groups. This may be due to inadequate facilities at schools and residences, as predicted above.

This study showed that libraries are in the lead in relation to information seeking behaviour of G.C.E (A/L) students of the Jaffna educational zone, irrespective of educational level of parents and economic status of families. Thus, it was decided to assess the usage of school libraries by these students.

3. Usage of school library

In spite of studies reported that visiting libraries to gather knowledge is in the declining phase with the rapid development of ICT, this study demonstrated that over 90.0% of the G.C.E (A/L) students attached to Jaffna educational zone use school libraries for information seeking. Hence, this study assessed the following aspects with regard to school library usage, among G.C.E (A/L) students of the Jaffna educational zone.

- **Purpose of visit**

The G.C.E (A/L) students were asked to indicate the purpose(s) of their visit to the school library. Results of the study are summarized in Figure 1.

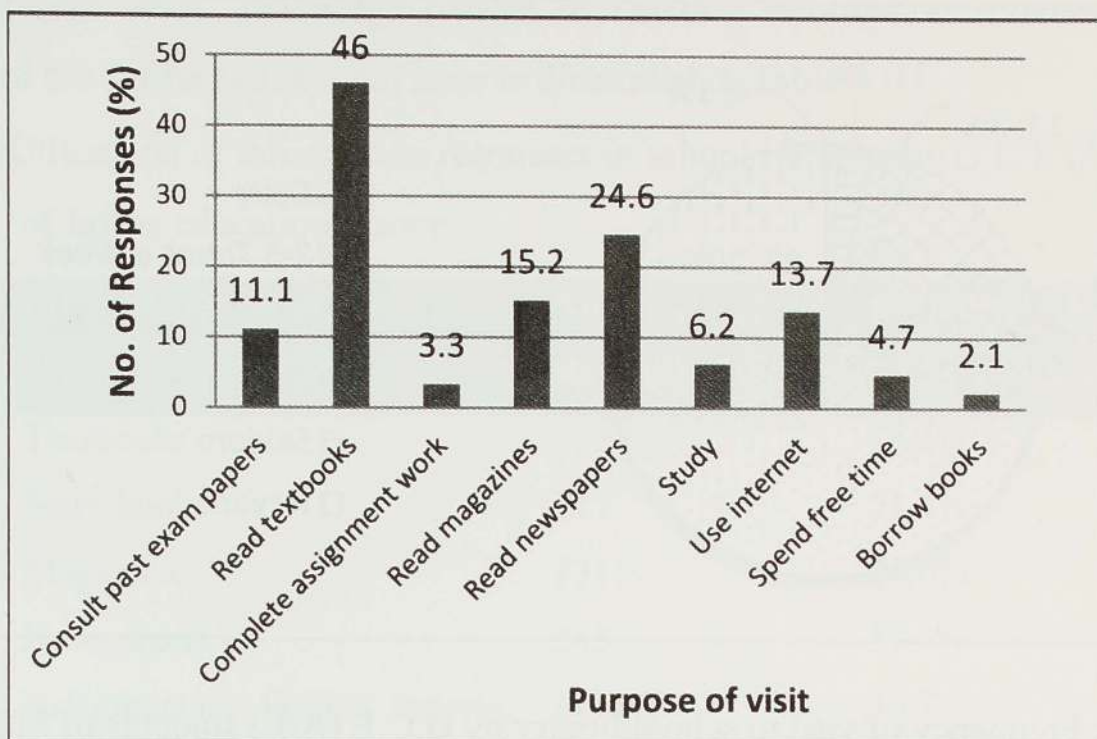


Fig. 1: Purpose of visit to school library by G.C.E (A/L) students of Jaffna educational zone

The results of the study showed that 46.0% (n=194) of the respondents visited the library for the purpose of reading textbooks and other materials related to their discipline in view of enhancing their subject knowledge. This was followed by the purposes of reading newspapers (n=104, 24.6%), reading magazines (n=64, 15.2%), using internet (n=58, 13.7%) and consulting past examination papers (n=47, 11.1%). A study conducted at the Covenant University, Nigeria revealed that priority for visiting the library was given to read for examination (Yusuf and Iwu, 2010). In another study carried out among biology undergraduates of the University of Jaffna, priority was given to borrow books from the library (Chandrasekar and Murugathas, 2012). However, in this study, it was observed that borrowing books was given least priority. Due to limited number of resources school libraries do not lend books and other materials for students.

- **Frequency of visit**

Frequency of visit to the school library by the G.C.E (A/L) students of the Jaffna educational zone is summarized in Figure 2.

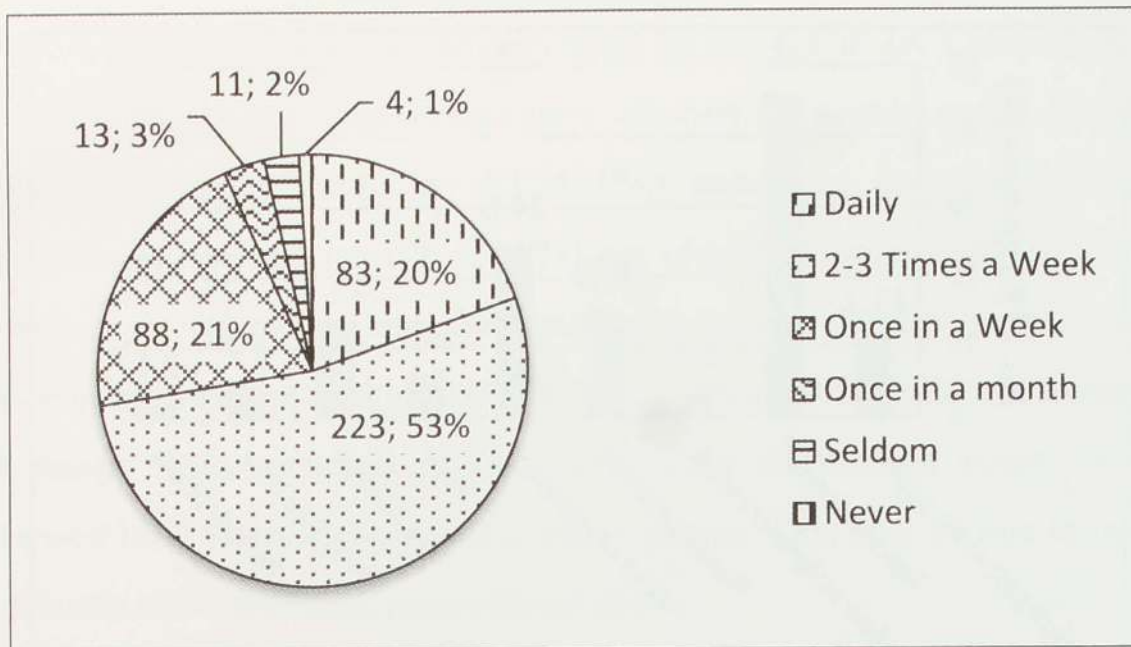


Fig. 2: Frequency of visit to school library by G.C.E (A/L) students of Jaffna educational zone

The findings indicated that 53.0% (n=223) of the respondents have the habit of visiting the school library at least 2-3 times a week, whereas 20.0% (n=83) of the respondents visit daily. In addition, 21.0% (n=88) of the respondents visit the school library at least once in a week. Moreover, only 6.0% (n=28) of the respondents stated that they visit the library once in a month/seldom/never. Hence, this study revealed that school libraries are heavily utilized by the G.C.E (A/L) students of the Jaffna educational zone. Results of this study comply with the findings of the study carried out among biology undergraduates of the University of Jaffna (Chandrasekar and Murugathas, 2012).

- **Utilization of library resources**

An exploratory study conducted with regard to leisure reading habits and interests among secondary school children of Sri Lanka showed that the children read regularly outside school hours and their reading habits are confined to textbooks, mainly. Further, reading was undertaken primarily for acquiring knowledge and study purposes. Even though they have positive attitude towards the school library, they expressed dissatisfaction with regard to library collection (Abeyrathna, 2004).

In the present study, the usage pattern of existing information resources in school libraries of the Jaffna educational zone is illustrated in Table 4.

Table 4: Utilization of information resources in school libraries by G.C.E (A/L) students of Jaffna educational zone

Information resources	Number of Responses	Response Rate (in percentage)
Textbooks	322	76.3%
Story books	217	51.4%
Magazines	131	31.0%
Newspapers	243	57.6%
Assignments, Project reports, Past exam papers, etc.	193	45.7%
E-resources	59	13.9%
Internet access	32	7.6%

It was observed that textbooks (76.3%) were heavily used by the students. Next to this, newspapers and story books were used by 57.6 and 51.4% of the respondents, respectively. Apart from that, over 30.0% of the respondents consult the assignments, project reports, past examination papers and magazines to complete their assignments, prepare for examination and gather information. However, compared to other information resources, usage of electronic resources (n=59, 13.9%) and internet (n=32, 7.6%) is very poor. Inadequate computer facilities and insufficient electronic resources and internet access facilities in schools in Jaffna may be the reasons for this. In order to confirm this, infrastructure facilities available and services provided by these school libraries were assessed.

4. Assessment of school library facilities and services

In Sri Lanka, school libraries are functioning with limited resources and facilities. Only 40.0% of the schools have a permanent building for a library. Collection development

in school libraries is restricted by fund allocation. Further, in some schools equipment provided for school libraries are scattered around laboratories, computer rooms, etc., as these libraries are not given due recognition as learning resource centers (Kuruppaurachchi, 2005). This severely affects the services provided by school libraries. In this connection, this study intended to assess the facilities available in libraries of the selected schools (n=20), and services provided by them. Details of basic facilities, such as building, furniture, fund allocation, collection, opening hours and staff strength available in these selected school libraries are illustrated in Table 5.

Table 5: Facilities available at selected school libraries (1AB and 1C schools) in Jaffna educational zone

Facilities	Number of Schools	Response Rate (in percentage)
Library building	20	100%
Library furniture		
Adequate	6	30%
Inadequate	14	70%
Annual fund allocation		
> Rs.10,000	8	40%
< Rs.10,000	12	60%
Library collection		
< 1,000	4	20%
1,000-10,000	11	55%
> 10,000	5	25%
Library staff		
One staff member	6	30%
More than one staff member	11	55%
No staff	3	15%
Opening hours		
8.00 am – 2.00 pm (School days)	10	50%
8.00 am – 4.00 pm (School days)	6	30%
8.00 am – 2.00 pm (Schooldays & vacation)	4	20%

Even though building facilities are available at all schools, 70.0% (n=14) of the libraries are functioning with inadequate furniture. Annual fund allocation is also less than Rs.10,000.00 for 60.0% (n=12) of the school libraries. However, 80.0% (n=16) of the school libraries have a collection comprising of more than 1000 documents, and 55.0% (n=11) of these

libraries are manned with more than one staff member. These results revealed that most of the selected school libraries have adequate resources and building facilities, though fund allocation, staff strength and infrastructure facilities are limited. Further, it was observed that 50.0% (n=10) of the school libraries have extended their opening hours even after school hours, and among these 20.0% (n=4) are opening during school vacation as well. This indicates the positive attitude of school administration towards the development of school libraries in view of improving the reading habits and information literacy skills of school children. Besides, among these selected schools, 15.0% have libraries without a single staff member, which is disappointing. In this regard, lack of cadre for library staff is the reason pointed out by the school administrations. Since school libraries play an important role in developing children as autonomous, self-directed learners and effective users of information, it is suggested that the Department of Education and Ministry of Education (NP) should take appropriate action to address this issue.

With regard to library services, Figure 3 summarizes the services provided by the selected school libraries, at present.

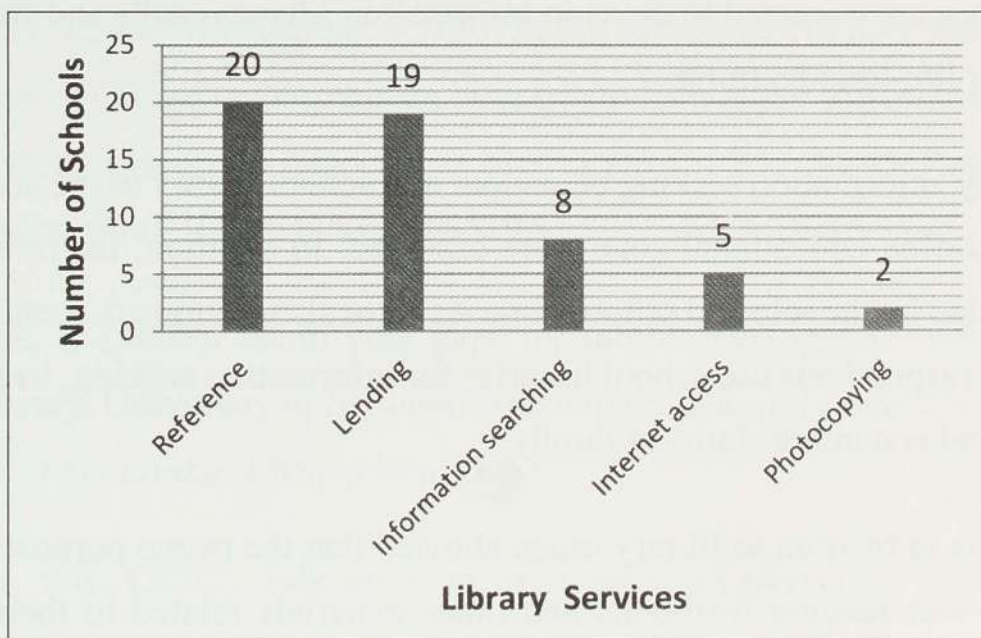


Fig. 3: Services offered by the selected school libraries in Jaffna educational zone

Almost all the school libraries are providing reference (n=20) and lending (n=19) services. However, the lending of library materials is restricted to teachers and other school staff only, due to limited resources. Next to these services, library staff help the readers in locating required information within the library collection and also guide them

to get information from other libraries and institutions. Due to lack of awareness among school authorities with regard to libraries and lack of permanent staff to manage these libraries, computers and information technology (IT) facilities given to schools are usually distributed to other locations, such as computer labs, administrative division, etc. Thus, providing access to online and electronic resources via library (n=5, 25.0%) is limited. Nowadays, photocopying is a most demanded service in academic institutions. However, due to limited funds schools in Sri Lanka find it difficult to offer such service in their libraries.

Conclusion

In this information age, libraries play a vital role in collecting, organizing and disseminating information required for the enhancement of knowledge. Among different types of libraries, school libraries are considered as the foundation as well as the corner stone for all other types of libraries that exist in society. In addition to support the teaching-learning process, these school libraries are expected to develop information literacy skills and reading habit among children for life-long learning.

In this present study, information seeking behaviour and school library usage among G.C.E (A/L) students of Jaffna educational zone were assessed. In addition, facilities available and services provided by the selected school libraries were also examined. Results revealed that over 90.0% of respondents use school libraries for information seeking, irrespective of their educational and economic status of family.

Descriptive analysis in relation to library usage showed that the prime purpose of visiting the school library was reading textbooks and other materials related to their discipline (46.0%), followed by reading newspapers (24.6%), reading magazines (15.2%), using internet (13.7%) and consulting past examination papers (11.1%). Further, it was observed that the majority of the respondents (53.0%) visit the library at least 2-3 times a week. When considering the usage of library materials, textbooks (76.3%), newspapers (57.6%) and magazines (51.4%) were heavily used compared to other information resources available at school libraries.

The assessment of facilities available in school libraries of the Jaffna Education zone disclosed that most of the selected school libraries have a library building, adequate resources (print media), though fund allocation, staff strength, electronic resource collection and infrastructure facilities are inadequate. With regard to library services, except reference and lending, other services such as inter library loan, internet access and photocopying services are very limited. Even though it is challenging to see the possibilities for the development of school libraries in developing countries, at least these issues should be addressed by the educational authorities of the region.

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බ්ලූටූත් බීකන් තාක්ෂණය පුස්තකාල සඳහා යොදා ගැනීමේ වැදගත්කම (Importance of the Bluetooth Beacon Technology within the Libraries)

ආර්. එම්. නදීකා රත්නබාහු

පුරාවිද්‍යා පශ්චාත් උපාධි ආයතනය, කොළඹ 07. ශ්‍රී ලංකාව.

Abstract

The Library and Information Science sector is empowered by the advance Information Communication Technology (ICT). These well-functioned technologies are welcome by the user clientele and librarians. The Bluetooth Beacon technology is one of the latest technology which is experiencing in libraries all around the world today. Therefore, the objective of this article was to investigate the applications of Bluetooth Beacon technology and to introduce them for Sri Lankan Libraries. Purpose of introducing this technology to the Sri Lankan library science sector is upgrade efficiency and effectiveness of the libraries. Especially, sending location-based event notices and shelving notices, promotion of new library services, user assistance and library tour are the several benefits that are providing through the Bluetooth Beacon technology. Therefore, this Bluetooth Beacon technology is very important to implement in Sri Lankan libraries in the near future.

Keywords: Bluetooth, Bluetooth Beacon, Bluetooth iBeacon, Bluetooth Low Energy – BLE, Libraries, Sri Lanka

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තොරතුරු සන්නිවේදන තාක්ෂණය විසින් පුස්තකාල ක්ෂේත්‍රය බලගන්වා ඇති බව වර්තමානයේ පැහැදිලි ව ම නිරීක්ෂණය කළ හැකි කරුණකි. පුස්තකාල තුළ ඉතා ක්‍රමවත් ක්‍රියාකාරීත්වයක් පවත්වාගෙන යාම සහ පාඨකයන් වෙත කාර්යක්ෂම සේවාවක් ලබාදීම අරමුණු කොටගෙන විවිධ තාක්ෂණයන් පුස්තකාල විසින් අත්පත් කර ගැනීමට පෙළඹී සිටීමෙන් ඉහත කරුණ වඩාත් පැහැදිලි වන්නේ ය. බ්ලූටූත් බීකන් (Bluetooth Beacon) තාක්ෂණය යනු එබඳු ඉතා මෑතකදී පුස්තකාල ක්ෂේත්‍රයට හඳුන්වා දුන් නව්‍ය තාක්ෂණයක් ලෙස සඳහන් කිරීමට පුළුවන. යුරෝපීය පුස්තකාල විසින් එහි ප්‍රයෝජන දැනටමත් අත්පත් කර ගනිමින් සිටින අතර, ඉදිරියේදී ආසියානු පුස්තකාල වෙත ද බ්ලූටූත් බීකන් තාක්ෂණය පැමිණෙනු ඇත. ඒ අනුව මෙම ලිපියේ අරමුණවන්නේ බ්ලූටූත් බීකන් තාක්ෂණය පුස්තකාල කටයුතු සඳහා යොදාගත හැකි ආකාරය පිළිබඳව ශ්‍රී ලංකා පුස්තකාල ක්ෂේත්‍රය වෙනුවෙන් හඳුන්වාදීම ය.

බීජපද : බ්ලූටූත්, බ්ලූටූත් බීකන්, බ්ලූටූත් අයිබීකන්, බ්ලූටූත් ලෝ එනර්ජි, පුස්තකාල, ශ්‍රී ලංකාව

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1. හැදින්වීම

බ්ලූටූත් තාක්ෂණය යනු මීටර් 100 (අඩි 328) ක් වැනි දුර ප්‍රමාණයකට තොරතුරු සම්ප්‍රේෂණය කළ හැකි රැහැන් මුක්ත (Wireless) තාක්ෂණයකි. බ්ලූටූත් යනු නව්‍ය සංකල්පයක් නොවන අතර 1994 වසරේ දී ස්වීඩීෂ් ඵරික්සන් සමාගම (Swedish Ericsson Company) විසින් හඳුන්වා දෙන ලද්දකි. වර්තමාන ජංගම දුරකථන සියයට අනූවක ම බ්ලූටූත් තාක්ෂණය අන්තර්ගත වන බව නිරීක්ෂණය කිරීමට පුළුවන (Sterling, Polonetsky & Fan, 2014). මීට අමතරව පරිගණක, ස්මාර්ට් දුරකථන, ශ්‍රව්‍ය උපකරණ, මෝටර් රථ ආදියෙහි ද බ්ලූටූත් පහසුකම අන්තර්ගතවේ.

1.2 බ්ලූටූත් ලෝ ඵනර්ජී (Bluetooth Low Energy - BLE)

බ්ලූටූත් ලෝ ඵනර්ජී තාක්ෂණය බ්ලූටූත් ස්මාර්ට් තාක්ෂණය ලෙස ද හඳුන්වයි. සාමාන්‍ය බ්ලූටූත් තාක්ෂණය භාවිත කිරීමේදී මෙන් නොව බ්ලූටූත් ලෝ ඵනර්ජී සඳහා වැයවන්නේ ඉතා අඩු විදුලි ප්‍රමාණයකි. එබැවින් වැයවන වියදම ද අවම වේ. මෙමඟින් හුවමාරු කළ හැකි දත්ත ප්‍රමාණය ද සාමාන්‍ය බ්ලූටූත් තාක්ෂණයට වඩා ඉහළය. දත්ත හඳුනා ගැනීම සහ සැකසීමට සංකීර්ණ වැඩසටහන් අවශ්‍ය නොවේ. සාමාන්‍ය ස්මාර්ට් දුරකථනයක් පමණක් මේ සඳහා ප්‍රමාණවත් ය. රේඩියෝ තරංග භාවිත කර බාහිර බාධා මැඩ පවත්වමින් ක්‍රියාත්මක වීම මෙන් ම සාමාන්‍ය බ්ලූටූත්වලට වඩා වැඩි බැටරි කාල පරාසයක් පැවතීම ද බ්ලූටූත් ලෝ ඵනර්ජී තාක්ෂණයේ ඉතා ප්‍රයෝජනවත් කාරණය (Abram, 2014).

1.3 බ්ලූටූත් බීකන් (Bluetooth Beacon)

බ්ලූටූත් බීකන් යනු කුඩා රැහැන් මුක්ත (Wireless) උපකරණයකි. එය ස්මාර්ට් දුරකථන සහ ටැබ්ලට් සඳහා නිකුත් කරන රේඩියෝ සංඥා පාදක කරගෙන ක්‍රියාත්මක වන්නේ ය (Abram, 2014). බ්ලූටූත් ලෝ ඵනර්ජී තාක්ෂණයෙන් ක්‍රියාත්මක බ්ලූටූත් බීකනයකින් නිකුත් කරන්නේ විශේෂ හඳුනාගැනීමේ පණිවිඩයකි. එම සංකේතාංකය (ID) යම් නිශ්චිත කාල විරාමයක් ඇතිව නිරන්තරයෙන් නිකුත් වීම සිදුවේ. එක් දිශාවකට පමණක් රේඩියෝ සංඥා සම්ප්‍රේෂණය කරන අතර, බ්ලූටූත්වලින් සමන්විත ජංගම දුරකථන විසින් එම සංඥා ලබා ගැනීම සිදු කරයි. බීකනයක් තුළ විපයක් හා අනෙකුත් විද්‍යුත් උපාංග (උදා:- ඇන්ටනා) ඇතුළත් කුඩා සර්කිට් බෝඩයක් ඇතුළත් වන්නේ ය (Sterling, Polonetsky & Fan, 2014).

1.4 බ්ලූටූත් අයි බීකන් (Bluetooth iBeacon)

බ්ලූටූත් ලෝ ඵනර්ජී පාදක කොටගෙන සැකසී ඇති අයිබීකන් තාක්ෂණය 2013 වසරේ ඇපල් සමාගමේ මෙහෙයුම් පද්ධති හා උපකරණ සඳහා නිර්මාණය වූවකි. ඇපල් අයිෆෝන්වලදී බීකන්

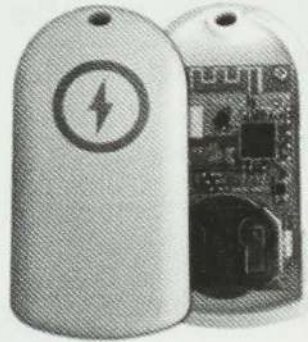
හඳුනා ගැනීම සඳහා විශේෂ ඇප් අවශ්‍ය වන්නේ නැත. අයිඕඑස් 7 (ios7) සහ අයිඕඑස් 8 (ios8) මෙහෙයුම් පද්ධතිය සමඟ අයිබීකන් ප්‍රොටොකෝලයක් ක්‍රියාත්මක වීම මේ සඳහා හේතු වන්නේ ය. මේ අනුව බ්ලූටූත් බීකන් සහ අයිබීකන් යන වචන දෙකෙන් ම හඳුන්වාදෙන්නේ එකම මාදිලියක තාක්ෂණයක් වන බව පැහැදිලි ය.

1.5 බ්ලූටූත් බීකන් තාක්ෂණය

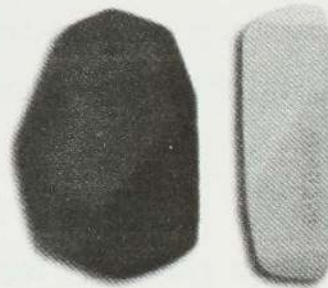
බ්ලූටූත් බීකන් හඳුන්වාදීමට භාවිතවන තවත් තාක්ෂණික වචනයක් ලෙස නියරබල්ස් (Nearables) යන්න හඳුන්වාදිය හැකි ය. නියරබල්ස් යන වචනය මුලින් ම භාවිතකර ඇත්තේ 2014 වසරේ පෝලන්තයේ එස්ටිමෝට් (Estimote) සමාගම විසිනි. බීකන ප්‍රචලිත කිරීමේ පුරෝගාමීන්වන්නේ මෙම සමාගමය. වර්තමානයේ විවිධ රටවල සමාගම් ගණනාවක් බ්ලූටූත් බීකන් නිෂ්පාදනය සිදු කළ ද ඒවායේ ස්වභාවය, මෘදුකාංග සහ අලෙවිකරණ සැලැස්ම, එස්ටිමෝට් බීකනවල අනුකරණයන් ලෙස නිරීක්ෂණය කළ හැකිය. වර්ථමානය වන විටත් සමාගම් 15ක් බ්ලූටූත් බීකන් නිෂ්පාදන වෙළඳාම අරඹා ඇති අතර, මේ පිළිබඳ දිනපතා පුවත් පවා (නිදසුන : www.ibeacon.com) වෙබ් අඩවි හරහා ඉදිරිපත් කෙරේ. පහත සඳහන් වන විවිධ බීකන මේ සඳහා නිදසුන් ය.



Gimbal



Radius Networks



Estimote



Signal 360



GPShopper



Aruba

1.1 රූප සටහන: බ්ලූටූත් බීකන්

මූලාශ්‍රය: Sterling, Polonetsky & Fan, 2014

2. අධ්‍යයනය පිළිබඳ හැඳින්වීම

2.1 සාහිත්‍ය ගවේශනය

විවිධ ක්ෂේත්‍ර සඳහා බිලුටුන් බීකන් තාක්ෂණය යොදා ගැනීම පිළිබඳ අධ්‍යයනයන් සිදු කර තිබුණ ද, පුස්තකාල කටයුතු සඳහා බිලුටුන් බීකන් තාක්ෂණය යොදා ගැනීම පිළිබඳ සිදු කළ විධිමත් අධ්‍යයනයන් නොමැත. නමුත් කිං (King, 2015), එනිස් (Ennis, 2014), ෂර්මා (Sarma, 2015), මැක්නල්ට් (McNulty, 2015) සහ ස්පිනා (Spina, 2015) විසින් ඒ පිළිබඳ අන්තර්ජාල මූලාශ්‍රයන් ඔස්සේ විස්තර ඉදිරිපත් කර ඇත. ඒ අනුව මෙම අධ්‍යයනයේදී බිලුටුන් බීකන් තාක්ෂණය පුස්තකාල කටයුතු සඳහා යොදා ගැනීම පිළිබඳ අධ්‍යයනය කිරීමට අපේක්ෂිතය.

2.2 අරමුණ

බිලුටුන් බීකන් තාක්ෂණය පුස්තකාල කටයුතු සඳහා යොදාගත හැකි ආකාරය පිළිබඳව ශ්‍රී ලංකා පුස්තකාල ක්ෂේත්‍රය වෙනුවෙන් හඳුන්වාදීම මෙහි මූධ්‍ය අරමුණ වේ.

2.3 අධ්‍යයනයේ වැදගත්කම

බිලුටුන් බීකන් තාක්ෂණය ඔස්සේ පුස්තකාල සේවා සැපයීම යුරෝපීය පුස්තකාල ක්ෂේත්‍රය තුළ වර්තමානය වන විටත් ආරම්භ වී ඇත. පුස්තකාල පාඨකයන් වෙත කණ්ඩායම් වශයෙන් හෝ පුද්ගලිකව සිය ස්මාර්ට් දුරකථනයට පණිවිඩ ලබා දීමට හැකි වීම මෙහි පවතින සුවිශේෂීතාවයි. ඉතා සරල, භාවිතයට පහසු තාක්ෂණයක් වන බැවින් ශ්‍රී ලාංකීය පුස්තකාල ක්ෂේත්‍රයට බිලුටුන් බීකන් තාක්ෂණය හඳුන්වාදීම ඉතා වැදගත් වනු ඇත.

2.4 ක්‍රමවේදය

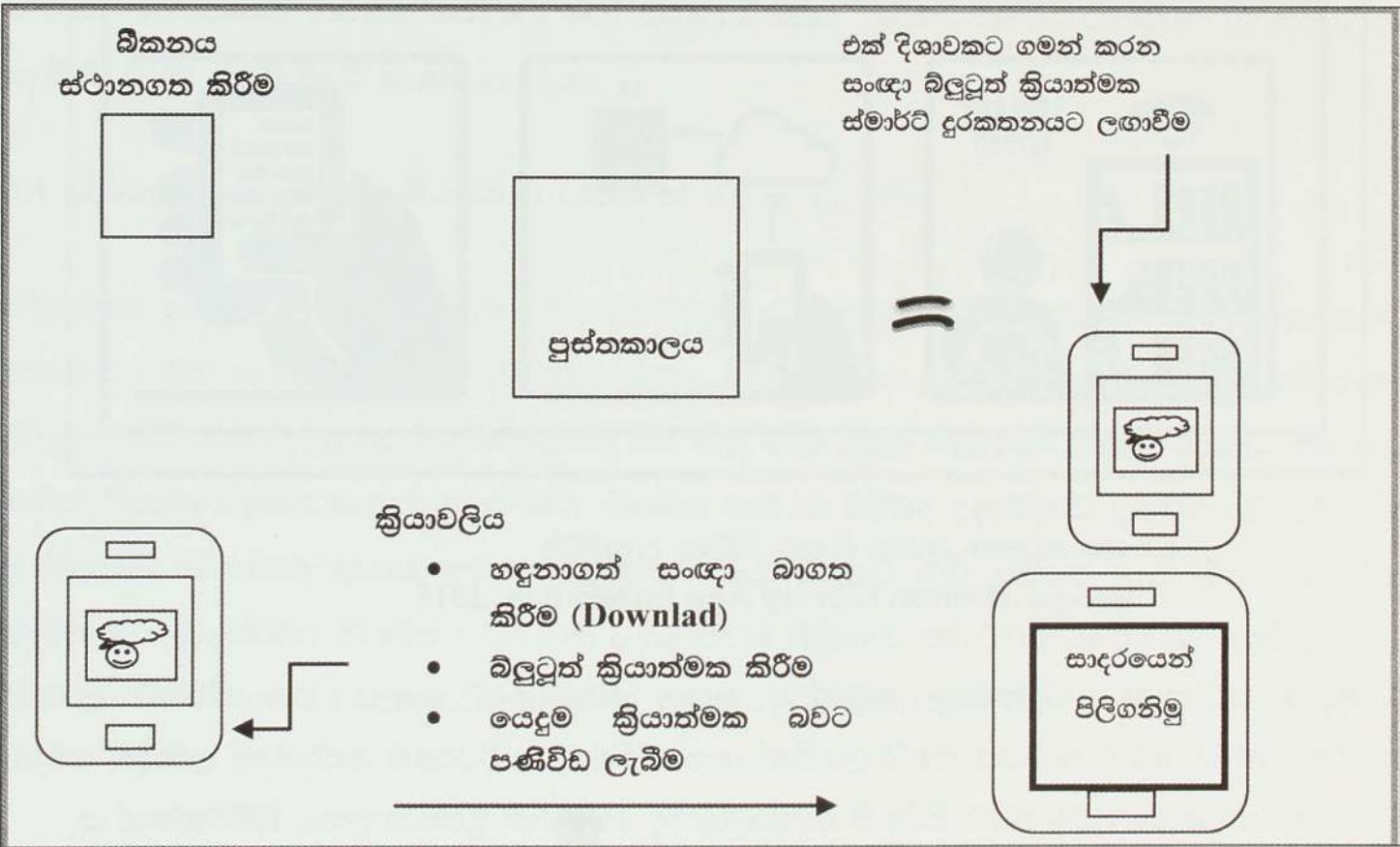
බිලුටුන් බීකන් තාක්ෂණය පුස්තකාල තුළ භාවිතය පිළිබඳ ප්‍රකාශිත මූලාශ්‍ර අධ්‍යයනය කිරීමෙන් මෙම අධ්‍යයනය සිදු කිරීමට අපේක්ෂා කෙරේ.

3. සොයාගැනීම්

පුස්තකාල වෙත පැමිණෙන බහුතර පාඨකයන් තාක්ෂණික පහසුකම් පමණක් ප්‍රයෝජනයට ගැනීමට කටයුතු කරන ආකාරය නිරීක්ෂණය කළ හැකි කරුණකි (Sarmah, 2015). පුස්තකාල තොරතුරු භාවිතය පිළිබඳ ඔවුනට පැහැදිලි අවබෝධයක් නොමැති ය. එබැවින් වර්තමාන පාඨකයාගේ පාඨක රුචිකත්වය ඉහළ නැංවීම සඳහා පුස්තකාල සේවා පිළිබඳව නව, නිර්මාණශීලී ක්‍රියාමාර්ග අවශ්‍යවන්නේ ය.

බිලුටුන් බීකන් තාක්ෂණය මේ සඳහා වන සරල, කාර්යක්ෂම ක්‍රමවේදයක් ලෙස හඳුන්වා දීමට හැකිය. ස්මාර්ට් දුරකථනයක් සහිතව පුස්තකාලයක් තුළට පිවිසෙන පාඨකයා එහි බිලුටුන්

පහසුකම ක්‍රියාත්මක කර ගත යුතුය. අනතුරුව බ්ලූටූත් බිකනයක් අසලට එන විට බිකනයෙන් නිකුත්වන සංකේතාංකය (ID) ස්මාර්ට් දුරකථනයේ පවතින යෙදුම (Application) මගින් හඳුනාගෙන ක්‍රියාත්මක වන්නේ ය. එසේ හඳුනාගන්නා ලද සංකේතාංකය එම යෙදුමට අදාළ සර්වරය වෙත ගමන් කරයි. මෙම සංකේතාංකය ලද විට කළ යුත්තේ කුමක්දැයි විමසා බලන සර්වරය ද ඊට ප්‍රතිචාර දක්වයි. එම ප්‍රතිචාරය පුස්තකාලයාධිපති ප්‍රමුඛ කාර්යය මණ්ඩලය විසින් කලින් ම තීරණය කර දී ඇත. එමඟින් පාඨකයන් පුස්තකාලයට භාරදිය යුතු පොත් පිළිබඳ විස්තර, පුස්තකාල විසින් පවත්වන වැඩිමුළු, පාඨමාලා ආදිය පිළිබඳ විස්තර මෙන්ම ලොක්කවල පවතින පොත් පිළිබඳ විස්තර ද ස්මාර්ට් දුරකථනයට දැනුම් දෙනු ලබයි. පුස්තකාලය පුරා ඇවිදයන තෙක් පාඨකයාට මග පෙන්වීම සිදු කරයි. පාඨකයා පුස්තකාලයෙන් පිටව යන බව දැන්වීමට පිටවීමේ දොරටුවේ ද බිකනයක් පවතින අතරල පාඨකයා පිටව යනවාත් සමඟ ම කලින් සිදුකළ මගපෙන්වීම් ද අවසන් වේ. එම කාර්යය සිදුවන ආකාරය පිළිබඳ පහත 1.2 රූප සටහන මගින් තවදුරටත් පැහැදිලි වනු ඇත.

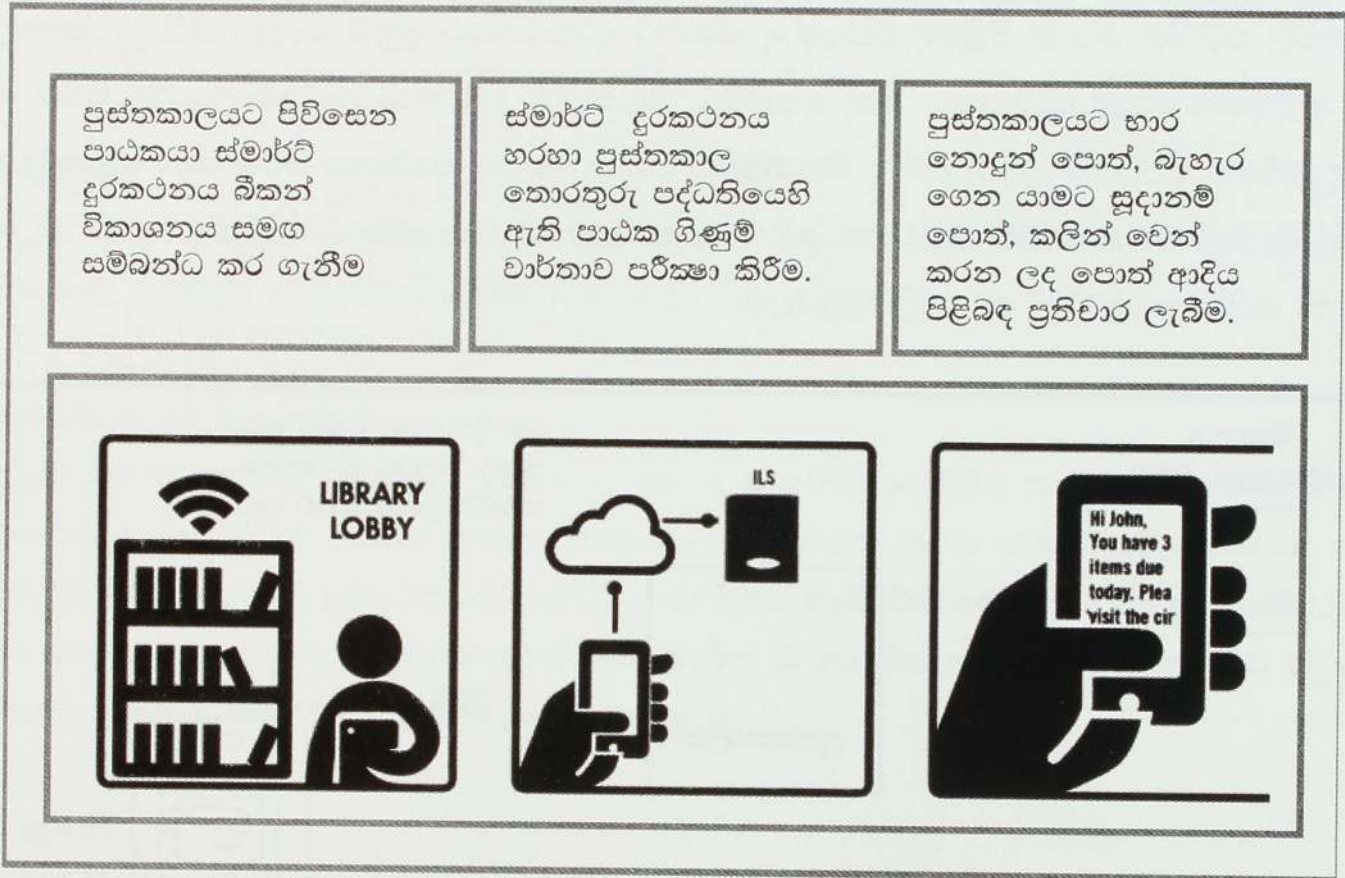


1.2 රූප සටහන: බ්ලූටූත් බිකන් පහසුකම ක්‍රියාත්මක වන ආකාරය

මේ අනුව බ්ලූටූත් බිකන් තාක්ෂණය භාවිතයට ගැනීමෙන් පහත සඳහන් වන ආකාරයේ සේවා පුස්තකාලයට ප්‍රවේශ වන පාඨකයින්ට ලබා දිය හැකිය.

3.1 පාඨක ගිණුම පිළිබඳ විස්තර දැනුම් දීම.

පුස්තකාලයට පැමිණෙන පාඨකයෙක්ට සිය ස්මාර්ට් දුරකථනයේ බිලදුන් පහසුකම ක්‍රියාත්මක කරගැනීමෙන් පසු පුස්තකාල බිකන් පද්ධතිය හා සම්බන්ධවීමට පුළුවන. එමගින් පුස්තකාලයට නැවත භාර නොදුන් පොත් පිළිබඳ විස්තර පාඨකයින්ට ලබා ගැනීමට පුළුවන. යම් ලෙසකින් පාඨකයාට මේ පිළිබඳ අමතකව තිබේ නම් භාර නොදුන් පොත් පිළිබඳ තොරතුරු පාඨකයාගේ ස්මාර්ට් දුරකථනයට ලැබේ. මෙම දැනුම් දීම් පාඨකයාට ඉතා ප්‍රයෝජනවත් ය. එම කාර්යය සිදුවන ආකාරය පිළිබඳ ව පහත 1.3 රූප සටහන මගින් තවදුරටත් පැහැදිලි කළ හැකිය.



1.3 රූප සටහන: පාඨක ගිණුම පිළිබඳ දැනුම්දීම.

මූලාශ්‍රය: iBeacon Library App Integration, 2015

ඒ අනුව පාඨකයාට පුස්තකාල කවුන්ටර අසල නිකරුණේ කාලය ගත කිරීමට අවශ්‍ය නොවන්නේ ය. අවම කාර්යය මණ්ඩලයකින් සංතෘප්තිමත් කාර්යක්ෂම සේවාවක් ලබාදීම මෙන් ම පාඨකයින් සමඟ සම්බන්ධව සිටීමේ අවකාශයන්ද මෙමගින් පුස්තකාලයට හිමිවන්නේ ය.

3.2 පුස්තකාල ග්‍රන්ථ සංසරණය පිළිබඳ දැන්වීම් යැවීම

පුස්තකාලයට භාරදීමට ඇති පොත් පිළිබඳ පාඨකයින්ට දැනුම් දීම මේ ඔස්සේ සිදුකළ හැකිය. තවද පාඨකයින් විසින් කලින්ම වෙන් කරන ලද පොත් රැගෙනයාමට සූදානම් බව, පොත් අලුත් කිරීම (renew) පිළිබඳව අදාළ පාඨකයන්ට දැනුම් දීමට ද පුළුවන. එමෙන් ම නියමිත

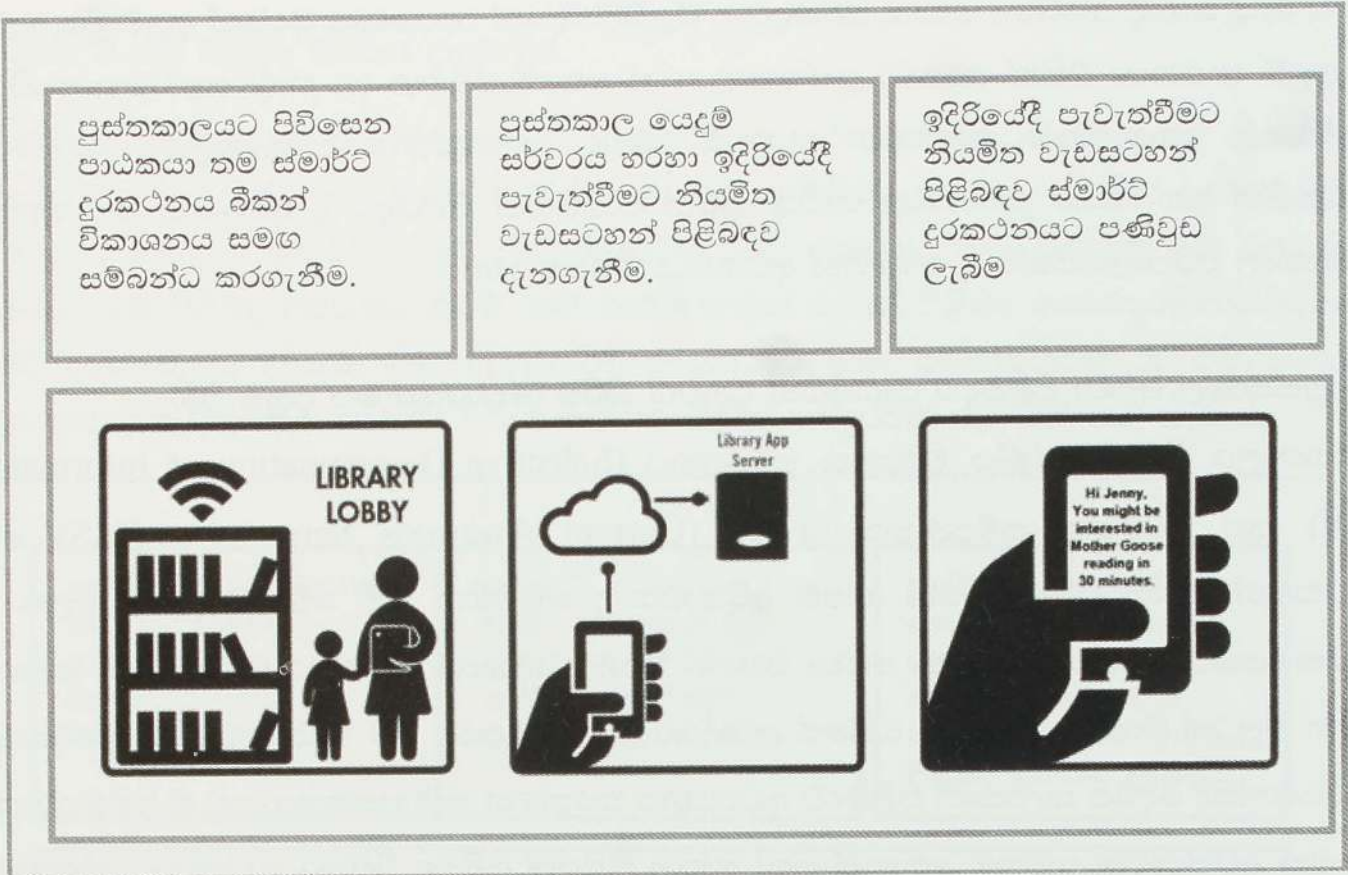
දිනට භාර නොදී තිබෙනා පොත් පිළිබඳව ද බිලුටුත් බිකත් තාක්ෂණය ඔස්සේ දැනුම් දිය හැකිය. ඒ අනුව පාඨකයා විසින් තමන්ට පුස්තකාලයෙන් පොත් රැගෙන යා හැකි හෝ නොහැකි බව කල්තියාම දැනගැනීමේ හැකියාව ද පවතී. තවද කලාතුරකින් පුස්තකාලයට පැමිණෙන පාඨකයින් සහ නිතර පුස්තකාල භාවිත කරන පාඨකයින් පිළිබඳව ද අවබෝධ කර ගැනීමට පුස්තකාල පරිපාලකයින්ට ද මෙමගින් අවකාශය හිමිවන්නේ ය.

3.3 පුස්තකාල සේවා පිළිබඳව පාඨකයින් දැනුවත් කිරීම (තොරතුරුමය දැනුම් දීම)

පුස්තකාලය විසින් වරණීය විඥාපන පරිවහනය (Selective Dissemination of Information-SDI) සහ ප්‍රවර්තන සම්ප්‍රජානන සේවා (Current Awareness Services – CAS) ආදිය පාඨකයන් සඳහා පවත්වාගෙන යාමේ අවකාශය ද මෙමගින් හිමි වේ. නිදසුනක් ලෙස යම් පාඨකයෙක්ට වරණීය විඥාපන සේවා යටතේ World Archaeology සඟරාවේ නවතම කලාපයේ පටුන බිලුටුත් බිකත් තාක්ෂණය ඔස්සේ ලබාදීමට පුළුවන. තවද යම් පාඨකයෙක් සිය පර්යේෂණ කාර්යයන්හිදී දේශීය කලාකෘති පිළිබඳව අධ්‍යයනය කරන්නේ නම් පුස්තකාලයට ඒ පිළිබඳව දන්වා තිබෙන අවස්ථාවක නවතම පොතක් හෝ සඟරා ලිපියක් පිළිබඳ විස්තර පාඨකයා පුස්තකාලයට පැමිණි විටම දැනුම් දීමේ හැකියාව ඇත.

3.4 ඉදිරියේදී පැවැත්වීමට නියමිත වැඩසටහන් පිළිබඳ දැනුම්දීම.

වර්තමාන පුස්තකාල විසින් පාඨකයන්ගේ අභිවෘද්ධිය සඳහා විවිධ වැඩසටහන් ක්‍රියාත්මක කරයි. එනම් වැඩමුළු පැවැත්වීම, සම්මන්ත්‍රණ, දේශන, චිත්‍ර ප්‍රදර්ශන සහ විවිධ තරඟ ආදිය මේ සඳහා නිදසුන් කිහිපයකි. ඒ අනුව පුස්තකාලයේ එක් එක් අංශ වෙත එළැඹෙන පාඨකයෙකුට එම අංශ මගින් විශේෂ වැඩසටහන් පැවැත්වීමට නියමිත නම් ඒ පිළිබඳ දැනුම්දීමට පුළුවන. විශ්වවිද්‍යාල පුස්තකාල පරිගණක අංශය වෙත එළැඹෙන පාඨකයෙකුට එහි සවිකර ඇති බිකනය මගින් ඉදිරියේදී පැවැත්වීමට නියමිත පරිගණක වැඩමුළුවක් පිළිබඳව ස්මාර්ට් දුරකථනයට පණිවුඩ ලබා දීමට පුළුවන. පහත 1.4 රූප සටහන මගින් එය තවදුරටත් පැහැදිලි කළ හැකිය.

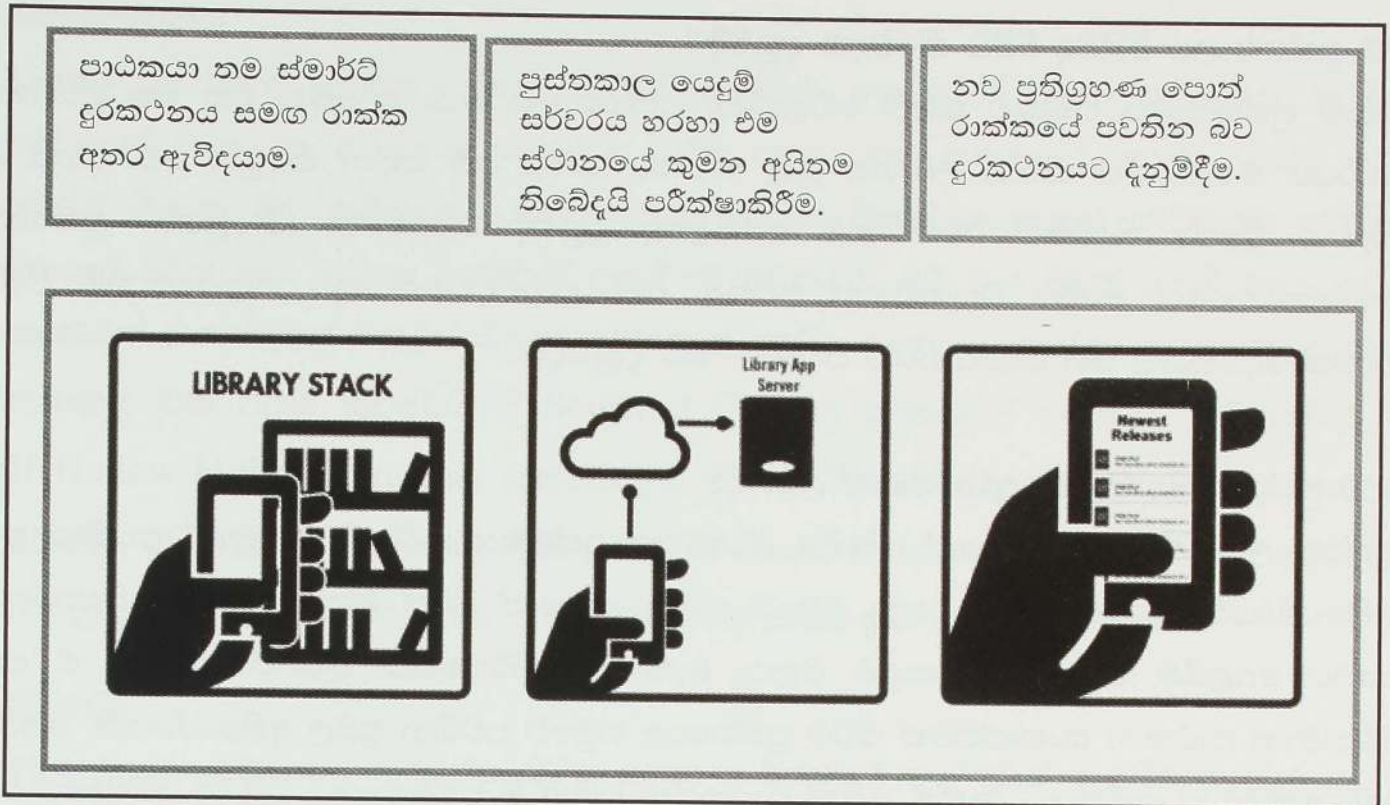


1.4 රූප සටහන: වැඩසටහන් පිළිබඳ දැනුම් දීම
 මූලාශ්‍රය: iBeacon Library App Integration, 2015

මහජන පුස්තකාලයකට පිවිසෙන දෙමාපියන්ට කුඩා දරුවන් සඳහා කතා පැයක් පවත්වන බව දැක්වෙන පණිවුඩ ලබාදීම සිදුකළ හැකිය. නිව්යෝර්ක් හි Fayetteville Free පුස්තකාලය මගින් මෙවැනි වැඩසටහන් පිළිබඳ දැනුම්දීමට මෑත භාගයේදී බිකන් තාක්ෂණය භාවිතයට ගෙන ඇති බව නිරීක්ෂණය කළ හැකිය (Enis, 2014). මෙවැනි වැඩසටහන් පිළිබඳ පණිවුඩ තම යහළුවන්ට ද විවිධ තාක්ෂණික ක්‍රම භාවිත කොට ප්‍රචාරය කිරීමට හැකිය. මේ අනුව ස්ථාන පාදක වැදගත් සිද්ධීන් පිළිබඳ නිවේදන ලබාදීමට බිලිවූත් බිකන් තාක්ෂණය භාවිතයට ගැනීමේ හැකියාව පවතී.

3.5 රාක්කගත තොරතුරු පිළිබඳව දැනුම්දීම

යම් පාඨකයෙක් පුස්තකාල රාක්ක වෙත ගමන් කරන විට අදාළ ස්ථානවල ස්ථානගත කර ඇති බිකන් ඔස්සේ රාක්කවල කුමන විෂයන් පිළිබඳ තොරතුරු පවතීදැයි දැනුම් දීමට පුළුවන. මෙමගින් පාඨකයාගේ කාලය ආරක්ෂාකර දීමට අවකාශය ලැබේ. නිදසුනක් ලෙස පාඨකයාට නව ප්‍රතිග්‍රහණ පොත් පිළිබඳ දැනුම්දීමට බිලිවූත් බිකන් තාක්ෂණය භාවිත කිරීමට පුළුවන. පහත 1.5 රූප සටහන මගින් එය තවදුරටත් පැහැදිලි කළ හැකිය.



1.5 රූප සටහන: නව ප්‍රතිග්‍රහණ පොත් පිළිබඳ දැනුම් දීම.
 මූලාශ්‍රය: iBeacon Library App Integration, 2015

3.6 පුස්තකාල කාර්යය මණ්ඩලයට පාඨකයාට සහායවීමේ පහසුව (King, 2015)

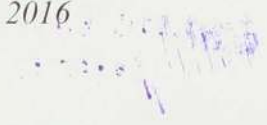
යම් පාඨකයෙක් වැඩි වේලාවක් රාක්කය අසල රැඳී සිටීමේ එනම්, පාඨකයාට අවශ්‍ය තොරතුරු සොයාගත නොහැකි බව දකින විට ඒ සඳහා පුස්තකාල කාර්යය මණ්ඩලයට පාඨකයා සඳහා සහාය විය හැකිය.

3.7 පාඨක රුචිකත්වය පිළිබඳ නිරීක්ෂණය කළ හැකිවීම.

පාඨකයන් පුස්තකාලය වෙත පැමිණ ඔවුන් එහි ගමන් ගන්නා ආකාරය නිරීක්ෂණය කිරීමට බලදුන් බිකන් තාක්ෂණය සහාය කර ගත හැකිය. එමඟින් කුමන තොරතුරු කුමන ස්ථානයක තැබිය යුතු ද යන්න තීරණය කිරීමට අවකාශය හිමිවන්නේ ය.

3.8 පුස්තකාල වාර්තාවක් ලබාදීමේ අවකාශය ද පවතී

නව පාඨකයෙකුට බලදුන් බිකන් තාක්ෂණය ක්‍රියාත්මක කර ගැනීමෙන් පසුව පුස්තකාලයේ විවිධ අංශ ස්ථානගත වීම පිළිබඳ ස්මාර්ට් දුරකථනය හරහා දැනුවත් කිරීම සිදු කළ හැකිය. නිවැරදි තොරතුරු වෙත සෘජුව ගමන් කිරීමට පාඨකයාට මෙමඟින් අවකාශය හිමිවනු ඇත.



3.9 පුස්තකාලය පිළිබඳ විවිධ නිවේදන දැනුම්දීම

එනම් පුස්තකාලය විවෘතව තබන වේලාවන්, පුස්තකාලය වසා තැබෙන දින සහ පුස්තකාල කාර්යය මණ්ඩලයේ සහාය ලබාගත යුතු ආකාරය ආදිය මේ සඳහා නිදසුන් වේ. දිනය තුළ සිදුවන විශේෂ සිදුවීම් පවතී නම් ඒ පිළිබඳ දැනුම්දීමට පුළුවන (නිදසුන් : පුස්තකාල භෝජනාගාරයේ සංගීත වැඩසටහන් පවතින බව, පුරාවිද්‍යාවේ නව සොයාගැනීම් පිළිබඳ විද්වත් දේශනයක් සහ සාකච්ඡාවක් පවතින බව දැනුම්දීම).

3.10 පුස්තකාලය පිළිබඳ ප්‍රචාරණයක් ලබා දීම

පුස්තකාල පිළිබඳ ප්‍රචාරණයන් ලබාදීම වර්තමාන පුස්තකාලයාධිපතීන් හමුවේ පවතින ප්‍රබල අභියෝගයකි. අන්තර්ජාලය පාදක කොට ගෙන බොහෝ පිරිස් සිය කාර්යයන් සිදුකරගෙන යාමට පෙළඹීම මේ සඳහා සෘජුව බලපා ඇති බව නිරීක්ෂණය කිරීමට පුළුවන. ඒ අනුව වර්තමාන පාඨකයා සංතෘප්තිමත් කිරීම පුස්තකාල හමුවේ පවතින ප්‍රබල අභියෝගයකි. මෙවැනි නව සේවාවන් භාවිතයට ගැනීම තුළින් පාඨකයින් විසින් ම පුස්තකාලය පිළිබඳ සමාජයේ පිරිස් සමඟ කථාබහ කිරීමට පෙළඹේ.

නිදසුනක් ලෙස යම් පුස්තකාලයක පවතින කලා ගැලරියක් සමාජය තුළ ජනප්‍රියව පවතින්නේ නම් එහි පැවැත්මට නියමිත කලා ප්‍රදර්ශන, වටිනා කලා කෘති, දුර්ලභ කලා කෘති පිළිබඳව කෙටි විස්තර බ්ලොග් බ්ලොක් තාක්ෂණය හරහා ලබාදීමේ අවකාශය පවතී.

3.11 බ්ලොග් බ්ලොක් තාක්ෂණය භාවිතයේ අවාසි

බ්ලොක් යනු ඉතා සිත් ගන්නා සුළු දියුණු කළ හැකි උපකරණයකි. නමුත් බ්ලොග් බ්ලොක් භාවිතයේ දී ඇතිවන අවාසි ද පවතී. එක් එක් අයගේ තොරතුරුවල පෞද්ගලිකත්වය පිළිබඳ ගැටලු පැවැතී ම ඉන් ප්‍රමුඛ වේ. බ්ලොග්වලින් එක් දිශාවකට පමණක් තොරතුරු විකාශනය කළ ද අන් අයගේ තොරතුරු එක්රැස් කිරීමේ හැකියාවක් පැවැතීම මේ සඳහා හේතු වේ. තව ද හඳුනා නොගත් අයට වුවත් බ්ලොක් යෙදුම්වලට ඇතුළු වී යම් යම් වෙනස්කම් සිදු කළ හැකිය (Spina, 2015).

ඒ අනුව පුස්තකාල සඳහා බ්ලොග් බ්ලොක් තාක්ෂණය භාවිතයේදී පුස්තකාලයට පැමිණෙන පිරිස් කුමන ආකාරයේ තොරතුරු එක්රැස් කරන්නේ ද යන්න පිළිබඳ සොයා බැලිය යුතුය. තව ද බ්ලොග් බ්ලොක් තාක්ෂණය ඔස්සේ සැපයිය හැකි සේවා පිළිබඳව පුස්තකාලයාධිපති ප්‍රමුඛ කාර්යය මණ්ඩලය දැනුවත්වීම මෙන් ම පාඨකයන් ද ඒ පිළිබඳව දැනුවත් කිරීම ඉතා වැදගත්ය.

4. සමාලෝචනය

වර්තමාන පුස්තකාල ක්ෂේත්‍රය දිනෙන් දින දියුණුවන ක්ෂේත්‍රයක් ලෙස හඳුනාගත හැකිය. විශේෂයෙන් ම පාඨක අවශ්‍යතා සංතෘප්ත කිරීම සඳහා නව තාක්ෂණය යොදා ගැනීම ඉතා සිසුයෙන් සිදුවන බව නිරීක්ෂණය කළ හැකිය. බ්ලූටූත් ඩිකත් තාක්ෂණය භාවිතයට ගනිමින් පාඨකයන් වෙත ඉතා වටිනා සේවයක් ලබාදීමේ අවස්ථාව මේ වන විටත් උදාවී ඇත. සරල තාක්ෂණයක් වන බැවින් බ්ලූටූත් ඩිකත් පුස්තකාල සේවා සඳහා පහසුවෙන් යොදාගත හැකිය. වර්තමානය වන විටත් නිව්ජර්සි හි Somerset Country පුස්තකාල පද්ධතිය, නිව්යෝර්ක් හි Half Hollow Hills Community පුස්තකාලය, Long Island's Jericho මහජන පුස්තකාලය (McNulty, 2015) ආදී පුස්තකාල විසින් බ්ලූටූත් ඩිකත් තාක්ෂණය අත්දකිමින් සිටී. ඉදිරියේදී ආසියානු පුස්තකාල පද්ධතිය වෙත ද බ්ලූටූත් ඩිකත් තාක්ෂණය පැමිණෙනු ඇත.

5. නිර්දේශ

ඒ අනුව පාඨක අවශ්‍යතා සංතෘප්ත කිරීම සඳහා කාර්යක්ෂම සේවාවක් සැපයීම අරමුණු කරන ශ්‍රී ලාංකීය පුස්තකාල විසින් පුස්තකාල කාර්යයන් සඳහා බ්ලූටූත් ඩිකත් තාක්ෂණය යොදා ගැනීමට නිර්දේශ කළ හැකිය.

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Google Applications in Improving Quality of Library Services: prospects with respect to public libraries in Sri Lanka

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Abstract

Technological advancements are best resolutions to challenges posed by ever-increasing, complex user demands and scarcity of essential resources in libraries. Hence libraries of various types are evolving at different pace depending on their resource strength. Research and academic libraries and certain school libraries have the comparative advantage in serving their user communities, whereas libraries with marginalized resources are striving to cater to users. In Sri Lanka, there have been different types of libraries and information centres, among which public libraries have a long history. However, these public libraries, except a few, are not facilitated to deploy sophisticated library operations and information services. An assessment of websites of selected public libraries across the island reveals many libraries are still providing services in conventional environment. With emerging trends in advancement of information and communication technology the libraries could reap the benefits of employing basic ICT applications to enhance the service quality and user satisfaction. Since people from almost all parts of the island are enjoying a satisfactory level of Internet facilities, especially on hand-held devices, the libraries could extend their resources and services using Google Apps. These apps will not cost much and nor does it require additional human resource and prowess. The paper highlights as to how these Apps could assist libraries to cater to their users.

Keywords: Google Applications, Public Library Services, Sri Lanka Library Association, National Library, Sri Lanka

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Introduction

The purpose of technological innovations is primarily to enhance the ease of life of individuals and communities. Recent developments in information and communication technology (ICT) have tremendously influenced the means and content of resources being shared. Being forced by the scarce monetary resources, exponential proliferation of information, and ever-increasing demand from users, the libraries turn to focus on building electronic information resources. In this regard, libraries extend and exhibit their services on the Internet or their own websites, which is faster and more effective to reach a wider audience. Users, at present, are having different types of mobile devices that are aided with the Internet and various Apps.

Public Libraries in Sri Lanka

The history of public libraries in Sri Lanka starts with temple and monastery collections, which were predominantly palm-leaf manuscripts that were kept for private use. However, the public libraries of modern era were first established by the British who landed in the island in 1796. These libraries were started as subscription libraries among which United Service Library (1813) and Pettah Library (1829) were the first of that type. These two libraries were amalgamated to form Colombo Public Library in 1925 (Ranaweera, 2011 & Amaraweera, 2010). Meanwhile, in 1841 a Central Town Library was founded by a group of motivated individuals for the purpose of serving the educated Sri Lankan and foreign readers. In 1920, this library was taken by Kandy Municipal Council to form the first public library in Sri Lanka (The Sunday Times, 2001; DS Senanayake Library, 2016).

Dawn of libraries in Sri Lanka urged the need for an association for librarians, which was started as Ceylon Library Association in 1960, then was changed to Sri Lanka Library Association (SLLA) based on Acts No. 20 of 1974 and 7 of 2004 (Pieris, 2011). National Library and Documentation Services Board (NLDSB) and SLLA are immensely contributing to the development of libraries across the country.

There have been 75 main public libraries registered across the country according to the National Library of Sri Lanka (December 21, 2015). These libraries have their branches to support information quests of users in distance areas of districts and divisions. Nevertheless, they struggle to execute quality services due to lack of resources, such as competent staff, information materials, ICT facilities and space.

IFLA/UNESCO Guidelines for development of the Public Library Services emphasizes on the provision of a variety of resources to wider access, as follows:

“The primary purposes of the public library are to provide resources and services in a variety of media to meet the needs of individuals and groups for education, information and personal development including recreation and leisure. They have an important role in the development and maintenance of a democratic society by giving the individual access to a wide and varied range of knowledge, ideas and opinions” (IFLA, 2001)

Further in its manifesto for public libraries, IFLA/UNESCO documents recommend the use of web 2.0, 3.0 and 4.0 to liberate the library services to wider user communities and long-term goals to educate and train people (IFLA, 2009). World Wide Web has paved ways to break the barriers to reaching the information users, thus libraries can employ web tools to provide their services.

Public libraries in Sri Lanka are generally dependent on conventional information resources and services. Nevertheless, user communities are evolving with modern communication devices and voracious information needs. Therefore, public libraries need to adopt state-of-art practices and cutting edge techniques in library resources and services.

Conventional vs Digital Library Services

Based on the assessment of public library websites carried out by the authors, the results reveal many public libraries are not catering to the users with state-of-art technologies. Except a few libraries like Colombo Public Library and Kandy Public Library, not every public library in the country is facilitated with electronic resources and equipment. Most

importantly, many public libraries do not even have websites for them. Libraries which have web sites do not promise extensive information nor do they maintain a content management system. Although few of those libraries have Facebook pages, active services are not evident and frequent. These libraries need to develop websites to host their services and to create pages on social networks. In this regard, libraries with websites can exploit free tools and widgets to disseminate information and to communicate with their patrons.

Google Applications

Since Google has become the giant on the Internet, it permeates throughout almost all sectors in the world. It was built by a couple of PhD students at Stanford University, who are Larry Page and Sergey Brin, in September 1998 and became available to public in 2004. The Google Incorporated is a multinational corporation based in the USA and offering web-based services and products such as search facilities, email services, cloud computing, software and online advertising technologies, with the motto to organize global information and make them universally available to users (Wikipedia, Feb 10, 2016).

Google Apps is a collection of web-based programme and storage that run on web browser, without having the need to install the software. Users can simply log in to the service to access their files and the tools to manipulate according to their purposes. These Apps basically include communication tools (Gmail, Google Talk, Google Groups and Google Calendar), productivity tools (Google Docs: text files, spreadsheets, and presentations), customizable start page (iGoogle), Google Sites (to develop web pages) and Google Drive (space to store and share files). Although these tools are free the users can access the premium edition with pay to enjoy advanced features and more storage space (Educause, 2008). These apps are best suited for carrying out information services at public libraries with minimum resources.

Web 2.0 technologies have introduced a number of different tools that are preferred by Internet users and can be adapted by librarians to improve service to their patrons. These include using instant messaging tools for reference, wikis for pathfinders and subjects guides, and blogs and RSS feeds for library news events (Regalado, 2007). Such facilities are best exploited with the Google Apps.

Google Apps and Library Services

As far as applications in library services are concerned, the Google Apps are highly suitable to manage and provide a variety of technological based services to the users. Google is extremely successful in providing information to users with least investment of time and effort. Online sharing and collaboration is the major advantage of Google. From calendaring to document sharing to group management, Google provides several tools well-matched for both library staff and patron needs (Anderson, 2005).

Gmail: The email of Google, which is Gmail, is used as the key to operate and navigate across all sorts of Google applications. Gmail is used in libraries to communicate with users and make announcements, especially when the users are grouped under the Gmail account of the library (Soonthornsarathool, 2015).

Google Scholar: Reference services are the main point of contact of libraries to information seekers. Arndt (2010) recommends libraries to use Google Scholar to help users that navigate through bulky information on the Internet. This could be a key service in reference section of public libraries to support students of financially marginalized backgrounds.

Google Drive: It stores files and content, centrally, thus, collaboration, document management and sharing have become far simpler when distributing files to multiple recipients, simultaneously (Soonthornsarathool, 2015). It could be used to store and share files, photos, slides, videos (virtual tours), documents among public library users. Google Drive is also used to distribute the circular notices, memos, or official letters among library staff.

Google Calendar: An online calendar used for creating and managing appointments among users and partners of a public library. These events could be library weeks, public lectures, reader circle gathering, special holidays, and exhibitions. There are mobile applications with Google Calendar, so that library events could be shared.

Google Docs: On this Apps, creating word documents, spread sheets, and presentations are made possible. Drafts of projects could be shared among the writers, if libraries are involved in projects. This facilitates collaborating on documents within a group of users.

Google Groups: Libraries with Internet connection may manage mailing lists of users and conduct online discussion groups using this apps. It is useful to obtain users' opinions and suggestions that can be used for collection development. It helps create reader circles and provides options to alert services, such as SDI.

Google Forms: Google Form is used to create user survey questionnaires, quizzes and appraisals. Google Form is user friendly and has functions for creating online data collection tools with various formats such as text, multiple choices, checkboxes, rating scale, option list. It saves time and paper work in libraries.

Google Talk: Users can chat with librarians, with respect to range of information queries. This will help the reference services provided by the library.

Google Analytics: Library can create a Google analytics account by implementing it in the website to track website statistics, such as most viewed pages, most-read articles/materials, number of downloads, and frequency of user visits (Fang , 2007).

Google CSE: Google Custom Search Engine (CSE), which is a platform provided by Google, that allows users and web developers to create customized search engines, based on Google Search. This curtails the level of noise when searching, by limiting the sources on the web. Therefore, it gives better resolution to locate the relevant information among exorbitant number of databases (Wikipedia, Feb 10, 2016).

Among numerous tools and applications, the above are considered relevant to libraries that are evolving in this digital era. Sri Lankan public libraries need to move forward in engaging resources and services demanded by third and fourth generation users. In this regard, their conventional services need to be intertwined with content management on digital platforms. For example, these libraries can incorporate social media plugins and Google Apps on to their websites.

Conclusions and Recommendations

Public libraries' contribution to uplift the literacy rates and economic development cannot be underrated. In the current electronic era, information is manifold both in number and content, which makes it difficult for library users to locate the information of their interest and choice. Public libraries in Sri Lanka are not fortunate enough to ensure interactive, content managing websites or active social network pages, for instance, on Facebook. However, with the availability of the Internet and hand-held devices public library services can be taken to the online world. In this regard, Google Apps are tremendously useful to libraries with limited resources and unlimited user demand. Different types of apps are utilized to execute simple to complex functions in libraries especially through mobile devices. With training on employing and using these apps will effectively enhance the service quality of public libraries in Sri Lanka. Finally, the Sri Lanka Library Association and/or National Library and Documentation Services Board may take initiatives to help public libraries create websites and Facebook pages to step forward in electronic resources and services.

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පුස්තකාල සේවා ගුණාත්මක බව ඇගයීම (Evaluation of service quality in libraries)

ප්‍රියංවදා වනිගසුරිය¹, Si Li²,

¹ පුස්තකාල හා විද්‍යාපන විද්‍යා අධ්‍යයන අංශය, කැලණිය විශ්වවිද්‍යාලය, කැලණිය

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Abstract

Evaluating service quality is a hot topic today in the service sector. This paper seeks service quality dimensions and available service quality evaluation models in the world. It describes the three core components of the service quality interaction i.e. library staff, resources and library as a place. And it critically discusses the service quality evaluation modules and criteria used in the service quality sector. This paper will be helpful to libraries planning to implement a quality management system to improve their quality service and increase customer satisfaction through continuous improvement.

Keywords: Service quality, Kano model, LibQUAL, SERVQUAL, library

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සේවා ගුණාත්මක බව ඇගයීම සේවා ක්ෂේත්‍රයේ කාලීන මාතෘකාවකි. මෙම පත්‍රිකාවෙන් සේවා ගුණාත්මකබව අගය කිරීමේ සංරචක හා මොඩියුල පිළිබඳ සොයා බැලේ. පුස්තකාල සේවකයන්, එකතුව සහ ස්ථානයක් ලෙස පුස්තකාලයේ අවශ්‍යතාව යන ප්‍රධාන මාතෘකා පිළිබඳ සලකා බැලේ. එසේම විවිධ මොඩියුල සහ ඒවායේ නිර්ණායක සාකච්ඡා කෙරේ. මෙම පත්‍රිකාව පුස්තකාල සේවා ගුණාත්මක බව නැංවීමට ඒ පිළිබඳ නිරන්තර අවධානය යොමු කිරීමට උපකාර වේ.

කීපද: සේවා ගුණාත්මක බව, Kano model, LibQUAL, SERVQUAL, පුස්තකාල

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1. හැඳින්වීම

සේවා තත්වය හෝ සේවා ගුණාත්මක බව (Service Quality - SQ) වර්තමාන යුගය වනවිට සේවා ක්ෂේත්‍රයේ නිරන්තරව කතාබහට ලක්වන මාතෘකාවක් බවට පත්වී ඇත. එයට හේතුව සේවා ගුණාත්මකබව හා බැඳී තිබෙන අනෙකුත් සංරචක ඕනෑම ආයතනයක සංවර්ධනයට හා යහපැවැත්මට විවිධාකාරයෙන් බලපෑම් කරන නිසාය. වියදම (cost), ලාභය (profit), සේවාදායකයන්ගේ තෘප්තිමත්භාවය (customer satisfaction), සේවාදායකයන් ආකර්ශනය කර ගැනීම හෝ ඔවුන් විසින් අතහැර දැමීම (user's attraction or dropouts) සහ ආයතනයේ කීර්තිනාමය (image) යන සංරචක සේවා ගුණාත්මකබව සමග අත්‍යන්තව බැඳී තිබෙන සංකල්පයන් වේ. සේවා ගුණාත්මකබව යන්න නිර්වචනය කරන Parasuraman" Zeithamal and Berry (1985) පවසන්නේ භාණ්ඩවල ගුණාත්මකබව ලෙහෙසියෙන් අගය කළ හැකිවුව ද සේවාවන්හි තත්වය අගය කිරීම එතරම් පහසු කටයුතුක් නොවන බවයි. එයට හේතු දක්වන ඔහු සේවා ගුණාත්මක බව යනු එක් එක් සේවා ලබන්නා කෙරෙහි දක්වන සංජානන (perception) මත පදනම්ව ගොඩනැගෙන්නක් බව පවසයි. බොහෝවිට සේවය කෙරෙහි දක්වන ආකල්පය (attitude) හෝ තක්සේරුව (judgment) පුද්ගලයාගෙන් පුද්ගලයාට වෙනස්වේ. ඒ අනුව පොදුවේ පාරිභෝගිකයන්ගේ අවශ්‍යතාවන් සංතෘප්ත කිරීමට යෝග්‍යවන පරිදි සේවා සැපයීම සේවා ගුණාත්මකබව ලෙස හැඳින්විය හැකියි. එනිසා සේවා සපයන බොහෝ ආයතන දැනට සිටින පාරිභෝගිකයන් තවදුරටත් රඳවාගන්නට, නව සේවාදායකයන් ආකර්ෂණය කර ගැනීමටත්, මූල්‍ය පාලනයටත්, ආයතන කීර්තිනාමය නංවා ගන්නටත් මෙන් ම සමස්ත ඵලදායීතාව යටතේ නිරතුරුව තම ආයතනයේ සේවා ගුණාත්මකභාවය පිළිබඳ අවධානයෙන් සිටිති. කොතරම් උසස් මට්ටමේ භාණ්ඩ නිෂ්පාදනය කළත් සේවා උසස් මට්ටමින් ලබාදිය නොහැකිවුවහොත් ආයතනයේ පැවැත්ම තීරණය කිරීම අපහසු බව ඉන් පැහැදිලි වේ.

අනිත් පසින් බැලීමේදී ඕනෑම ආයතනයක භාණ්ඩ දෘෂ්‍යමානවුව ද සේවා අදෘෂ්‍යමානව (Edvardsson,1998). එම සේවාව හොඳ හෝ නරක තීරණය කරන්නේ එය භාවිත කරන්නන් විසිනි. සමහරවිට සේවාදායකයන් හොඳයැයි විනිශ්චය කරන සමහර සේවා, භාවිත කරන්නන් විසින් හොඳ නැතැයි තීරණය කරන්නට පිළිවන. සේවා උත්පාදනයවන්නේ ක්‍රියාවලියක ප්‍රතිඵලයක් ලෙසිනි. ඕනෑම ක්‍රියාවලියක ඇති මූලික අංග මෙන් ම සේවා ක්‍රියාවලියක ඇති අංගයන්හි අවසාන අවස්ථාව නැතහොත් ප්‍රතිඵලය (outcome) ලබන අවස්ථාවේදී පමණක් භාවිත කරන්නන්ගේ සහභාගීත්වය ලැබේ. සේවා සැලසුම්කරණයේදී, ඒවා සංවිධානය කිරීමේදී පාරිභෝගිකයන්ගේ සහභාගීත්වය ලැබෙන්නේ ඉතාමත් අල්ප වශයෙනි. එමනිසා පාරිභෝගිකයන්ගේ අවශ්‍යතා, ඔවුන්ගේ සේවා හැසිරීම, කාර්යභාරය, පිළිබඳ මනා අවබෝධයක් ඇතිකර ගැනීමෙන් පාරිභෝගික දිශානුගත (customer-oriented) සේවා සැපයිය හැකිය. එහිදී සේවාව භාවිත කරන්නන්ගේ හොඳ හෝ නරක පිළිබඳව සිදුකරන විවිධ යෝජනා හා චෝදනා සර්ව සම්පූර්ණ වශයෙන්ම සත්‍ය නොවන්නටත් පිළිවන. සමහර පාරිභෝගිකයන් වාචිකව තම අවශ්‍යතාවන් ප්‍රකට නොකරන අතර, ඒ අවශ්‍යතාවන් හඳුනාගන්නට ද අවස්ථාවක් නොලැබෙනු ඇත. ඒ අනුව සේවා ගුණාත්මකබව යන්න සංකීර්ණ වූ සංකල්පයක් බව පැහැදිලිය. විශේෂයෙන් ආයතනවල පුද්ගල අන්තර් සබඳතාවන්ට (human interaction) සේවාවන්හි පදනම ලෙස ක්‍රියාත්මක වන නිසා එය අධ්‍යයනය කිරීම ද ඉතා සැලකිල්ලෙන් කළ යුත්තකි.

පුස්තකාල සේවා සපයන ආයතන වේ. එහි පාරිභෝගිකයන්වන්නේ පාඨකයන්, එසේ නොමැතිනම් උපයෝජකයන්ය. පුස්තකාල ආරම්භ කළ කාලයේ පුස්තකාලයෙහි ගුණාත්මකබව තීරණය කරන ලද්දේ පුස්තකාල එකතුවෙහි ඇති පොත් සංඛ්‍යාව මත වුවත් වර්තමාන යුගයේ මේ තත්වය වෙනස්ව පුස්තකාල පිළිබඳ එතෙක් තිබූ නිර්වචනය හා පිළිඹිබුව (image) කුමිකව වෙනස්වී එමගින් ඉටුකරන සේවා කොතරම් උපයෝජක මිතුරුශීලී ද (user friendly), ඒවා කෙතරම් කාර්යක්ෂම ද (efficient), සේවා කෙතරම් ඵලදායී ද (effective) යන කරුණු මත පුස්තකාලයන්හි ගුණාත්මකබව තීරණය කිරීම සිදුවේ. එනිසා පසුගිය අවසියවසක කාලයක් පුරා පුස්තකාල සේවා ගුණාත්මකබව පිළිබඳ පුස්තකාල ක්ෂේත්‍රයේ කතාබහට ලක් විය. එහි ප්‍රතිපලයක් ලෙස පුස්තකාල සේවා ගුණාත්මකබව පිළිබඳ සංරචක, සාධක, ගුණාත්මකබව මනින මොඩියුල ආදිය සකස් වී තිබේ. සේවා ගුණාත්මකබව ඇගයීමේදී උපයෝජක සංජානනය (user perception) හා උපයෝජකයන් ගේ අපේක්ෂාවන් (user expectation) අතර ඇති පරතරය (Gap) උසස් සේවාවක් පවත්වා ගැනීමට ඇති ප්‍රමුඛ බාධාව ලෙස Parasuraman (1985) පවසයි.

$$\text{සේවා ගුණාත්මකබව} = \text{උපයෝජක සංජානනය} - \text{උපයෝජක අපේක්ෂාවන්}$$

එහෙත් සේවාවන්හි ගුණාත්මකබව හා උපයෝජක තෘප්තිය තීරණයවන්නේ සේවා බැඳුණු තුන් ඇදුනු පුස්තකාල හරයන් වන පුස්තකාල සේවකයන්, එකතුව හා පුස්තකාල බාහිර පරිසරය මත බව බොහෝ දෙනාගේ පොදු අදහසයි.

2. පුස්තකාල සේවකයන්

පුස්තකාල සේවකයන් සිනා (SMILE) සහිතව සිටිය යුතුය (Thapisa and Venus, 1999). එනම් S-smart (කාර්යශූර), M-manners (ආචාරශීලී), I-interest (ලැදියාව), L-listen (මනාව සවන්දීම), E-enthusiasm (උද්යෝගශීලීත්වය) යන ගුණාංගවලින් යුක්ත විය යුතු බවයි. උපයෝජකන් හා සේවකයන්ගේ අත්‍යන්ත සබඳතාව පුස්තකාලයක සංවර්ධනයට අත්‍යවශ්‍ය කරුණකි. සමහරවිට පුස්තකාලයාධිපතිවරයා අදින පලදින ආකාරය හා පිළිවෙළ පුස්තකාලයේ ගුණාත්මක බවට හේතුවන්නේ කෙසේදැයි කෙනෙකු තර්ක කරන්නට පිළිවන. නමුත් පුස්තකාල ඉදිරි පෙළ සේවකයන් (front officers) මානුෂීය සබඳතාවන් ඇතිවීමට පිරිසිදු හා පිළිවෙළට ඇඳපැළඳ සිටීම ඉතාමත් වැදගත් ය. එසේ ම සිනා මුසුව ආචාරශීලී හැසිරීමෙන් උපයෝජකයන් පුස්තකාල වෙත ආකර්ශනය කර ගත හැක. ඒ කෙසේ වුව ද පුද්ගල අන්තර් සබඳතාවන් (human interaction) ඇතිවීමට ඒ ඒ පුද්ගලයන් ඒ අවස්ථාවේ සිටින මනෝභාවයන් (mood) හා මානසික හැගීම් (attitude) සෘජු බලපෑමක් සිදු කරයි (Kang and James, 2004). එය සේවක උපයෝජක යන දෙපක්ෂයටම එක ලෙස බලපායි. එසේ වූ නමුදු තමන් විසින් සපයන සේවාව පිළිබඳව ඇති උනන්දුව සහ උද්යෝගශීලීත්වය ඕනෑම සේවකයෙකු තුළ තිබිය යුතු ගුණාංගයකි. කුමන මනෝ භාවයක් යටතේ වුව ද පැමිණෙන පාඨකයන්ගේ තොරතුරු අවශ්‍යතා කෙරෙහි සවන්දී ඔවුන් වෙත පෞද්ගලික අවධානයෙන් යුතුව හැකි ඉක්මනින් ඒවා ඉටු කිරීම පමණක් නොව පුස්තකාල භාවිතය හා ඉන් තොරතුරු නැවත සමුද්ධරණය කිරීමට අවශ්‍ය කුසලතා නැංවීමට උපකාර කිරීම ද වැදගත්ය. එහිදී උපයෝජකයන් අතට තොරතුරු පත් කිරීම පමණක් නොව නැවත පුස්තකාලයට පැමිණ හෝ නොපැමිණ (online or offline) සපුරා ගන්නා ආකාරය පිළිබඳ දැනුවත් කිරීම ද වැදගත් වේ.

උපයෝජකයන් කෙරෙහි විශේෂ පෞද්ගලික උනන්දුවකින් කටයුතු කිරීම වැදගත් වුවත් ඉන් අදහස් කෙරෙන්නේ කොටසකට පමණක් විශේෂ අවධානයක් යොමු කිරීම නොව සෑම අයෙකුටම සමානව සැලකීමයි (equal important). එසේ වුවහොත් පුස්තකාලයේ කීර්තිනාමයටත් එය ඉවහල් වේ.

3. පුස්තකාල එකතුව

පුස්තකාලයක දෙවැනි වැදගත් සංරචකයවන්නේ තොරතුරු එකතුවයි. එකතුව ප්‍රමාණවත් හා සමබරව විෂය කරුණු සම්පූර්ණ කිරීම පමණක් නොවේ. එයට හේතුව කොතරම් බාහිර පහසුකම් සපයා තිබුණත් එකතුවේ සම්පූර්ණත්වය නැති නම් එම පුස්තකාලය ජනප්‍රිය ස්ථානයක්වන්නේ නැත. එපමණක් නොව සැහැල්ලු කියවීම් ද්‍රව්‍ය, ස්වයං අධ්‍යයනට අවශ්‍ය මූලාශ්‍ර සැපයීම ද පුස්තකාලවල අපේක්ෂිත කාර්යභාරයකි. එසේම ඒ එකතුව පාඨකයා අතරට ගෙනයාමේ ක්‍රමවේද ද සැලසුම්කර තැබිය යුතුයි. පලමුව එකතුව මනාව සංවිධානය කිරීම, රාක්කගත කිරීම, අවශ්‍ය මග පෙන්වීම, සකස් කිරීම, සුවි මනාව යාවත්කාලීන කිරීම, අවශ්‍ය තරම් දෘෂ්‍ය යොමු කිරීම හා ලේඛල යොදා තැබීම මෙන් ම පොත්පත් හැකි ඉක්මනින් නැවත රාක්කගත කිරීම ද වැදගත්ය. තවදුරටත් මේ පිළිබඳ පර්යේෂණයකරන්නන් පවසන්නේ පුස්තකාලයට පැමිණෙන්නන් පමණක් නොව පුස්තකාලය මාර්ගගතව භාවිත කරන්නන් ද එනම් පුස්තකාල දත්ත පදනම්, ඉලෙක්ට්‍රොනික පොත්, ඉලෙක්ට්‍රොනික සඟරා භාවිත කරන්නන් වෙනුවෙන් පුස්තකාලයේ වෙබ් පිටු යාවත්කාලීනව සහ ආකර්ශනීයව පවත්වා ගැනීමේ වැදගත්කම දක්වා ඇත.

දැනට ලෝකයේ පුස්තකාල යනු තවදුරටත් තම එකතුවෙන් පමණක් සේවා සපයන ආයතන නොවේ. ඒවා හැකිතාක් වෙනත් පුස්තකාල හා ආයතන සමග සම්බන්ධවී සහයෝගීතා ක්‍රම මගින් හැකිතාක් උපයෝජකයන්ගේ අවශ්‍යතා ඉටු කරන ආයතන බවට පත්වී ඇත. ඉතා සුළු කාලයකින් පිරුළු සේවා සැපයීම උපයෝජකයන්ගේ නොමඳ අවධානයට යොමු වන්නට හේතු වේ.

උපයෝජකයන් හා පොත් පත් සමග තිබෙන අන්තර් සබඳතාව ඉතාමත් දැඩිය. එනිසා පුස්තකාල සේවා සම්පාදනයේදී සිදුවන කුඩා අතපසුවීම් හා අඩුපාඩුකම් එතරම් අවධානයට යොමු නොකර පුස්තකාල සේවා වෙත යොමු වන බව පැවසේ. එනම් ඉවසීමේ නැතහොත් සාධාරණීකරණ කලාපයට (zone of tolerance) උපයෝජකයන් යොමුවන බවයි. (Ferguson and Zawacki, 1993; Kettinger and Lee, 1994; Pitt et al., 1995) zone of tolerance නැමති සංකල්පය ඉදිරිපත් කරමින් (Parasurmn,1991). උපයෝජකයන් ලැබීමට බලාපොරොත්තුවන තොරතුරු (desired information) අවශ්‍යතාව යම් දුරකට දැනට තිබෙන සෑහෙන තරම් තොරතුරුවලින් (adequate information) සපුරාගනිමින් සේවය කෙරෙහි තෘප්තිමත්භාවයට පත්වන බව පැහැදිලිය.

4. පුස්තකාලය ස්ථානයක් ලෙස

බිත්ති රහිත පුස්තකාල නොහොත් සංඛ්‍යාංක පුස්තකාල පිළිබඳ උනන්දුවන යුගයක වුව ද සේවා ගුණාත්මකබව පිළිබඳ අධ්‍යයනයේදී පුස්තකාල බාහිර පරිසරයට ලැබෙන්නේ ඉතා ඉහළ වැදගත්කමකි. කුමන අවශ්‍යතාවක් සඳහා පුස්තකාලයට පැමිණිය ද එහි බාහිර පරිසරය, උපකරණ, රාක්ක, ආසන හා මේස ආදියේ තව්න හා සුවපහසුබව මෙන්ම ඒවා ආකර්ශනීය

ලෙස සැලසුම්කර තිබීමත් උපයෝජකයන් ආකර්ශනය කර ඇද බැඳූ තබා ගැනීමට හේතු වේ. එසේම ප්‍රමාණවත් ආලෝකය, නිහඩ බව, සුවපහසු වාතාශ්‍රය, ආරක්ෂාකාරී බව සහ දෝෂ රහිත පරිගණක ද උපයෝජකයන් ආකර්ශනයට අවශ්‍ය වේ. ප්‍රමාණවත් ඉඩ පහසුව, අඩු කාලයකින් විවිධ අංශවලට ලඟාවීමට ඇති හැකියාව, අවම පොරොන්තු කාලය ද උපයෝජකයන් පුස්තකාලයකින් බලාපොරොත්තු වේ. පුස්තකාලය පවතින්නේ තමන් වෙනුවෙන් යන හැඟීම ඇතිවන පරිදි කටයුතු කිරීම සේවා ගුණාත්මකබව නැංවීමට හේතු වේ. විශේෂයෙන් පුස්තකාල විවෘතව තැබෙන වේලාවන් (convenient library hours) පිළිබඳ අවධානය යොමු වී තිබේ. උපයෝජකයන් පුස්තකාලවලට ලඟාවන්නේ තම නිදහස් වෙලාවන්හිදී ය. එනිසා සේවා ගුණාත්මකබව තීරණය කිරීමේදී පුස්තකාල උපයෝජකයන්ට පහසු වෙලාවන්හි විවෘතව තැබෙන්නේ ද යන්නත් සොයා බැලේ. එය රාත්‍රිය ද උදෑසන ද යන්නට වඩා සාම්ප්‍රදායික සේවා අතික්‍රමණය කර හෝ උපයෝජක සේවා සැපයීමෙන් හැකිතාක් තොරතුරු භාවිතයට අවස්ථාව සැලසීමට නවීන පුස්තකාලයාධිපතිවරු උත්සාහ ගනිති.

5. සේවා ගුණාත්මකබව ඇගයීම

සේවා ආයතනයන්හි සේවා ගුණාත්මක බව අගය කිරීමට විවිධ මොඩියුල හා සැලසුම් බිහිවී තිබේ. එහි මුල්ම මොඩියුලය වන SERVQUAL සකස් කරන ලද්දේ 1985 දීය (Parasuraman, Zeithamal and Berry,1985). එය කාලීනව සංස්කරණයන්ට ලක්වූ අතර, එහි නූතන සංස්කරණයේ සේවා ගුණාත්මකබව ඇගයීමට මානයන් (dimensions) පහක් ඉදිරිපත්කර ඇත. (Parasuraman et al., 1985; 1986; 1988; 1990; 1991a; 1991b; 1993; 1994; Zeithamlet al., 1990; 1991; 1992;1993). (RATER ලෙස එය ජනප්‍රියයි).

මානය	විස්තරය
Reliability (විශ්වසනීයත්වය)	සේවාව පොරොන්දු වූ ආකාරයෙන් විශ්වසනීයව හා නිවැරදිව ඉටු කිරීම.
Assurance (ආකර්ශනීය බව)	විශ්වාසනීයව හා පැහැදීම ඇතිවන පරිදි සේවා ආචාරශීලීව ඉටු කිරීම.
Tangible (ප්‍රත්‍යක්ෂබව)	බාහිර උපකරණ හා පහසුකම් හා සංනිවේදන විධික්‍රම සකස් කිරීම.
Empathy (සහානුභූතිය)	උපයෝජකයන්ට පෞද්ගලික අවධානය හා සැලකිල්ල දැක්වීම.
Responsiveness (ප්‍රතිචාරාත්මකබව)	උපයෝජකයන්ට සේවා සැපයීමට ඇති උනන්දුව.

මෙහි දී උපයෝජකයන්ගේ අපේක්ෂාවන් හා සැපයෙන සේවා අතර ඇති රික්තකය හඳුනාගන්නට ලැබෙන බව දක්වා තිබේ. විවිධ පර්යේෂකයන් විවිධ සේවා ගුණාත්මකබව ඇගයීමට විවිධ රටවල මෙම මොඩියුලය භාවිත කර තිබේ. මලයාසියාව (Kiran, 2010) ශ්‍රී ලංකාව (Velnamby and Sivesan, 2013 Somarathna and Peris) 2011& ඉන්දියාව (Sahu, 2007) පකිස්ථානය (Arshand and amen, 2010) බංග්ලාදේශය (Hossain and Islam,2012 Hussain and Ahamed" 2014); එංගලන්තය (Satoh et. al., 2004); ඉරානය (Nejatiand Nejati, 2008) උදාහරණ කිහිපයකි.

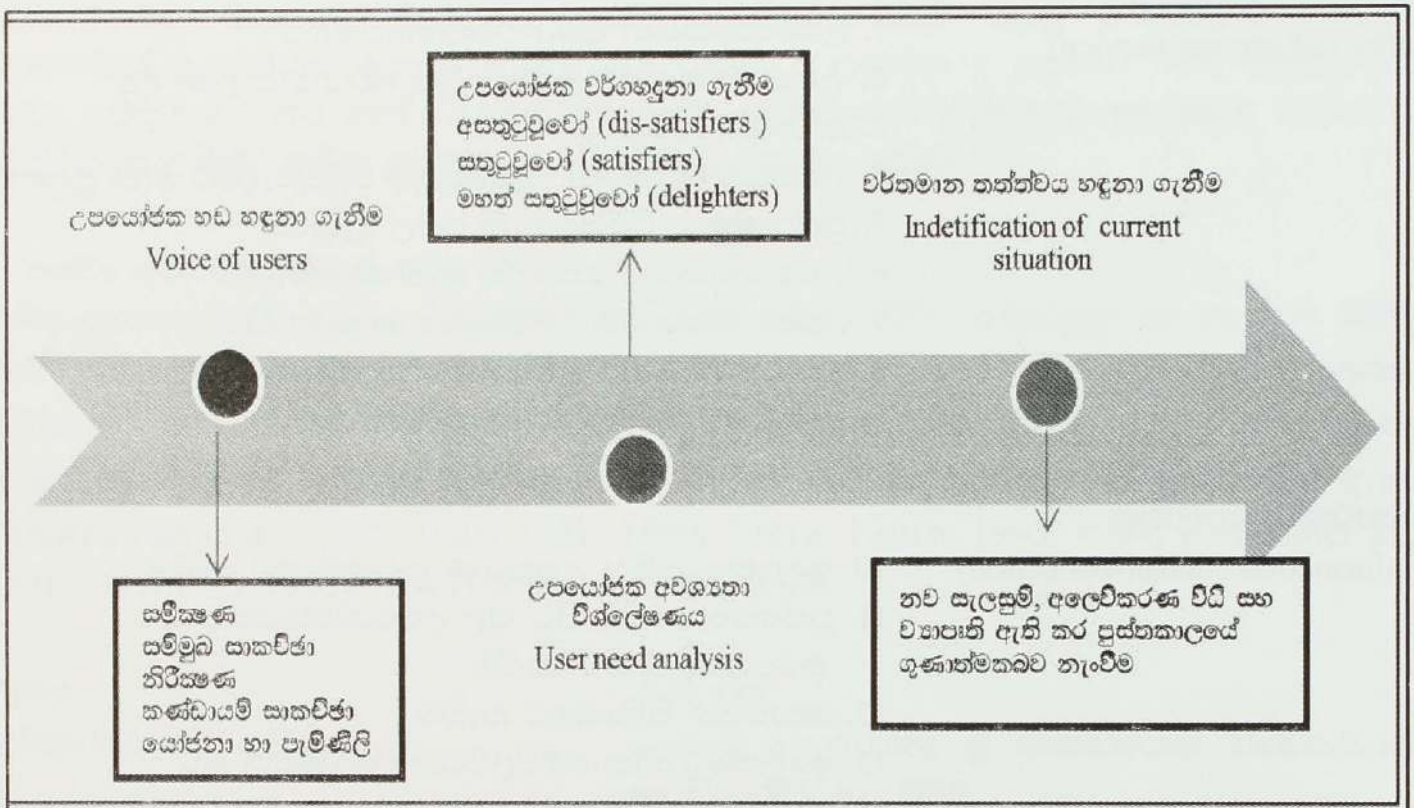
පුස්තකාල වෙනුවෙන් ම සකස් කළ LibQUAL මොඩලය SERVQUAL ආභාෂය ලබා නිර්මාණය වූවකි. එමගින් සේවාවේ බලපෑම (affect of service-service), තොරතුරු පාලනය (information control-collection) සහ පුස්තකාලය ස්ථානයක් ලෙස (library as a place-accommodation) යන සංරචක තුන යටතේ සේවා ගුණාත්මක බව අගය කළ යුතු බව දක්වා ඇත. ඒ ඒ සංරචක අගය කිරීමට වෙන වෙනම ප්‍රශ්න 22 මගින් ඇගයීමට ලක් කරයි.

සංරචකය	අඩංගු කරුණු
සේවාවේ බලපෑම (affect of service-service)	<ol style="list-style-type: none"> 1. උපයෝජකයන් අතර විශ්වසනීයත්වය 2. උපයෝජකයන්ට පෞද්ගලික අවධානය ලබා දීම 3. ආචාරශීලීත්වය 4. උපයෝජකයන්ගේ ගැටළුවලට පිළිතුරුදීමට ඇති සූදානම 5. පුස්තකාලය පිළිබඳ ඇති පුළුල් දැනුම 6. උපයෝජකයන් කෙරෙහි ඇති සැලකිල්ල 7. උපයෝජකයන්ගේ අවශ්‍යතා හඳුනාගැනීම 8. උපයෝජකයන්ට උදවු කිරීමට ඇති කැමැත්ත 9. සේවා ගැටළු විසඳීමට ඇති හැකියාව
තොරතුරු පාලනය (information control-collection)	<ol style="list-style-type: none"> 10. ඉලෙක්ට්‍රොනික උපකරණ සූදානම් කර තැබීම 11. පුස්තකාල වෙබ් පිටු තුළ උපයෝජකයන්ට තම කටයුතුවලට ඉඩ තැබීම 12. පොත්පත් පිළිවෙලට තැබීම 13. ඉලෙක්ට්‍රොනික මෙවලම්වල ප්‍රමාණවත් බව 14. ඉලෙක්ට්‍රොනික මෙවලම්වලට පහසුවෙන් එළඹීමට ඇති හැකියාව 15. සියළු පුස්තකාල මෙවලම් පහසු භාවිත හැකියාව 16. පෞද්ගලිකව තොරතුරු භාවිතයට ඇති හැකියාව 17. ඉලෙක්ට්‍රොනික හා මුද්‍රිත සපුරා තිබීම
පුස්තකාලය ස්ථානයක් ලෙස (library as a place-Accommodation)	<ol style="list-style-type: none"> 18. අධ්‍යයන කටයුතු සඳහා සෑහෙන ඉඩකඩ වෙන්ව තිබීම 19. නිහඩ බව 20. පහසු ආකර්ශනීය පරිසරය 21. පර්යේෂණ කටයුතු සඳහා ඇති පහසුකම් 22. කණ්ඩායම් කටයුතු සඳහා ඇති පහසුකම්

ජපන් මහාචාර්ය නොරිකි කානෝ (Noriaki Kano) විසින් ඉදිරිපත් කළ KANO Model ද සේවා ගුණාත්මකබව මනින මිනුමකි. පුස්තකාලයක සේවා ගුණාත්මකබව තීරණය කිරීමට උපයෝජකයන්ගේ හඬ (voice of customers) හඳුනාගත යුතු යැයි කානෝ (Kano, 1985) විස්තර කරයි. ඒ සඳහා සමීක්ෂණ, සම්මුඛ සාකච්ඡා, නිරීක්ෂණ, කණ්ඩායම් සාකච්ඡා හා

විස්තර කරයි. ඒ සඳහා සමීක්ෂණ, සම්මුඛ සාකච්ඡා, නිරීක්ෂණ, කණ්ඩායම් සාකච්ඡා හා උපයෝජකයන්ගේ යෝජනා හා පැමිණිලි යොදාගත හැක. එම උපයෝජකයන්ගේ හඬ විශ්ලේෂණය කිරීමෙන් සපයන සේවා වලින්,

1. අසතුටුදායක (dis-satisfier)
2. සතුටුදායක (satisfier)
3. මහත් සතුටුදායක (delighter) හඳුනාගත හැක. (රූපය බලන්න)



ඉන් ඉතා ඉක්මනින් කළ යුතු වෙනස්කම්, ඇති කළ යුතු නව සේවා, නව අලෙවිකරණ විධිකුම, විවෘතව තැබෙන වෙලාවන් නැවත වෙනස් කිරීම ආදිය මගින් පාරිභෝගිකයන්ගේ අවශ්‍යතා සැපිරිය හැකි බව පවසයි. කාතෝ ගේ මෙම සංකල්පය විවිධ සේවා ආයතන බහුලව භාවිත කරනු දක්නට ලැබේ.

කාතෝගේ මෙම සංකල්පය ඉහළ සිට පහළට (top to bottom) නොව පහළ සිට ඉහළට (bottom to top) සංකල්පය බලාත්මක වුවක් ලෙස හැඳින්විය හැක. මක් නිසා ද යත් බොහෝ ආයතන උත්සාහ කරන්නේ තම අධිකාරී බලය භාවිත කර සේවා සැලසුම් කිරීම වුවක් භාවිත කරන්නන් වෙනුවෙන් සේවා සපයද්දී ඔවුන්ගේ අදහස් හා යෝජනා මත පදනම්ව සේවා සැකසීම වැදගත්ය.

මෙම සියළු මතවලට විවේචන එල්ල කරන බුට්ල් (Buttle, 1995) නව අරුතක් එකතු කරමින් Gronroos (1982) ගේ අදහස උපුටා දක්වමින් සේවා තත්වයන් අගය කිරීමට (functional aspect) පමණක් ප්‍රමාණවත් නොවන බවත් තාක්ෂණික දෘෂ්ටියෙන් ද (technical aspect) සහ

සේවා ආයතන කෙරෙහි ඇති කීර්තිනාමය ද (image) ඒ සඳහා සංරචක ලෙස භාවිත කළ යුතු බව පවසයි. එසේම SERQUAL, LibQUAL, KANO වැනි මොඩියුල අවධානය යොමු කරන්නේ කෘත්‍යාත්මක දෘෂ්ටිය කෙරෙහි පමණක් බවත් ඉන් සේවාවේ යථාර්තය පිළිබිඹු කළ නොහැකි බවත් විස්තර කරයි. ඔහුට අනුව පුස්තකාලයට උපයෝජකයන් පැමිණෙන්නේ ඒ ඒ උපයෝජකයාගේ පැරණි අත්දැකීම්, සංජානනය, අවබෝධය හා අත් අය ගේ අදහස් ද පිළිබඳ අවබෝධයෙනි. එසේ පැමිණෙන්නන් තුළ පුස්තකාලය පිළිබඳ ඇති ධනාත්මක කීර්තිනාමය සේවා පිළිබඳ ධනාත්මක ඇසකින් බලන්නට පෙළඹවීමක් ඇති කරයි. එයින් යම් යම් සුළු දෝෂ හෝ ප්‍රමාද එතරම් සැලකිල්ලට නොගනී. එහෙත් නිතර නිතර දෝෂ හෝ ගැටළු ඇති වෙනවා නම් ඉතා පහසුවෙන් සෘණාත්මක අදහස් ඇතිවිය හැකිය. අනිත් පසින් ආයතනය කෙරෙහි දැනටමත් ඇති ආකල්පය සෘණාත්මක නම් ඉතා කුඩා අතපසු වීමක් එම සෘණාත්මක ආකල්පය විශාලනය කරන්නට හේතු වේ. ඒ අනුව සේවා සපයන ආයතන තම සේවා ප්‍රචාරණය හා දියුණු කිරීමට උත්සුකවීමේ වැදගත්කම පැහැදිලි වේ. නැතහොත් ආයතනවල පැවැත්ම පිළිබඳ විශ්වාසය තබා ගත නොහැකිය.

සේවා ගුණාත්මක බව පිළිබඳ වඩා වැඩි අවදානයක් යොමුවී ඇති මේ යුගයේ තම පුස්තකාලයේ සේවා ගැන සහ විවිධ තත්වයන් පිළිබඳ අගය කිරීම අත්‍යවශ්‍ය කරුණකි. පුස්තකාලයේ සේවකයන්, එකතුව සහ පුස්තකාලයේ බාහිර පහසුකම් යන මූලික සංරචක යටතේ සේවා ගුණාත්මක බව අගය කළ හැකිය. එම අගය කිරීම සඳහා කතෝ මෝඩියලය, LibQUAL සහ SERVQUAL වැනි මොඩියුල භාවිත කළ හැකිය. සේවා අගය කර උපයෝජකයන්ගේ අවශ්‍යතා හඳුනාගෙන වැඩි ගුණාත්මක සේවාවක් සැපයීමට ඉන් අවස්ථාව ලැබේ.

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Russell Bowden – Librarian *par excellence*

What do I remember about Russell Bowden? He died on 27 January 2016 at his home in Kottawa after a short battle with cancer. I paid my last respects to him at A F Raymond's funeral parlour but ever since when I go to the SLLA office in the OPA building, I expect to see a tall, straight figure with a very fair face rather reddened in the heat and somewhat lined with age, come striding with a smile lighting his face erasing the serious, purposeful look it usually had. This proves John Donne's contention in his sonnet:

*“Death be not proud, though some have called thee
Mighty and dreadful, thou art not so,
For those whom thou think'st thou hast overthrown
Die not, poore death ...*

The mortal Russell is gone; the man of flesh and blood is no more; but his spirit will surely haunt LIS places in Colombo for which he did so much; specially the Sri Lanka Library Association. And we older librarians who were privileged to sit at meetings with him and work alongside him will miss him. Mr Prasanna Ranaweera, Director/NILIS promised that the auditorium of the National Institute of Library and Information Sciences of the University of Colombo would be named 'Professor Russell Bowden Auditorium.' Thus his name will live on and the gratitude we library personnel feel for him.

To answer the question I posed to myself: I remember his dedication to the cause of library and information science (LIS); his unstinting service to several institutions and the advancement of LIS in Sri Lanka; his innovative ideas and his persistence in making changes and undimmed focus on the matter in

hand. He is also remembered for having much to comment on at SLLA AGMs; constructive, with nary a trace of malice or superiority. He would constantly grin and make a humorous remark and walk away with that loping walk of his.

He was like tea planters of half a century ago who settled down in their adopted country - Ceylon, and more recently, Sir Arthur C Clarke, a Britisher who made his permanent home after retirement in this land of ours. Russell came to live here in 1996. He and the others mentioned could have gone back to Britain, their birthplace, or made a home in some exotic location like Greece or Bali, but no, they appreciated the deeper values Sri Lanka is rich in and settled down here to be distinguished residents. In Russell's case contributing so much to the field of LIS both in this country, in South Asia and globally too. As Russell told an interviewer ten years ago: "The wonderful thing about Sri Lanka is that this is a small country, and everybody knows everybody. If I am in doubt, I phone up or e-mail Professor Karunadasa in Hong Kong and say Karu, I have a problem, and he says, why don't you get in touch with so-and-so, his phone number is such and such. And you phone people up and they respond. They immediately help. If I have doubts, I climb into my car and drive to Polonnaruwa or Anuradhapura. I will sit around in the ruins of the Abhayagiri, or the Western Monasteries." We Sri Lankans take pride in the fact that a knowledgeable, wise and much travelled man like Russell chose this Island as his final home. Maybe being a bachelor helped him to make the choice as he had only himself to please. "I came on holiday and found that all my friends, not my British Council friends but my Sri Lankan friends, were still here. It was just a matter of picking up the loose ends."

The Professional

Born in Manchester in the UK, Russell chose librarianship as his career and kept his interests going strong for more than the Biblical age of three score

and ten. Becoming a Chartered Librarian of the Library Association (UK) which was the body that offered Associateship and Charters then, he continued his studies in the Loughborough University of Technology (1974-76). While in the university, he assisted in the development and early delivery of a programme for library educators in developing countries. Joining the British Council, he was sent as the Council's Librarian to supervise libraries in Iraq, India, Nigeria and Sri Lanka, serving in London too. Russell worked for the Library Association, UK (now CILIP) as the Deputy Chief Executive from 1974 to 1994.

His horizon widening, he served the International Federation of Library Associations & Institutions (IFLA) as Executive Board Member (1989-1995) and was its first Vice President from 1991 to 1995. Coming east, his interests naturally shifted to certain sections of IFLA such as the Group - Asia and Oceania - in which he served the Regional Standing Committee as member and advisor. He initiated and was instrumental in the formation of the Regional Federation of South Asian Library Associations while participating in a LIS seminar in Nepal in 2006. Thus came into being REFSALA which holds conferences in South Asian nations; in Sri Lanka in 2010.

Russell was a Fellow of the Sri Lanka Library Association, an Honorary Fellow of CILIP, Honorary Fellow of IFLA and Honorary Librarian of the Royal Asiatic Society of Sri Lanka.

The Dynamic Personality in Local LIS

Russell gave of his time, expertise, experience and most significantly his enthusiasm and dynamism of getting things done to the Sri Lankan library and information science field. Maybe the start was the encouragement and assistance given our fledgling Ceylon Library Association started in 1960. He maintained his interest and contribution to the continuation of that early association which became the Sri Lanka Library Association (SLLA). As I

remember, he was a Council Member for many, many years and headed or served on various sub committees of the SLLA. His interest and assistance widened to other LIS institutions as they came into existence, being invited to serve on governing boards and committees including the National Institute of Library and Information Sciences of the University of Colombo, National Library and Documentation Services Board and the National Library of Sri Lanka.

The Scholar

After reaching the pinnacle of academic achievement in LIS, Russell turned to Buddhism which interested him and engaged his intellect. This is no surprise since Buddhism is essentially for the intelligent person and offers much scope for study. For ten years, he entered deep into Buddhist texts – in both a spiritual and intellectual quest from the oral to the written word, an apt pursuit for a professional librarian. Joining the Postgraduate Institute of Pali and Buddhist Studies of the Kelaniya University, he read for and obtained his higher degrees in Buddhism and his PhD in 2013 for his research thesis: *'The Dhamma's Transmission and the Pali Theravada Canon: An Examination of the Processes and Supporting Literature from the Third Buddhist Council to King Parakramabahu's Unification of the Sri Lankan Sangha'* “The thing that fascinates me is that nowhere, in Anuradhapura or in Polonnaruwa, does anybody know where the library was. Libraries existed in Nalanda, in India, at least by the 5th century. Fa-Hsien in 400 BC wrote about a three-storied library in Nalanda. And Taxila had a library. Libraries existed, so why on earth did they never come to Sri Lanka?” questioned Russell. Ever the questing mind!

Goodbye Russell - we admire you as you admired our country and gave to it.

To end this concise appreciation of Russell Bowden, I decided the best would be to quote him. “I very much believe in the Buddha's idea that you give back what was given to you. When I came to Sri Lanka from India, I was a very raw British Council librarian. I was elected onto the Council of the Ceylon Library Association which was then only six years old, and I was on the Council for four years. In a small way I helped to form the current Sri Lanka Library Association. But my international career took off then. I ended up being elected as the first vice-president of the International Federation of Library Associations.

That was a great honour. And I can trace it all the way back to Ceylon. When I came back here, apart from studying Buddhism, I wanted to give back to the library profession here. That is what has brought me back into librarianship in Sri Lanka.”

When he said this, his interviewer **Stephen Prins** says in his article on the conversation he had with Russell (read on Internet) that there was a thud on the roof. “‘Monkeys,’ Mr. Bowden chuckles. ‘We live in the jungle.’ You can tell he is profoundly happy to be where he is, in his chosen jungle.”

A final quote from the librarian whose death we mourn:

“The thing I would like to stress is how a knowledge of Buddhism has given me a greater love and a greater understanding of Sri Lanka.”

Nanda Pethiyagoda Wanasundera
Fellow of the SLLA

Exploratory Review on Library Automation of Sri Lanka

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Abstract

The paper attempts to trace the evolution of computerization and eventual adoption of library automation software by the libraries in Sri Lanka. It was evident that computerization of bibliographic data in libraries had started in the late 1980s with the provision of a free bibliographic package by UNESCO. This triggered the library scientists to experiment on using different computer programmes and packages to automate the technical functions and end-user services of the library. The article traces the chronological development and usage of both in house and commercial software in the different libraries in Sri Lanka. The varied and disorganized status in usage of software is amply demonstrated through this. The options available through open source software together with cloud technology is also discussed as being a viable alternative for the future. Throughout the discussion, the high level of enthusiasm shown by librarians towards automating their libraries is only too evident and this augurs well for the future development of libraries in Sri Lanka.

Keywords: Library Automation; Evolution of library automation; Digital libraries; Library history; Sri Lanka

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Background of library Automation

The impact created by the development of information and computer technology (ICT) in the information age across all sectors of society provided the impetus for automation of libraries and its operations. It was nearly half a century ago that the idea of automating information processing was conceived by scientists. However, it was as far back as the 1880s when Herman Hollerith invented a machine to record data on a machine readable medium (Wikipedia,2012), and early 1890s when Paul Otlet and Henry la Fontaine thought about information networking and hyper-linking of researchers and their work. In fact, Otlet's conceptual models have sometimes been labeled prescient of the current world wide web and the duo envisioned a status beyond library automation (Rayward, 2010; Athenius Kirsher Soc., 2007).

In a rudimentary way, using equipment in libraries for the purpose of automation of its activities can be traced back to 1936 when the University of Texas adapted a mechanical system to automate its library's circulation function. During 1940s to late 50s many mechanical systems like machine controlling of information using roles and cards, edge notched card devices, optical coincidence card systems, peek-a-boo systems, uniterm cards etc. had been used for information analysis and retrieval (Taube, 1953,Foskett, 1996).

The first major machine readable batch processing information retrieval system MEDLARS (Medical Literature Analysis and Retrieval System) was developed by the National Library of Medicine in USA. The next remarkable innovation came with the advent of MARC standards in the 1960s and this coincided with the growth of computer technologies. The foundation for library automation through the systematic automation of information processing was thus laid.

Starting in the late 1960s and continuing into the 1970s, bibliographic services utilizing new online technology and the shared MARC vocabulary entered the market (Wallace,1991; Kochtanek, 2002). These standards were collaboratively practiced by Ohio College Library Center – OCLC (1967) Research Libraries Group which has merged with Washington Library Network and became Western Library Network, and now is a part of OCLC. (Ohio library centre later became Online Computer Library Center) (Wikipedia, accessed in January, 2014).

In the early 1970s the first online information retrieval systems were introduced (MEDLINE, SDC's ORBIT, NLM's AIM-TWX, Lockheed's DIALOG etc.). Thus it should be noted that the first steps of library automation started with the mechanization of 'information analysis, processing and information retrieval' through documentation work that had been carried out by librarians as well as the scientists themselves. Though cumbersome in use and involving several back end procedures, these mechanized systems provided effective services for end-users in obtaining information.

The proliferation of research publications, interdisciplinary and multidisciplinary specialization in various subject fields, made the information scientists realize the inadequacy of traditional methods for fast and efficient information processing and the necessity arose for a more dynamic and speedier system to automate activities in libraries and information centres.

Under standing Library Automation

The word automation was initially derived from a Greek word 'automose' which means something which has the power of self-motion. The term was first introduced by D S Harder who was employed at General Motor Company, in 1936, to indicate automatic handling of automotive parts between progressive production processes (Kemdarne, 2012). Library automation can be defined simply as the use of computers and networking technologies in a library (Lam, 2002). Kent in Encyclopedia of Library & Information Science defines library automation as "... technology concern with design and development of process and system that minimizes the necessity of human intervention in operation." (Kent, 1977). It is generally accepted that library automation is using automatically controlled machines or processing devices in library operations. The automation may be applied to library administrative activities, office procedures, and delivery of library services to users. Definition given by the UNESCO EIP ICT Module 2 explains library automation as the application of ICTs to library operations and services and the functions that may be automated are any or all of them: acquisition, cataloguing, public access catalogues, indexing and abstracting, circulation, serials management and reference services (www2.unescobkk.org, 2014).

However in the modern context, library automation can be defined as a process which adopts an integrated set of programmes that interact with relational databases and interfaces to accommodate a variety of system users and end-users using modern software and bibliographic standards. Most automation systems separate software functions into discrete programs called modules for the convenience of functional management within a library system and each of them are integrated with a unified interface. The modules might include acquisitions (ordering, receiving, and invoicing materials), cataloging (classifying and indexing materials), circulation (lending materials to patrons and receiving them back), Periodicals/serials (tracking magazine and newspaper holdings), Online Public Access catalogue with remote access, connectivity to the full resource and integration with other systems, building consortium of users and resource access and include functions of an information clearing house.

Library Automation in Sri Lanka

Emergence of the modern library system in Sri Lanka dates back to the British period. In 1813 the United Service Library and in 1829 the Pettah Library were established by the British as subscription libraries and later developed as public libraries (Ranaweera, 2011). With the development of scientific research and academic research, special libraries started to emerge in the early 20th century as research support to their scientific community. These libraries served as information centres and can be considered as being first libraries to adopt emerging technologies in information processing and dissemination in Sri Lanka.

- **Evidence of Automation through Mechanical Systems**

Before computer systems were introduced in Sri Lanka the scientists were aware of the mechanized information analyzing and processing systems available in the western world. At that time these systems were comparatively expensive and the need for purchasing hardware for information processing was not regarded as being a priority by the information policy makers in Sri Lanka.

During the 1940s library automation had been taking its first steps in America and in Europe and its influence penetrated the scientific community in Sri Lanka. The Coconut Research Institute (CRI) library was the first to adopt a mechanized system for its information analysis, storage and retrieval using Optical coincidence cards or Peek-a-Boo system. The Library still has this card based system though not currently in use. Other special libraries too received punched cards, edge notched cards, etc. (machine-generated) together with the specialized scientific journal issues separately from the publishers. But these libraries did not have the devices to use these cards and hence the machine generated cards were not in use. The CRI library became a highly used information service among the agricultural and botanical research community during later decades of the 20th C.

- **Database Management Systems (DBMS) and In-house Systems**

Towards the end of 1970s personal computers had been introduced to Sri Lanka. In 1967 the first mainframe computer installations had taken place at State Engineering Corporation and at Ceylon Petroleum Corporation. At the end of 1978 there were less than 20 computer installations recorded in Sri Lanka. However an increase in usage of computers was recorded from 1978 towards early 1980s. By the end of 1982 there were 180 computer installations reported of which 100 computers were micro computers (Smyth, Sittampalam & James, 1982).

In the 1980s special libraries and foreign mission libraries had embarked on using micro computers for their library operations by building up databases using different built in software like ACCESS and PCDB (Personal Computer Data Base). The usage was confined to building up searchable book inventories and membership listings at that time. In this endeavor, the library of the Ceylon Institute of Scientific & Industrial Research (CISIR), embarked on a circulation system as a pilot project using Wang PC Database (PCDB) software which was a database management system. The CISIR pioneered in building up a system creating databases that held circulation data and member data where it was able to cross link these two sets of data through the PCDB system .

The equipment available was a WANG microcomputer with 256k memory with one floppy disc drive and 10 MB Winchester (hard disk) which had a storage capacity of only 120 million characters. To reiterate, at the time, the use of computers in library operations was somewhat unknown and very costly. While realizing the capabilities of the computer in handling the large amount of bibliographic data generated in day to day operations of a

library, before embarking on a large computer system, it was felt prudent to start off with a single library operation, and to demonstrate its usefulness in library services. In addition, providing its staff with some measure of computer literacy by using a smaller system was more practical than venturing headlong into an advanced system. The complete stock of books at the time exceeded 28,000 at the CISIR library. Taking the average number of characters of a bibliographic record to be 150, the data load alone would take over half of the total capacity. Thus it was apparent that from purely hardware considerations, the entire stock of the library could not be held in a micro computer and it was also clear that having only one terminal only batch processing was possible. With these limitations the records created were member data, book and transaction files in another link file. The system was able to display and print all circulation records, in addition to sending out overdue notices (Warnasuriya, 2003). This was the first circulation system tried in Sri Lanka using the micro computer.

Some libraries still use their own software developed in-house. The Sri Lanka Standards Institute uses ACCESS based circulation system and has the Sri Lanka Standards fully converted into PDF format accessible offline (Tennakoon, 2014). The Postgraduate Institute of Management (PIM) of University of Sri Jayawardenepura and Institute of Personal Management (IPM) use in-house developed software at present.

Mini Computer Systems in Bibliographic Processing

The first computer installation reported in the library and information sector was in 1982 with the purchasing of WANG MVP 2200 minicomputer system to the Sri Lanka Scientific & Technical Information Centre (SLSTIC) attached to the National Science Foundation, formerly NARESA (Natural Resources, Energy and Science Authority). The system was proposed by the UNISIST Committee of NARESA for bibliographic processing but the computer was acquired three years after the proposal was first made. Operations commenced in January 1983 with the compilation of a computerized union catalogue, the first project initiated by SLSTIC with the WANG system (Talagala & Gamage, 2003).

The mini system had 64KB memory, 10MB storage with a BASIC Compiler and 5MB storage for an integrated file. Since the storage capacity was insufficient, the bibliographic data fields had to be shortened to suit the limited record length permitted. Thus the data was packed into common fields which affected the effective management of bibliographic data. At that time Library Management Software was not available in Sri Lanka. Though

the MINISIS (ISIS for minicomputer systems) was freely available through the IDRC (International Development Research Centre in Canada) it was not possible for NARESA to adopt it as MINISIS needed special hardware. However setting up a Union Catalogue and other databases using the mini system by NARESA can be considered as a landmark in the history of library automation in Sri Lanka (Yapa, 1996).

In 1988 CISIR acquired a mini computer system to overcome all the shortcomings of the previous PCDB system, in addition to incorporating all other library operations into the new system. The system consisted of a Unisys 5000/50 minicomputer with several terminals in the different buildings many of which could act as standalone computers. The main system had a memory of 4MB with two hard discs each of 140 MB memory and floppy disc drive of 1MB memory and ran on Informix 4GL standard engine. This system encompassed most of the library operations, and was the first library in Sri Lanka to operate a customized system for all library functions. This included an on line circulation system. When this operating system became outdated the package was converted to run on an eight-user LAN using SCO-UNIX platform in 1996 with the same functionality. This system was in operation successfully and the the institute then embarked on a more sophisticated fully automated interactive library management system in 2001(The Island Sunday, 2001).

Usage of Text Retrieval Bibliographic Packages

During the 1970s another category of library software emerged beside the giant LMSs like ORBIT, VIRTUA, OCLC first search, Ex-Libris, OES,GEAC etc. They were the Text Retrieval packages (TXT packages) where the software was specifically written and programmed for bibliographic text processing with a strong information retrieval interface. These packages were often mistaken for DBMS which are essentially programming frameworks but TXT packages needed minimum involvement of IT specialists (Koeing, 1985; Rowley,1987; Geethananda,1990; Meadow, 1992; Seneviratne,1994). Some of the text retrieval packages used at that time were office automation packages, document processing systems, bibliographic processing packages etc. Among the text retrieval systems available during the period, Micro-CDS/ISIS had gained a high level of popularity around the globe due to the strong patronage of UNESCO, its easy functioning and most importantly, cost free status. In Sri Lanka there were two TXT packages used for bibliographic purposes namely, CDS/ISIS and INMAGIC where the former was available free of charge and the latter was a proprietary software.

The introduction of CDS/ISIS (Computerized Documentation System/Integrated Set of Information Systems) software developed by UNESCO in 1986 and the designation of NSF/SLSTIC as the national distributor for the software in 1987 had a remarkable impact on the library automation scenario in Sri Lanka. In 1986 a microcomputer was made available to SLSTIC by UNESCO to promote CDS /ISIS for library activities. To understand the impact made by the free distribution of the package in DOS version, out of 40 libraries which had ventured into computerized systems, only 3 libraries used non-ISIS software by 1989. UNESCO continuously improved the package, and shortcomings observed in the preceding versions were removed in the succeeding versions. The next significant development was the release of the Windows version of WINISIS which was officially released in 1998 and GENISIS web; an authoring software for CDS/ISIS by IBISCUS developed for UNESCO in early 2000s (Thalagala & Gamage 2003).

The AGRINET which was a network of agricultural libraries in Sri Lanka, was one of the first set of libraries to link up its member libraries through a CDS/ISIS based system called PURNA in 1997. This was distributed among 42 libraries through SLSTIC (Yapa, 1997). It has all the major modules for library operations such as circulation, serials control, current awareness, acquisition operations, cataloguing operations and the selective dissemination of information services. In addition to these a module an OPAC is also included. The version 2 of PURNA on WINISIS was released in January 2000. Currently nearly 30 libraries use the PURNA Windows version. PURNA also maintained a Union Catalogue (P-Cat) by merging monograph records of the PURNA backup database. P-Cat is hosted by the National Science Foundation and became the first Sri Lankan Union Catalogue on the Internet (Gamage, 2002). There is also a simplified version of PURNA which was introduced to the market as 'THAKSHILA' and this is tailored for schools and is being used in several school libraries in Sri Lanka.

It was in the year 1986 that the first meeting of University librarians, Vice Chancellors and the then Chairman of University Grants Commission (UGC) was held to discuss the possibility of automating university libraries. The Inter University Committee of Librarians (IUCL) emphasized the importance of automating university libraries in order to be on par with the technology development taking place worldwide. Issues such as inadequate funds to purchase computers, software and insufficient trained staff, infrastructural deficiencies etc. were brought out at this meeting. In 1991, UGC provided one microcomputer to each of the

eight university libraries namely: Peradeniya, Colombo, Moratuwa, Sri Jayawardenapura, Kelaniya, Jaffna, Ruhuna and Open University (Wijetunga, 1992, 1993; Dilroshan, 1998). The DOS version of CDS/ISIS was used initially by all the above libraries to enter cataloguing data.

The first networked university library (LAN) using CDS/ISIS was reported at the Faculty of Graduate Studies library, University of Colombo in 1993 (Wijetunga, 1995). Another successful move reported in the University of Colombo was the use of the FANGORN programme to spell check the bibliographic records online in the catalogue databases of FGS library and the main library (Wijetunga, 1996).

The MARGA Institute, a private multidisciplinary research organization, acquired a computer for its bibliographic work in 1986. With the financial assistance of the International Development Research Centre (IDRC) the Centre adopted INMAGIC 7.0 software to start a social network in Sri Lanka. The Information Network for South Asia (DEVINSA) was launched in 1986 and Marga acted as the coordinating centre for the network. INMAGIC 7.0 software was used to start the union database for DEVINSA. However in 1990 the database was transferred to Mini-micro CDS/ISIS version 2.3 (Yapa, 1996).

The International Irrigation Management Institute (now IWMI) established a fully automated system in 1986 using INMAGIC and this was used to build up the Irrigation Management Information Network (IMIN). However, since 1991, except for the cataloguing, IIMI had used CDS/ISIS to automate all the other library activities such as circulation, serials control, acquisitions, current awareness services, SDI services and to produce administrative reports (Yapa, 1987).

In 1995 the Postgraduate Institute of Management (PIM) of University of Sri Jayawardenepura had used the MIBIS integrated solution based on CDS/ISIS for its library automation. The PIM was partly automated at that time. The Library of the Central Bank of Sri Lanka used CDS/ISIS to develop its databases until its destruction in 1996. Thereafter, from 1996 to 1999 the bank used the MIBIS system for its OPAC (intranet) and member data management (Seneviratne, 1999) until the library embarked on full automation using LibSys in 2000. One of the latest versions of CDS/ISIS named as ABCD is experimented on by a few institutions including the National Library and Documentation Services Board of Sri Lanka.

- **Integrated Customised Solutions**

Sri Lankan libraries faced some difficulties in obtaining integrated library systems that embraced all the functionalities in a library to operate relationally. This was mainly due to the high cost of the Turn Key Systems available such as ORBIT and Virtua in other countries.

The Information Technology Institute, (ITI former CISIR) library launched an 'integrated interactive library system' for the first time in the country. The system ran on a Windows NT platform with the front end being Oracle based Developer 2000 and back end a Microsoft SQL database server. The web interface to the new system was an ASP application developed using Java script and HTML and the website was accessible using Microsoft Internet explorer.

The facilities afforded by the new systems were that ITI members from within and outside, could access the ITI web site through intranet or internet and permitted its members to query and reserve books online. A personalized Selective Dissemination of Information service was also launched through the system subsequently whereby the members were kept informed regularly of new information published in their spheres of interest. (The Island Sunday, 2001).

The Save the Children Fund Library used Cardbox and Papermaster software packages. The Library of USAID used a software package called Microdis (Microcomputer based Development Information System) to automate their library activities. Microdis is an integrated library software package developed by the Centre for Development Information and Evaluation of the USAID/Washington. This was developed to assist USAID Mission Information Centres in managing and accessing their development information resources.

Integrated Library Management Systems (ILMS) - commercial packages

By 2000 there was considerable development in the library automation landscape. Seeing the demand, software companies attempted to venture into the design of library software. Huge profits were drawn by the vendor companies initially as large libraries in western and other developed countries lavishly spent on ILSs (integrated library systems). Some of the popular systems that were frequently used are; Aleph by Ex Libris, Brocade by Anet, Capita Alto (UK and Ireland), EOS.Web by EOS International, LibraryWorld, LIBSYS7 by LIBSYS, ILMU by Paradigm, (Malaysia), Millennium by Innovative Interfaces, Polaris

Library Systems, POLARIS, SirsiDynix, Symphony—current version and Unicorn—a legacy system, Sydney PLUS International, V-Knowledge, VERSO by Auto-Graphics, Inc., ALICE for Widowns by Softlink, Virtua, former VTLS, Voyager from former company Endeavor Information Systems, later acquired by Ex Libris, (Polish) MOL, Patron and MOLI - interface created for children, SOWA2/MARC21 and SOWA2/MARC21/SQL etc.

Purchasing of commercial packages was not very popular in Sri Lanka mainly due to high cost and maintenance issues. However in 1998, a decision was made by the Central Bank of Sri Lanka to purchase a reputed software system for its library. This was after the destruction of the library by a terrorist bomb attack in 1996. The rebuilding project was sponsored by the World Bank and it was recommended to purchase the software used (LibSys, India) in the library of the Reserve Bank of India for the Central Bank of Sri Lanka as the nature of records, information flow and clientele were similar in both institutions. (Seneviratne, 1999). The library became fully automated towards the end of 2000. Since the MIBIS data was ISO 2709 compliant, the database was easily converted to Libsys with minimum editing. The system still runs as a fully automated system with member data and resources barcoded (Goonatilleke, 2014). The British Council had its user interface and circulation automated in 1997 using Libsys. The council received its catalogue data online from the regional office and hence there was less back-end work to automate.

By this time there were only a few university libraries using commercial library management systems in Sri Lanka. The University of Moratuwa purchased Libsys in 2000 after the Central Bank, and achieved the status of being a fully automated university library in 2001/2002 with RFID security system installed later which is the first university library to attain full automation status. The digital library of University of Moratuwa is accessible at <http://dl.lib.mrt.ac.lk>. The Open University of Sri Lanka Library introduced the integrated library management software - Alice for Windows (AfW) - to replace the CDS/ISIS package, in the year 2000. The OUSL library was consequently able to introduce a fully automated circulation system in mid 2003. The library catalogue was available in two modes - campus wide network and web based. The system provided interactive access to clients online and other housekeeping functions were automated according to the facilities provided by the system (Wijayaratne, 2005, 2006). Once the OUSL installed the first ever University Management Information System in the university system of Sri Lanka (OMIS), the library also had an obligation to be connected to the OMIS system. Since the

existing package, ALICE did not comply with OMIS integration, the library had to look for more stable software. Out of the few packages evaluated by a team of experts both local and foreign, Libsys was recommended to be connected to MIS of the OUSL, where finance module and member module are connected to the university system (Seneviratne, 2008).

The Universities of Colombo, Sri Jayewardenapura and Peradeniya also shifted from CDS/ISIS to ALICE for Windows during early 2000s but only part of the catalogues were automated. This was due to the huge collections they had to handle which was not an easy task with the faculty based library systems they had, and with voluminous student interactions within the university library. The University of Kelaniya had switched from ISIS to LibSuit in late 1990s and shifted to LibSys in 2007. The University of Kelaniya has automated its catalogue and circulation with barcoded materials and patrons (Jayatissa, 2014). University of Sabaragamuwa also purchased Libsys and almost completed the main functions in the automation process. University of Jaffna has its catalogue running on Libsys and other universities also by this time were using different commercial packages.

The Sri Lanka National Library and Documentation Services Board (NLDSB) and the Chartered Institute of Management Accountants (CIMA) of Sri Lanka switched from CDS/ ISIS to Alice for Windows during early 2000. Some foreign missions use software packages recommended by their parent bodies. For example American Centre library used Library World, a cloud supported system.

One of the fully automated library packages developed locally is the system developed by the Sri Lanka Institute of Information Technology (SLIIT). This was developed initially as an in-house package for use in their own library network, but subsequently made available commercially and the package is now marketed to 08 institutions within the country. ITI and Chartered Institute of Certified Accountants were the initial clients of this package, and it was customized to suit their requirements.

- **Open Source Software (OSS) based library systems**

Due to the high capital cost and unaffordable annual maintenance fee of commercial software, librarians faced a major challenge in sustaining their systems, taking into account the limited budget allocations inherent to all libraries. Another issue the librarians faced was in getting customized solutions to suit the individual needs of their respective institutions, through adjustments to the software. Source codes of commercial software

normally was not provided to the client and penetration to data or programme code is not possible. The customization through the vendor too is very costly and even if the cost was met, 100% customization cannot be expected from a commercial software vendor. To overcome this situation there was a trend in the late 1990s among library scientists to experiment with the adoption of Open Source Software (OSS) solutions in place of commercial LMS packages. (Balasooriya, 2013). As a result three OSS systems were brought out in Sri Lanka; Koha, PMB and NewGenLib.

During 2000/2001 the University of Ruhuna experimented with an OSS solution known widely as 'Koha'. The software originated in New Zealand. The package was customized according to the requirements of the University of Ruhuna library and is in operation as 'ISURU'. This move is a significant landmark in the history of library automation in Sri Lanka. The system provides OPAC, incorporates the circulation system with Sinhala fonts, barcoded resources and patrons and complemented later with RFID security solution. The system achieved the acquisition as well as the circulation system automated in 2010 (Hettiarachchi, 2003, 2010). At present there are more than 14 installations in universities, government departments, schools, public libraries and other institutions with the technical support from the University of Ruhuna (Hettiarachchi, 2014).

In 2013, the Open University of Sri Lanka library experimented with three OS Software: Koha, PMB and Evergreen. On evaluating the systems, Koha was shown to be the most suitable for the Main Library and PMB for its 05 regional library operations. The OUSL experimented with the latest version: Ver. 3.14 of KOHA to explore its full potential for all the functionalities that are needed by the OUSL library to replace the former commercial software Libsys. The experiment proved that there are unexplored facilities in Koha 3.14 version which accommodates net users in a more comfortable and versatile manner with Web 2.0 features incorporated. This system provided far more facilities than Libsys and offers modern user advantages. By the end of 2013 the university launched the fully fledged system with interactive faculties for its remote users. The system integrates the e-book version by linking to the catalogue entry in the OPAC. The system is also installed in two other government institutions with technical support provided by the OUSL (Balasooriya, 2013).

The OSS PMB experimented with for regional libraries proved suitable and sustainable for smaller libraries since this software needed minimum technical support to run and

maintain the system. The PMB was customized heavily to suit non-system users' regional libraries of the OUSL. The customized version of PMB is named 'Ranga', after the library science icon S.R. Ranganathan. The software is available in two local languages Sinhala & Tamil (the two interfaces developed by the OUSL) to comply with the government language policy. The NGL is in operation at South Eastern University (Ramanan & Ravikumar, 2014) and the collection is being transferred to NGL at present.

Summary and future trends

The historical events show that library automation took off in Sri Lanka after 1986 and made rapid strides after 1992 due to the market availability of microcomputers in Sri Lanka. A major contributory factor was also the free availability of CDS/ISIS software from UNESCO. The commercial ILSs and LMSs were available visibly after 1992. However it should be noted that the dynamic usage of library systems in general was reported only after 2000. With the advent of OSS the scenario started changing rapidly with more demand from users of the net generation. However the preference for different software by libraries was guided not only by cost but many librarians seemed to prefer to switch to more user-friendly, integrated and flexible software where some level of customization is permitted.

Another development in library automation was connected to the initiatives taken by the network centers and individual libraries/institutions to build up digital libraries/digital repositories on their own. The NSF spearheaded a project to build up Institutional Repositories in the scientific and technical libraries and universities, the contents being available on a common platform for retrieval at a national level. Technical support was also provided through the project. Presently over nine libraries have fully functional repositories accessible through the web. The digital libraries set up in the country demonstrate initiatives taken to go parallel to the Open Access Initiatives (OAI) promoted by the intellectual society around the globe. Some libraries provide access to these repositories through the OPACs of the library management system they use.

The future of library automation is at present unfathomable and is large with the opening up of cloud based library management systems using SaaS software which has increased drastically since the rise of "cloud technology" such as Libramatic and LibraryWorld. It is noteworthy that the libraries in Sri Lanka are moving fast with library automation; keeping pace with new technologies to provide accessibility with more inclusion for the modern information world.

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Use of library services and information seeking methods of postgraduate students in the University of Peradeniya: A case study

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Abstract

The main objective of this study was to examine library use and to reveal information seeking activities of postgraduate students in the University of Peradeniya. The study adapted a survey method and a self administered questionnaire used as the main research instrument. All postgraduate students in the Department of Education, University of Peradeniya were selected as the study population and the questionnaires were distributed among whole population. Out of 345, 265 completed questionnaires were returned making 77.9% response rate. The results revealed that respondents used various sources of information for acquiring required information. The subject related books, theses and dissertations and reference sources were the most preferred sources that were used for their research work and to update their subject knowledge. Most of the respondents indicated that browsing through book shelves and mass media are the main information seeking methods used for acquiring current information in their subject discipline and most of the respondents preferred to use both print and electronic information formats for their postgraduate studies. With regard to IT based services, most of the respondents use internet and email facility more frequently than other IT based services. The results further revealed that 80% of the respondents visit the library daily, once a week or once or twice a week and results showed that the perception towards the library services and facilities were satisfactory. Based on the conclusion the study made recommendation to review both print and electronic information resources available in the library while at the same time conducting extensive user awareness and user education programmes specially designed for the postgraduate students.

Keywords: Library use, Information seeking, Postgraduates, Education

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Introduction

Studying of information seeking activities of users is of paramount importance to libraries because libraries have a role to play in helping members to meet their information needs. Therefore librarians are obliged to provide an effective information service for the users to satisfy their needs. In order to achieve these goals librarians must carry out studies on library use and information seeking pattern to assess current library practices and to determine the future direction for library development (Tahir, 2008). Since information-seeking activities differ among user groups, academic librarians must understand the different information needs of different user categories in order to address their needs. Therefore understanding of information needs and information seeking pattern of various user communities is essential as it helps in the planning, implementation and operation of information systems and services in work setting (Devadason & Lingam, 1997)

The understanding of the information sources used by postgraduate students will help the library to acquire regular and current journals and other information sources needed by these researchers. Acquisition of needed information resources leads to availability of required current information and will help students to conduct effective research and sound comprehensive work. (Echezona, Okafor and Ukwoma, 2011)

Within library and information science research, a substantial body of literature exists on information seeking activities of different user groups. But very few studies are available on use of information sources and information seeking activities of postgraduate students in Sri Lanka. Therefore, there is a pressing need for research in information needs and information seeking activities of postgraduate students in Sri Lanka. This study addresses the questions of how postgraduate students in the University of Peradeniya use relevant information sources and services available in the library for their academic work and ascertained some information on user perception towards some library services offered by the library.

Objectives of the study

The study intended to ascertain the information seeking activities and the use of information sources of postgraduate students in the University of Peradeniya. The specific objectives of the study were as follows:

1. To find out preferred information sources used by the postgraduate students ;
2. To study the purpose of information seeking;
3. To study their library use and information gathering activities;
4. To examine the use of information technology;
5. To find out user perception towards library services

Review of the Related Literature

Several studies on use of library services and information seeking methods of different user categories have been conducted by various researchers but few studies could be found on postgraduate students in Education. George and others (2006) conducted a study to investigate the graduate students' information seeking behavior and their use of information to support their process of inquiry and scholarly activities. The results of the study indicated that 96% of students reported that academic personnel (e.g., advisors, professors, and committee members) influence their research and information seeking and most of the students preferred to use online information that was provided by the library and most of them use citation chaining to build a body of literature. The study further found that the graduate students preferred to use both print and electronic resources that are available through the university library and most of them accessed databases and indexes, online journals and other online resources, conference proceedings, reference materials, images and other materials through the library. (George et al, 2008)

Biswal (2006) carried out a research study at the Kalyani University, India. The study focused on information seeking pattern and library use of postgraduate students in library and information science .The results indicated that most of the postgraduate students seek course related information rather than bibliographical, biographical or factual information.

The study further found that most of students use information for their course work and for updating their subject knowledge. The study also found that most of the students did not use abstracting and index journals and they were not aware of primary, secondary and tertiary information sources that are relevant and essential for their postgraduate studies. But the results proved that overall user satisfaction towards the library services and facilities was achieved.

Garg and Tamrakar (2014) evaluate the use of e- resources by the postgraduate students, research scholars and faculty members of Indian Institute of Technology (IIT), Kharagpur, India, with a view to examine the exposure of users to e-resources and the study aimed to highlight the alert services offered by the library. Most preferred format of the journals, awareness of e resources, helpfulness of e-resources and efforts made by the library for better E services to their users. The study revealed that all user categories used available e-resources in the library and the central library of IIT played an important role in promotion, assistance and guidance in accessing the e-resources. The study recommended to conduct some user awareness programs to make library users aware of e-resources available in the library for particular subject areas and trained them to use the e- resources in better ways.

Thanuskodi, (2012) conducted a study to examine the use of e-resources by the post graduate students and research scholars of Faculty of Arts in the Annamalai University, India and found the majority of users are aware of the availability of e-resources and most of them use e-resources for writing papers and most of the respondents search e-resources through linking facility available on the library website. The significant finding was many of the respondents are unaware and have not used on-line thesis/dissertations, abstracts/indexes, OPAC, on-line databases, which are very relevant for their studies and research. Therefore the study recommended conducting more orientation programmes and user awareness programmes on e-resources. Anyaogu (2014) conducted a study to examine the usage of information resources and information seeking behavior of Law postgraduate students at the Nigerian Institute of Advanced Legal Studies (NIALS) .The study found that the main information need of the law postgraduates are to obtain academic information required for their studies and most of them access information from the NIALS library.

The study further revealed that all students mentioned that browsing through book shelves is the main information seeking method used for acquiring current information in their subject discipline.

The use of library resources and services is vital to the postgraduate students in order to achieve their academic objectives. Hence the academic libraries should have to build strong library collections to cater to knowledge requirements of their users. It is therefore necessary to take the needs of the postgraduate students into consideration in policy planning in any university library. This study therefore aims to provide an insight in this area.

Methodology

Data collection procedure

The study population was all postgraduate students who follow Masters and Postgraduate Diploma in Education in the Department of Education, Faculty of Arts in the University of Peradeniya. A questionnaire was the main research instrument used for the study and it was distributed to all the postgraduate students in the Department of Education in early December, 2015.

Data analysis

The data gained from the responses were analyzed to understand postgraduate students' information-seeking activities and the analysis was based on the questionnaire survey of the research. The data collected from the survey were analyzed using simple percentage technique and descriptive statistics. Data were statistically analysed using SPSS software package version 17.0.

Study population and the response rate

Total population of 340 postgraduate students in the Department of Education was surveyed and response rate according the course of study is given in the table 1.

Table 1: Total responses received

	Course of study	Questionnaire distributed	Questionnaire received	Response rate %
1	Masters in Education	44	41	93.2
2	Postgraduate Diploma in Education (Full time)	136	103	75.7
3	Postgraduate Diploma in Education (Part time)	160	121	75.6
	Total	340	265	77.9

As revealed in the above table 1, 93% of the Masters students in Education and 75% of the students of Postgraduate Diploma in Education (Full time and Part time) responded to the survey and overall response rate was nearly seventy eight percent.

Key Findings

Demographic characteristics of the respondents

The result of the study indicated that female postgraduate students were in the majority. Of the respondents 196(74%) were females and 69 (26%) were males.

Table 2: Age of respondents

	Age of respondents	Frequency	Percentage
1	26-30years	7	2.6
2	31-35 years	89	33.6
3	36-40 years	110	41.5
4	More than 40	59	22.3
	Total	265	100.0

It is evident from table 2, that 41.5% of the respondents were in age of 36-40 years range and 34% were in age of 31-35 years range while 22% of them were more than 40 years old.

Purpose of information seeking

Purpose of seeking information has high validity in doing research on information seeking activities and it is a guiding tool to select different types of information. The participants of the survey were asked to indicate the purpose of information seeking according to their choice in the list of purposes given in the questionnaire.

Table 3: Purpose of Information Seeking

Purpose	Frequency	Percentage
1. For research works	119	44.9
2. To update subject knowledge	107	40.3
3. For studying course work	99	37.4
3. For studying course work	99	37.4
4. For writing assignments	68	25.7
5. To obtain current information	57	21.5
6. For preparing notes	50	18.8
7. For writing a paper	23	8.7

Note: N=265

As revealed in Table 3, majority of the respondents (45%) seek information for their research work while 40% of them seek information to update their subject knowledge and 37% seek information for studying course work. Of the respondents, 25% seek information for writing assignments and 21% seek information to obtain current information that need for their postgraduate studies.

Use of Information Sources

Types of information sources used by any user category are a valid indication of the preference and the availability of information sources in different disciplines. The respondents of the survey were asked to rate how frequently they used 8 different sources of information on a scale from 1 to 3, where 1 indicated “ Often” while 2 indicated “ Sometimes “ and 3 indicated “ Never”. Table 4 presents the frequency of information sources used by the respondents.

Table 4: Frequency of information sources usage

	Information Source	Often		Some times		Never	
		Freq.	%	Freq.	%	Freq.	%
1	Subject related books	189	86.7	31	14.2	12	5.5
2	Journals	42	19.3	136	62.4	15	6.9
3	Web resources	20	9.2	101	46.3	45	20.6
4	Theses & dissertations	76	34.9	94	43.1	14	6.4
5	Reference sources	66	30.3	107	49.1	09	4.1
6	Project reports	31	14.2	104	47.7	25	11.5
7	Government publications	30	13.8	111	50.9	26	11.9
8	Conference/seminar papers	15	6.9	81	37.1	40	18.3

Note: N=265

As explicit in Table 4, the respondents often used subject related books (86.7 %) followed by theses & dissertations (34.9%) and reference sources (30.3%). As compared to books, theses and reference sources, other resources such as web resources, journals, project reports and government publications are sometimes used by the respondents.

Preferred information formats

Respondents were asked to indicate the information format preferred by them for meeting their information needs.

Table 5: Preferred Information Formats

Information format	Frequency	Percentage
Printed and electronic	162	61.2
Printed only	83	31.3
Electronic only	20	7.5
Total	265	100.0

As revealed in Table 5, most of the respondents (61%) prefer to use both printed and electronic information sources for their academic work. Of the respondents, 31% indicated that they prefer to use printed materials whereas 7.5% preferred to use electronic materials only for their academic work.

Information seeking methods

The respondents of the survey were asked to indicate the information seeking methods employed by them to obtain current information in their field of study. The findings revealed that 42% of the respondents seek information by browsing through book shelves. Nearly 37% of the respondents use mass media as a method of information seeking while 17% discuss with teachers and 15% search library catalogues to seek current information on education. (Table 6)

Table 6: Information Seeking Methods (Multiple Responses)

Methods	Frequency	Percentage
Browsing through book shelves	112	42.3
Mass media	98	36.9
Discussion with teachers	46	17.3
Library catalogs	41	15.5
Internet	31	11.7
Consult colleagues	24	9.1
Discussion with librarian	06	2.3
Current issues of journals	05	1.9
Note: N=265		

Library visits

The use of the library can be measured in various ways. One such way is the frequency of user visits to the library. Frequency of use is an important indicator of its relative importance.

Table 7: Library visits

	Library visit	Frequency	Percentage
1	Daily	40	15
2	Once a week	82	31
3	Once or twice a week	90	34
4	Once a month	21	08
5	When necessary	32	12
	Total	265	100

Use of IT- based sources and facilities

It is believed that information and communication technology (ICT) play a significant role in supporting and enhancing learning and research activities of students in universities and ICT has provided the library with many avenues to improve their services and resources for the user community. Postgraduate students use various types of print and electronic information sources for their studies and the university library should provide required information sources that are needed in conducting and facilitating their researches. One of the objectives of this study was to examine the use of information technology by postgraduate students in the University of Peradeniya and a question was asked requiring the respondents to indicate the different electronic facilities which are available in the library. The results revealed (Table 8) that 75% of respondents use internet facility for their academic and research work and 70% of respondents use internet for e-mail communications.

Table 8: Use of Electronic Resources and Services (Multiple Responses)

	Electronic services / resources	Frequency	Percentage
1	Internet Facility	198	74.7
2	Electronic Journals	92	34.7
3	Electronic Mail facility(E-Mail)	186	70.2
4	Online Public Access catalog (OPAC)	72	27.2
5	Library web pages	45	17.0
6	Online databases	67	25.3
7	Full text databases	41	15.5
8	E-books	12	4.5
	N=265		

As shown in table above, 35% of respondents use electronic journals to fulfill their information needs. Online Public Access catalog (OPAC) is being used by 27% of postgraduate students while 25% of respondents use online databases for their academic and research works.

The study also examined what the frequent used electronic resources are by the postgraduates and the respondents were asked to rate how frequently they used different electronic information sources on a scale from 1 to 3, where 1 indicated “ Often” while 2 indicated “ Sometimes “ and 3 indicated “ Never”. Table 9 presents the frequency of electronic information sources used by postgraduate students for their studies.

Table 9: Frequency of Using E-Resources/ services

E-Resources/services	Often		Some times		Never	
	Freq.	%	Freq.	%	Freq.	%
1 Internet Facility	128	48.3	67	25.3	31	11.7
2 Electronic Journals	42	15.8	34	12.8	112	42.3
3 Electronic Mail facility(E-Mail)	112	42.3	42	15.8	21	7.9
4 Online Public Access catalog (OPAC)	41	15.5	28	10.6	102	38.5
5 Library web pages	12	4.5	19	7.2	112	42.3
6 Online databases	23	8.7	18	6.8	116	43.8
7 Full text databases	11	4.2	12	4.5	135	50.9
8 E- books	02	0.75	08	3.0	187	70.6

Note: N=265

As explicit in Table 9, 48% of the respondents 'often'-used internet facility available in the library and 42% used e-mail facility through the internet. Of the respondents, 15.8% 'often' used E-journals while 15.5% of them 'often' used OPAC for searching the books available in the library collection. 25% of the respondents 'sometimes' used internet and 15.8% of them 'sometimes' used electronic mail facility through the internet.

User perception towards some library services and facilities

The respondents' opinion were sought using five point Lickert Scale in order to examine the postgraduate students' perception towards some library services and facilities offered. Therefore they were asked to mark their agreement or disagreement against the statements given in the questionnaire and the descriptive statistics of respondent's perception are presented in table 10 below.

Table 10: User perception towards library services

	Statement	Mean	Standard Deviation
1	I am very satisfied with the subject related resources available in the library	1.80	0.854
2	Library collection consists of current resources and it is continuously updated	2.03	0.856
3	Computer terminals allowed for students are not sufficient	2.41	0.952
4	Physical condition of the library disturbing to study inside the library	3.58	1.101
5	Library staff are very helpful and give assistance to find out required materials available in the library	2.02	0.792
6	Library arrangement is good and can easily locate relevant resources	1.96	0.811
7	Library orientation provide necessary information on library services and available information resources	2.23	0.897
8	Can easily locate library resources through Online Public Access Catalogue (OPAC)	2.01	0.851
9	Library opening hours are inadequate and not convenient for the postgraduate students	2.92	1.177
10	User awareness programs conducted by the library on E-resources are adequate	2.78	0.632

Scale: 1=Strongly agreed, 2=Agreed, 3=Neutral, 4= Disagree ,5= Strongly disagree

As shown in table 10, respondents were satisfied with the subject related resources available in the library and it showed highest level of agreement with four statements of: “Library collection consist of current resources and it is continuously updated” (mean=2.03), “Library staff are very helpful and give assistance to find out required materials available in the library” (mean=2.02), “Library arrangement is good and can easily locate relevant resources” (mean=1.96), and “Can easily locate library resources through Online Public Access Catalogue ”(mean=2.01). Comparatively the lowest level of agreement was showed for only one statement of “Physical condition of the library is disturbing to study inside the library” (mean=3.58). In general these results give insight

that the user perception towards the library services and facilities indicates they are satisfied.

Conclusion and recommendations

The study concluded that postgraduate students used a variety of resources and formats and employed several information seeking methods to fulfill their information needs. The study revealed that the respondents used IT-based library resources and services less frequently compared with printed sources. Similarly, it is also noted that internet and email is the most popular IT –based services they used, whereas other internet-based services are not much used by them. This is a matter of concern, as presently, electronic information sources and the internet are considered extremely important tools for effective learning and research. Therefore, the library should review its electronic information resources while at the same time conducting extensive user awareness and user education programmes specially designed for the postgraduate students.

This type of study on information seeking activities and library use will enable the library to evaluate and align the library resources and services according to users' requirements. The results of the study provide valuable information on current information needs of the postgraduate students which should be used to make important management decisions about collection, services, electronic information sources and necessary infrastructure that needs to be used them.

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(Role of the libraries in achieving the Sustainable Development Goals (Literature Survey))

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Abstract

World Leaders have adopted the Sustainable Development Goals in 2015 at the United Nations General Assembly. This should be implemented in daily life by all levels of the society as this is a development agenda of the people. The Sustainable Development Goals are defined and introduced here with stating some contributions of the libraries to the development through a literature survey.

Keywords: Library Services, United Nations, Libraries

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තිරසාර සංවර්ධන ඉලක්ක, 2015 දී ලෝක නායකයන් විසින් එක්සත් ජාතීන්ගේ මහා මණ්ඩලයේදී තීරණය කරගනු ලැබිණ. මෙය ලෝකවාසී ජනතාවගේ සංවර්ධනය පිළිබඳ තීරණයක් නිසා සමාජයේ සියළුම ස්ථර තිරසාර සංවර්ධන ඉලක්ක තම ඵලදායී ජීවිතවලට සමීප කර ගැනීම අත්‍යවශ්‍යය. තිරසාර සංවර්ධනය අර්ථ දැක්වීමත් ඉලක්ක හඳුන්වාදීමත්, ලොව පුරා පුස්තකාල සංවර්ධන ක්‍රියාදාමයට සහභාගිවීමට ගෙන ඇති පියවර කිහිපයක් පිළිබඳව ද මෙම සාහිත්‍ය ගවේෂණය තුළින් සලකා බැලේ.

විච්චිත- පුස්තකාල සේවා, එක්සත් ජාතීන්, පුස්තකාල

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හැඳින්වීම

දිනෙන් දින සංවර්ධනය කරා පියනැගීම මානව සංහතියේ අපේක්ෂාවයි. මෙහිදී සංවර්ධනය යනු ආර්ථිකය නගාසිටුවීම ම පමණක් නොවේ. ආර්ථික සංවර්ධනයට සමගාමීව සමාජයීය, සංස්කෘතික හා අධ්‍යාත්මික දියුණුව සංවර්ධනය ලෙස සැලකිය හැකිය. සංවර්ධන ක්‍රියාදාමයේදී පරිසරය පිළිබඳව විශේෂ අවධානයක් දැක්වීම අත්‍යවශ්‍යය. එයට හේතුවන්නේ දැනටමත් මිනිසා විසින් සිදුකරන ක්‍රියා නිසා පරිසර දූෂණය, ස්වභාවික විපත් සහ කාලගුණ විපර්යාසවලට අපට මුහුණ දීමට සිදුවී ඇති නිසාය. එසේම, නිසි කලමනාකරණයකින් තොරව සම්පත් අවහානිතය නිසා අපේ අනාගත පරපුර විනාශයකට මුහුණදෙන බව මේ වනවිට අපිට වැටහී තිබිය යුතුය. සංවර්ධනය සහ තොරතුරු අතර දැඩි සම්බන්ධතාවයක් ඇත. මන්දයත්, නිවැරදි තොරතුරු මූලාශ්‍ර අවශ්‍ය වේලාවට තෝරාගෙන උපයෝජනය කරන්නන් නිසැකයෙන්ම සංවර්ධනය කරා පියනගන්නන් වන නිසාය.

පුස්තකාල යනු තොරතුරු කලමනාකරණය කර අවශ්‍ය වේලාවට අවශ්‍ය පුද්ගලයාට ලබාදීම පිණිස අනාදිමත් කාලයක සිට පිහිටුවාගත් ආයතන වෙයි. සෑම විටම පුස්තකාල මව් ආයතනයක අධීක්ෂණය යටතේ පවතින අතර, එම ආයතනයේ ඉලක්ක හා අභිලාෂ අනුව කටයුතු කරයි. තොරතුරු සැපයීමේදී මුද්‍රිත පතපොත, විද්‍යුත් සම්පත් සහ විස්තාරණ සේවා මගින් මහඟු සේවාවක් සැපයීමට පුස්තකාල සමත්වී ඇත. ආයතනයක, ගමක, රටක හෝ ලෝක සංවර්ධනයට තොරතුරු කඩිනමින් හුවමාරු කර ගැනීමේ හැකියාව ඉතා වැදගත් සාධකයකි. එබැවින් සංවර්ධන ක්‍රියාදාමයට පුස්තකාල ඍජු දායකත්වයක් සපයන බව තොරහසකි.

මෙම සාහිත්‍ය ගවේෂණයෙන් තීරසාර සංවර්ධනය යනු කුමක්දැයි නිර්වචනය කරමින් සහසු සංවර්ධන ඉලක්ක කරා පැමිණි ගමන පිළිබඳ විමසා බැලීමක් සිදුකර ඇත. නූතන ලෝකයේ පුස්තකාල මගින් සංවර්ධන ඉලක්ක සාක්ෂාත් කිරීම සඳහා ගෙන ඇති පියවර ගැන ද මෙහි සාකච්ඡා වේ.

දෙවෙනි ලෝක යුද්ධයෙන් පසු සාමය ආරක්ෂා කිරීමේ අරමුණින් ලෝකයේ රටවල් 51ක් එක්ව එක්සත් ජාතීන් (United Nations) නමින් සංවිධානයක් 1945දී පිහිටුවාගත් අතර, මානව අයිතිවාසිකම් රැකගැනීම සහ සංවර්ධනය ද තම න්‍යාය පත්‍රයට එකතු කරගෙන ඇත්තේ සාමය රැකගැනීමට සංවර්ධනය ද දායකත්වයක් සපයන බව පැහැදිලි නිසාය. එක්සත් ජාතීන්ගේ මහා මණ්ඩලය ලෝකයේ පවතින ගැටළු පිළිබඳ සාකච්ඡා කර ඒවාට විසඳුම් සෙවීමට ලෝක

නායකයන්ට මණ්ඩපයක් සපයයි. වාර්ෂිකව රැස්වෙන ලෝක නායකයෝ ලෝකයේ දැවෙන ප්‍රශ්න පිළිබඳ ගැඹුරු සාකච්ඡාවල නිරතවෙති. මෙහිදී සෑම රටකම නියෝජිතයන් වසර පුරා විවිධ කමිටු, කණ්ඩායම්වල කටයුතු කරන අතර මහා මණ්ඩල තීරණ ක්‍රියාවට නැංවීමට අවශ්‍ය කටයුතු සිදුකරනු ලබයි. එසේම පැන නගින නව ගැටළු තම නායකයන්ගේ අවධානයට පාත්‍ර කරවීම ද සිදුවේ. මහා මණ්ඩලයේ තීරණ අනිවාර්යයෙන්ම ඉටු කිරීමට සාමාජික රාජ්‍යයන් බැඳී නොසිටියත්, ඒවා සම්මුතීන් හෝ ගිවිසුම් ලෙස එළිදැක්වූ කල අන්තර්ජාතික නීති ප්‍රකාරව ඒ සඳහා කටයුතු කරනු ලැබෙයි. (එක්සත් ජාතීන්, 2013)

මානව සංවර්ධන වාර්තාව අනුව රටක ධනය මිනිසුන් වන අතර, සංවර්ධනයේ සරලම අභිප්‍රායය වන්නේ මිනිසුන්ට දිගු, සෞඛ්‍ය සම්පන්න සහ නිර්මාණාත්මක දිවියක් ගත කිරීම සඳහා සහාය වන පරිසරයක් ඇති කිරීමයි. මානව සංවර්ධනය යනු මිනිසුන්ට පුළුල් වශයෙන් අවස්ථා ලබාදීම වන අතර, වඩා වැදගත්වන්නේ සෞඛ්‍ය සම්පන්න දිගු ජීවිත ගත කිරීම, උගත් දැනුම සහිත පුද්ගලයන්වීම සහ සුනිසි රැකියා අවස්ථා ලැබීමයි. අධ්‍යාපනය ලැබීම සංවර්ධනයේ මූලික අවශ්‍යතාවක් ලෙස සැලකෙන බව පැහැදිලිවන අතර, මෙහි විශේෂයෙන් තිරසාර සංවර්ධනය යනු පරිසරය ආරක්ෂා කිරීම පමණක් නොවන බව දක්වා තිබේ. (එක්සත් ජාතීන්ගේ සංවර්ධන වැඩසටහන, 1990)

1945 සිට 2000 වසර දක්වා විවිධ සංවර්ධන ප්‍රයත්නවල යෙදුණු ලෝක නායකයෝ ඉලක්ක ගත සැලසුමක අවශ්‍යතාව දැනිව වටහාගත්හ.

සහසු සංවර්ධන ඉලක්ක

ලෝක නායකයෝ සහසුකය උදාවෙත් ම එක්සත් ජාතීන්ගේ මහා මණ්ඩලයේදී රැස්වී සංවර්ධන ඉලක්කයන් අටක් පිළිබඳ තීරණයකට එළැඹුනහ. මෙය සහසු සංවර්ධන ප්‍රකාශනය ලෙස හැඳින්වූ අතර, ශ්‍රී ලංකාව ඇතුළු එක්සත් ජාතීන්ගේ සාමාජික රටවල් 191ක් අත්සන් කරන ලදී. වසර පහලොවකින් සාක්ෂාත් කරගැනීමේ අභිප්‍රායෙන් මෙම ඉලක්කයන් තීරණය කරනු ලැබිණ. සහසු සංවර්ධන ඉලක්ක පිළිවෙළින් දිළිඳුකම සහ කුසගින්න පිටුදැකීම, සෑමට ප්‍රාථමික අධ්‍යාපනය ලබාදීම, ස්ත්‍රී පුරුෂ සමානත්වය ප්‍රවර්ධනය සහ කාන්තාවන් සවිබලගැන්වීම, ළමා මරණ අනුපාතය අඩුකිරීම සහ මාතෘ සෞඛ්‍යය නංවාලීම" HIV/AIDS මෙන්ම සෞඛ්‍ය රෝග මර්ධනය, පරිසරයේ තිරසාර පැවැත්ම සහතික කිරීම සහ ජගත් හවුල්කාරිත්වයක් ගොඩනැගීම වෙයි. (එක්සත් ජාතීන්ගේ සංවර්ධන වැඩසටහන, 2005)

දිළිඳුකම තුරන්කිරීම, වර්ධනය සහ තිරසාර සංවර්ධනය අතර සහ-සම්බන්ධය පිළිබඳව එක්සත් ජාතීන්ගේ සහසු සංවර්ධන ඉලක්ක විසින් හඳුනාගෙන ඇත. ඒ අනුව එක් සාධකයක් සාක්ෂාත් කර ගැනීමෙන් අනෙක් ඒවා ද ඉටු කරගත හැකි බව දැක්වෙයි. උදාහරණයක් ලෙස දිළිඳුකමෙන් පීඩා විඳින ජනයා ඉන් මුදාගැනීමට කටයුතු කිරීමෙන් අධ්‍යාපන සහසමාජ තත්ව යහපත්වනවා මෙන්ම අධ්‍යාපන සහ සමාජතත්ව දියුණු කිරීමෙන් දිළිඳුකම අඩුවන බව ද පැහැදිලි කරුණක් ලෙස දැක්විය හැකිය. (සවුබොටිනා, 2004)

ජාතීන්ගේ අයිතිය ජන කණ්ඩායම් සහ රජයන් විසින් දැරීම සහසු සංවර්ධන ඉලක්ක සාක්ෂාත් කර ගැනීමේ යතුර බවත්ල මෙම ඉලක්කයන් නිසා ප්‍රජාතන්ත්‍රවාදී විවාද ඇති කළ හැකි බවත්ල ඒවා කරා ගමන් කිරීමට නායකයන් කෙරෙහි ජනයා විසින් බලපෑම්කළ යුතු බව මානව සංවර්ධන වාර්තාවේ සඳහන්වේ. (එක්සත් ජාතීන්ගේ සංවර්ධන වැඩසටහන, 2003)

සෑම වසරකම රට රටවල් විසින් මෙම ඉලක්කයන් සපුරාගැනීමේ ප්‍රගතිය සමාලෝචනය කරන ලදී. ඒ අනුව ලොව පුරා බොහෝ රටවල් එම ඉලක්කයන් සපුරා ගැනීමට සමත්ව ඇති බව පෙනී ගිය කරුණකි. 2015 සහසු සංවර්ධන ඉලක්ක ලෝක වාර්තාව අනුව 1990දී අන්ත දිළිඳුකමින් පීඩාවිඳි බිලියන 1.9ක් වන ජනගහනය 2015 දී මිලියන 836 දක්වා අඩුවී ඇත. එසේම වයස 15 සිට 24 දක්වා වයස්වල සාක්ෂරතාව 91% දක්වා ඉහළ ගොස් ඇත. (එක්සත් ජාතීන්ගේ සංවර්ධන වැඩසටහන, 2015)

සහසු සංවර්ධන ඉලක්ක පිළිබඳ ශ්‍රී ලංකා වාර්තාව (2015) දක්වන්නේ සහසු සංවර්ධන ඉලක්ක දර්ශක 44ක් ඇති බවත්, ඉන් දර්ශක 27ක පැහැදිලි ඉලක්ක ඇති අතර, ඒවා අතරින් 13ක් ශ්‍රී ලංකාව සාක්ෂාත් කරගෙන ඇති බවත්ය. මෙහිදී නිදහස් අධ්‍යාපනය සහ වෛද්‍ය සේවා නිසා ජනතාවගේ ජීවන තත්වය ඉහළ ගොස් ඇති බව පැහැදිලිය. තවදුරටත් වර්ධනය විය යුතු ක්ෂේත්‍ර ලෙස පෝෂණ උගුණතා සහිත ජනගහනයේ ප්‍රතිශතය ඉහළවීම, HIV/AIDS සහිත පුද්ගලයන්හට ඖෂධ ලබාදීමේ ඇති අඩුපාඩුකම් සහ කාන්තා දේශපාලන නියෝජනය ඉහළ දැමීම හඳුනාගෙන ඇත.

නීති සම්පාදකයෝ සහ සිවිල් සමාජය විසින් සහසු සංවර්ධන ඉලක්ක ලොව දියුණුවට හේතුවී ඇති බව පිළිගනිති. 2015 වසර, ඉතිහාසයේ වැදගත් සන්ධිස්ථානයක් බවත්, අපි සහසු සංවර්ධන ඉලක්ක සපුරාගනු ලබන අතර තිරසාර සංවර්ධන ඉලක්ක නොබියව තෝරාගෙන ඇති බවත්, එක්සත් ජාතීන්ගේ මහ ලේකම් බැන් කී මූන් මහතා ප්‍රකාශ කර ඇත. (සහසු සංවර්ධන ඉලක්ක ලෝක වාර්තාව, 2015) කෙසේ වුවත් 2015 පසු දිළිඳුකම පිටුදැකීම සඳහාත්,

කාලගුණ වෙනස්වීම් ඇතුළු පරිසර සාධකවලට සාර්ථක විසඳුම් සෙවීම සඳහාත්, නව සැලැස්මක අවශ්‍යතාව එක්සත් ජාතීන්ගේ කලාබහට ලක්විය. මේ අනුව එක්සත් ජාතීන්ගේ මහ ලේකම්තුමා විසින් 2012 සිට කමිටු කිහිපයක් මෙම "2015 පසු සංවර්ධන ඉලක්ක" හඳුනාගැනීම සඳහා පත් කරන ලද අතර, රියෝ ද ජනයි රෝ නගරයේ පැවති පරිසර සමුළුව විශේෂයෙන් සඳහන් කළ යුතුය. (සැවිස්, 2012) මෙහි ප්‍රතිඵලයක් ලෙස තිරසාර සංවර්ධන ඉලක්ක නම් කරනු ලැබිණ.

තිරසාර සංවර්ධන ඉලක්ක

තිරසාර සංවර්ධනය සඳහා නොයෙක් නිර්වචන පැවතිය ද වඩාත් පිළිගැනීමකට ලක්ව ඇති නිර්වචනයවන්නේ බ්‍රූක්ලින් විශ්වවිද්‍යාලයේ සඳහන් වන තිරසාර සංවර්ධනය යනු අනාගත පරම්පරාවන්හි අවශ්‍යතා ඉටුකරදීමට හැකිවන අයුරින් සම්පත් කෙරෙහි අවධානය යොමුකරමින් නූතනයේ සිදුකරන සංවර්ධනයයි. මෙහිදී දිළිඳුන්ගේ අවශ්‍යතාවන්ට මුල්තැනක් දීම ද පරිසරය සුරැකෙන පරිදි සමාජ ආයතන විසින් තාක්ෂණය යොදාගැනීම පිළිබඳව ද අවධානයක් යෙදවෙයි. (බ්‍රූක්ලින් විශ්වවිද්‍යාලය, 1987) ඔක්ස්ෆර්ඩ් ශබ්දකෝෂයට අනුව සංවර්ධනය යනු වඩා උසස් පිරුණු හෝ මේරුණු තත්වයකට පත්වීමයි. තිරසාර යනු පුද්ගලයෙක් හෝ කණ්ඩායමක් අතහැරීමට, වැටීමට ඉඩ නොදීම, නිසි ස්ථානයේ රඳවා තැබීම, ජීවිතයට ජීවත්වීමට පරිසරයට සහයවීම යනුයි. මේ අනුව පෙනී යන්නේ තිරසාර සංවර්ධනය යන්න අනාගතයට ගෙන යා හැකි මානව සංවර්ධනයක් ලෙස දැක්විය හැකි බවයි.

තිරසාර සංවර්ධනය නව ආකල්පයක් ලෙස සැලකිය නොහැකිය. බොහෝ සංස්කෘතීන් පරිසරය ආරක්ෂා කරගැනීම පිළිබඳවත් සම්පත් නිසි ලෙස කලමනාකරණය කරගැනීමත් පිළිබඳව ආදියේ සිටම අවධානය දක්වා ඇත. එහෙත් බ්‍රූක්ලින් විශ්වවිද්‍යාලයේ එළිදැක්වීමත් සමගම හා 1992 පරිසර සමුළුවෙන් පසු මේ පිළිබඳව නව උනන්දුවකින් බැලීමට ලෝක නායකයෝ උත්සුක වූහ. මෙම සමුළුවෙන් පසු 21 න්‍යාය පත්‍රය ද (Agenda 21), දේශගුණික විපර්යාස සහ වනාන්තර භායනය පිළිබඳව ද නව ගිවිසුම් සහ ඉදිරි සැලසුම් පිළියෙල විය. 21 න්‍යාය පත්‍රය අනාගත තිරසාර සංවර්ධනයේ මූලික පිඹුරුපත විය. ඉන්පසු සෑම පස් වසරකටම පසු ප්‍රගති සමාලෝචන සැසි පැවැත්වූ නමුත් ලෝක නායකයන් හට පරිසරය සුරැකීම පිණිස එක හඬක් නැගීම වැලැක්වූ විවිධ කරුණු පැවතිණ. (SD Gateway, 2002) මෙහිදී අපට අවැසි අනාගතය නමින් 2012දී පවත්වන්නට යෙදුණු 1992 පරිසර සමුළුවෙන් 20 වසරකට පසු ප්‍රගති සමාලෝචනයේදී ලෝක නායකයෝ විශේෂයෙන් ආර්ථික, සමාජයීය සහ පරිසර තුලභාවයන්මක බව රැකෙන පරිදි තිරසාර සංවර්ධනයක් පවත්වා ගැනීමට එකඟ වූහ. (එක්සත් ජාතීන්, 2012)

මෙසේ පැවැත්වූ පරිසර සමුළු සහ එක්සත් ජාතීන්ගේ විවිධ සමුළුවල ප්‍රතිඵලයක් ලෙස සහසු සංවර්ධන ඉලක්ක 17ක් පිළිබඳව එකඟවීමටත් ඒවායේ අනු ඉලක්කයන් කරා ළඟාවිය හැකිවන පරිදි සංවර්ධන සැලසුම් වෙනස් කිරීමටත් හැකියාව ලැබිණි. සිවිල් සමාජ ක්‍රියාකාරීන්, තරුණ තරුණියන් සහ රට රටවල නියෝජනයන් සමග පැවැත්වූ සාකච්ඡා ගණනාවකට පසු තිරසාර සංවර්ධන ඉලක්කවලට එකඟවී ඒවා තම රටවල් 2030 වනවිට සාක්ෂාත් කරගතයුතු බව 2015 ඔක්තෝබර් මාසයේ එක්සත් ජාතීන්ගේ 70වන මහා මණ්ඩල සැසිවාරයේදී තීරණය විය. ඒ අනුව දිළිඳුකම පිටුදැකීම, කුසගින්න පිටුදැකීම, නිරෝගි පැවැත්ම සහ යහපත් සෞඛ්‍යය, ගුණාත්මක අධ්‍යාපනය, ස්ත්‍රී පුරුෂ සමානාත්මතාව, පානීය ජල අවශ්‍යතාව සහ සනීපාරක්ෂාව තහවුරු කිරීම, පුනර්ජනනීය බලශක්ති උත්පාදනය, ආර්ථික වර්ධනය වේගවත් කිරීම සහසුනිසි රැකියා ප්‍රවර්ධනය, යටිතල පහසුකම් සංවර්ධනය සහ නව්‍යකරණයට අත හිත දීම, සමානාත්මතාව ඇති කිරීම, තිරසාර නගර සංවර්ධනය, සම්පත් තිරසාර පරිභෝජනය, මිහිතලයේ සුරක්ෂිතතාව, සාගර සම්පත් සුරක්ෂිත කිරීම, වන සම්පත රැකගැනීම, නීතිය සහ සාමය රැක ගැනීම සහ තිරසාර සංවර්ධනය සඳහා ගෝලීය දායකත්වය තිරසාර සංවර්ධන ඉලක්කයන් බවට එකඟවනු ලැබිණි. මෙසේ තිරසාර සංවර්ධන ඉලක්කයන් ලෝක සංවර්ධන ඉලක්කයන් බවට පත්වූයේ ලෝකවාසී සැමදෙනාම මෙම සංවර්ධන ක්‍රියාදාමයට පංගුකාරයන් විය යුතු බව දක්වමිනි. මෙම ඉලක්කයන් ප්‍රධාන වශයෙන් ආර්ථික, සමාජයීය සහ පරිසර යන අංශ තුන සමතුලිතව පවත්වාගැනීම පිළිබඳව අවධානය යොමුකර ඇත. එසේම සංවර්ධන ක්‍රියාදාමයේදී සලකා බැලිය යුතු පැතිකඩවල් කිහිපයක් පිළිබඳව ද පැහැදිලි රූපයක් ඇතිකර ඇත. ඒවා නම් පුද්ගලයන්, පෘථිවිතලය, සමෘද්ධිය, හවුල්කාරිත්වය සහ සාමය යන්නයි. සියළුම තිරසාර සංවර්ධන ඉලක්කයන් මෙම පුළුල් රාමුව තුළින් දැකිය හැකිවේ.

සංවර්ධනය සහ තොරතුරු අතර ඇති සම්බන්ධතාව

සංවර්ධනය සහ තොරතුරු අතර අවිභේදනීය සම්බන්ධතාවක් ඇත. සංවර්ධනයේ නිම් වළලු පුළුල් කිරීම සඳහා තොරතුරු අවශ්‍ය වෙනවා සේ ම සංවර්ධන ව්‍යායාම ජනනාව අතරට ගෙනයාම සිදුවන්නේ තොරතුරු ලෙසින්ය. ඕනෑම රටක සංවර්ධනය සඳහා ආහාර, ආරක්ෂාව, ප්‍රජාතන්ත්‍රවාදය, සෞඛ්‍යය, අධ්‍යාපනය සහ ස්ත්‍රී පුරුෂ සමාජභාවීය තොරතුරු ප්‍රමාණවත් ලෙස තිබිය යුතු බවත් සැපයිය යුතු බවත් ඒවා පවතින ආකාරය අනුව වර්ග කිරීමකින් තොරව තොරතුරු එකතුකිරීමේ, සංවිධානය කිරීමේ, බෙදාහැරීමේ හැකියාව පුස්තකාලවලට පවතින බවත් කාර්කි (2006) පෙන්වාදෙයි. කාර්යක්ෂමව කලමනාකරණය කරන ලද තොරතුරු සමාජයක් එසේ නැතහොත් දැනුම් ආර්ථිකයක් ජාතික සම්පතක් වන අතර එය රටක සමාජ ආර්ථික දියුණුවට බලපායි (ආර්තොල්ඩ්, 2004)

දැනුමෙන් පරිපූර්ණ පුද්ගලයා බලවතා වනවා මෙන්ම 21වන සියවසේ තොරතුරු සාක්ෂරතාව ධනවත් කමට මග පෑදෙන බව ලෝකයේ බොහෝ දෙනා පිළිගන්නා කරුණකි. එසේම තොරතුරුවලට ප්‍රවේශ ලබාගැනීම මානව හිමිකමකි. එබැවින් අන්තර්ජාතික පුස්තකාල සංගමයන්හි ඒකාබද්ධ සංගමය (IFLA) විසින් ලියෝන් ප්‍රකාශය සම්මත කරගෙන ඇත. ලියෝන් ප්‍රකාශය එක්සත් ජාතීන්ගේ සාමාජික රාජ්‍යයන්ගෙන් ඉල්ලා සිටින්නේ තොරතුරු සඳහා ප්‍රවේශ සැපයීමත් එම තොරතුරු මූලාශ්‍ර භාවිත කිරීමට හැකිවීමත් තිරසාර සංවර්ධනයට අත්‍යාවශ්‍ය බව පිළිගෙන ඒ බව 2015 පසු සංවර්ධන සැලැස්මට එකතු කරගන්නා ලෙසිනි. එසේම පුද්ගලයන් බලගැන්වීම තුළින් සංවර්ධනයට මග පෑදෙන බව ද, ඔවුන්ගේ සිවිල්, දේශපාලන, ආර්ථික, සමාජ සහ සංස්කෘතික අයිතිවාසිකම් සුරැකෙන බව ද, නව හැකියාවන් ඉගෙනගෙන ඒවා යොදා ගත හැකි බව ද, සිවිල් සමාජ වැඩසටහන්වල ක්‍රියාකාරීලෙස සහභාගිවිය හැකි බවද තීරණ ගත හැකි බව ද, සංවර්ධන අභියෝගවලට කණ්ඩායම් මූලික විසඳුම් ලබාදිය හැකි බව ද, බලාත්මක කිරීම ද, යහපාලනය ඇති කිරීම ද, පාරදෘෂ්‍යභාවය පවත්වාගැනීම ද සහ වගවීම පවත්වා ගැනීමට ද, තිරසාර සංවර්ධනය පිළිබඳ පොදු සහ පෞද්ගලික කැපවීමෙහි දියුණුව ගණනය කිරීම ද මෙම ප්‍රකාශය බලාත්මක කිරීම තුළින් සිදුවන බව විශ්වාස කෙරෙයි. (අන්තර්ජාතික පුස්තකාල සංගමයන්හි ඒකාබද්ධ සංගමය, 2014)

සංවර්ධන ඉලක්ක සපුරාගැනීමෙහිලා පුස්තකාල ගෙන ඇති පියවර

මහජන, පාසල්, උසස් අධ්‍යාපන ආයතන සහ විශේෂ පුස්තකාල වර්ග අතුරෙන් මහජන පුස්තකාල සාමාන්‍ය ජනයා හා සමීපව කටයුතු කරන අතර, මහජන අරමුදලින් නඩත්තු වේ. ඒවා මගින් විවිධ රටවල සංවර්ධනයට දායක වී ඇති අයුරු පිළිබඳව උදාහරණ කිහිපයක් සලකා බැලිය හැක. කෙන්යා, උගන්ඩා සහ ටැන්සානියාවේ සෞඛ්‍ය, ගෘහල කෘෂි කර්මාන්තය, තොරතුරු තාක්ෂණය වැනි අංශ පිළිබඳ තොරතුරු තරුණ තරුණියන්ට සහ ගොවි ජනතාවට ලබාදීම සඳහා විශේෂ මහජන පුස්තකාල වැඩපිළිවෙළක් සකසා ඇත. සැම්බියාවේ ලුසාකා නුවර පාසල් අධ්‍යාපනය හැදෑරීමේ පහසුකම් රහිත වීදි දරුවන්ට ඔවුන්ගේ දැනුම දියුණු කිරීමේ විශේෂ වැඩසටහන් මහජන පුස්තකාලය මගින් සපයා ඇත. සුරිය කෝෂ මගින් විදුලිය නිපදවාගනිමින් පරිගණක විද්‍යාගාරයක් පවත්වාගෙන යන උගන්ඩාව කාන්තා බලගැන්වීම පිළිබඳ වැඩි අවධානයක් යොමු කරමින් කාන්තා ගැටළු සාකච්ඡා කළ හැකි සමිති පැවැත්වීම ද, සාක්ෂරතා පන්ති පැවැත්වීම ද සිදු කරනු ලබයි. එසේම ඔවුන්ගේ මවු බසින් පවතින සාහිත්‍ය හිගය නැතිකරනු වස් මුඛ පරම්පරාගත පුරාවෘත සටහන් කිරීමේ වැඩපිළිවෙළක් ද පුස්තකාලයේ මූලිකත්වයෙන් පැවැත්වේ. (Beyond Access, 2013)

තොරතුරු මූලාශ්‍ර තෝරාගෙන කලමනාකරණය කරගැනීමේ සහ භාවිත කිරීමේ උපක්‍රම උපයෝජකයන් දැනුවත්කිරීමේ වැඩසටහන් හරහා සිදුකිරීමට හැකිවේ. සින්ඩේ සහ සින්ඩේ (2012) අනුව කැනඩාවේ බොහෝ විශ්වවිද්‍යාල පුස්තකාල ජංගම දුරකථනවලින් පහසුවෙන් ප්‍රවිෂ්ඨ විය හැකි වෙබ් අඩවි පවත්වාගෙන යාමෙන් තොරතුරු සම්පත් නූතනයේ භාවිතයට ගැනීමට පහසු වන පරිදි සකසා ශිෂ්‍ය ප්‍රජාවට ලැබීමට සලස්වයි. මලයාසියාවේ ජාතික හරිත ප්‍රතිපත්තිය අනුව මහජනයා දැනුවත්කිරීම සහ ප්‍රවර්ධනය තුළින් තිරසාර සංවර්ධන ඉලක්ක සපුරාගත හැකි බව දැක්වෙන අතර මෙය වඩා විශේෂ වන්නේ පුද්ගල චිත්ත සන්තානය වෙනස් කිරීම සඳහා තොරතුරු සමුද්ධරණය සහ විවිධ අධ්‍යාපන ක්‍රමවේද හරිත කෘෂිකර්මාන්තය දියුණු කිරීම සඳහා අවශ්‍ය වන හෙයිනි. (ඔන්මාන් සහ මුහම්, 2010)සාතාවේ මහජන පුස්තකාල විසින් මාතෘ සෞඛ්‍යය නගා සිටුවීම සඳහා තාක්ෂණය උපයෝගී කර ගනිමින් ආරම්භ කර ඇති වැඩපිළිවෙළ නිසා එරට පවතින ඉහළ මාතෘ මරණ සංඛ්‍යාව අඩු කර ගැනීමේ හැකියාව ලැබී ඇත. (Electronic Information for Libraries, nd)

අධ්‍යාපනයේ සියළුම අංශ දියුණුකිරීම තුළින් විශේෂයෙන්ම සාක්ෂරතාව, අත්‍යවශ්‍ය ජීවන කුසලතා සහ ගණිත මිණිත හැකියාවන් සියළු දෙනා විසින් ම ඉගෙනගැනීමක් ගුණාත්මක අධ්‍යාපනයක් කරා ගමන් කිරීම මෙන් ම එමතත්වය පවත්වාගෙනයාම සඳහා අත්‍යවශ්‍යය. (එක්සත් ජාතීන්ගේ අධ්‍යාපන විද්‍යා සහ සංස්කෘතික සංවිධානය, 2012) ලිතුවේනියාවේ මිස්කින්යායි (Miskiniai) මහජන පුස්තකාල මගින් අධ්‍යාපනය සඳහා සෙල්ලම් (Playing for Education) නම් තොරතුරු තාක්ෂණය ආශ්‍රිත වැඩසටහන මගින් පාසල් නොයන ළමුන්හට අධ්‍යාපනය ලබාදීමේ කාර්යයට උරදී ඇති බැව් සඳහන් වෙයි. (Electronic Information for Libraries, nd)

සමාජයේ කොන් කරනු ලැබූ ජන කොට්ඨාශ අතරින් සංක්‍රමිකයන් එක් කණ්ඩායමකි. ඔවුනට තමන් පැමිණි රටේ භාෂාව සහ සංස්කෘතිය පිළිබඳ නිසි අවබෝධයක් නැතිවිය හැකි අතර ඒ නිසා ජීවිතයේ විවිධ ගැටළු අත්විඳිති. ඇමෙරිකානු මහජන පුස්තකාල මගින් තම රටට පැමිණෙන සංක්‍රමිකයන්ට භාෂා වැඩසටහන් ද නීතිය, සෞඛ්‍ය, සමාජ ආරක්ෂණය සහ රැකියා පිළිබඳ කරුණු ඇතුළත් පුස්තකාල විස්තාරණ සේවා කාලයක සිට පවත්වාගෙන යනු ලැබෙයි. (ගෙන්, 2013)

බංගලාදේශයේ ලිංගික සේවා සපයන්නියන්ගේ ජීවන තත්වය නගා සිටුවීමේ සහ ඔවුන්ගේ පවුල් බලාත්මක කිරීමක් ලෙස "ජීවන වෙනසකට පුස්තකාල" නමින් විශේෂ පුස්තකාල

වැඩසටහනක් මගින් සාක්ෂරතාව ලබාදීමටත්, විවිධ රැකියා නිපුණතාව වර්ධනය කිරීමටත්, නිර්මාණශීලීත්වය වර්ධනය කිරීම තුළින් නව රැකියා සඳහා යොමු කිරීමත් සාර්ථකව ඉටු කිරීමට සමත්ව ඇත. (නසරුඩින්, 2014)

වැඩිහිටි පුද්ගලයන් බොහෝවිට තනිවූ ජීවිතයක් ගතකිරීමට ඇති ඉඩ ප්‍රස්තාව වැඩි අතර ඔවුන් විවිධ ආබාධ නිසා ද වැඩිහිටි නිවාසවල සිටීම නිසා ද සංචරණය අපහසු වූවන්ය. ජපානය සහ එංගලන්තය වැනි රටවල් මොවුන් සඳහා ම විශේෂ ජංගම පුස්තකාල පහසුකම්, විශාල අකුරු සහිත පොත්, ඔවුන්ගේ නිවාසවල පුස්තකාල සහ අන්තර් පුස්තකාල පිරුළු සේවා වැනි දෑ ද පුස්තකාලයට පැමිණෙන්නන්ට තම පැරණි අත්දැකීම් හුවමාරු කරගැනීම සඳහා විශේෂ ස්ථානද සකසා ඇත. (ඩු සු සහ කොරෝනෝස්, 2014)

නිගමනය

මේ අනුව බලනවිට පෙනී යන්නේ පුස්තකාලය සංවර්ධන ක්‍රියාදාමයට විවිධ අයුරින් මෙතුවක් කලක් දායක වී ඇති බවයි. එසේම තිරසාර සංවර්ධන ඉලක්ක සාක්ෂාත් කිරීමේ කාර්යයට උරදීම සඳහා පුස්තකාලවලට විශේෂ කාර්යභාරයක් ඉටුකිරීමේ හැකියාවක් ඇති බවයි. එය දැනුවත් කිරීමේ කාර්යයන්ට දායකවීමේ සිට තොරතුරු සම්පත් සැපයීම දක්වා ද විදේශ භාෂාවලින් ලියවුණු තොරතුරු තම සේවාදායකයන්ට ගැලපෙන පරිදි සැකසීම දක්වා ද විවිධ තොරතුරු තාක්ෂණ මෙවලම් භාවිතයෙන් තම උපයෝජකයන්ට අවැසි තොරතුරු ලබාදීම දක්වා ද තොරතුරු ආශ්‍රිත සේවා රැසක් නව අයුරකින් සැලසුම් කිරීමේ හැකියාව ද පුස්තකාල වල, විවිධ පරාසයක විසිර පවතී. නව පර්යේෂණ දැනුම සේවාදායකයන්ට ගැලපෙන භාෂා මාධ්‍යයකින් ලබාදීමට කටයුතු යෙදීම ද සිදුකළ හැකිය. නව ආකාරයකින් සිතා නවෝත්පාදනයට යොමුවන පුස්තකාල වෘත්තිකයන් බිහිකිරීම සඳහා පුස්තකාල විද්‍යා සිසුන් උද්යෝගමත් කිරීමේ කාර්යය ද තිරසාර සංවර්ධන ඉලක්කයන් සාක්ෂාත් කිරීම සඳහා ගමනේදී වැදගත්වනු ඇත.

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டிஜிட்டல் நூலகங்களின் உருவாக்கமும் டிஜிட்டல் தகவல் சாதனங்களும் (Implementation of Digital Libraries and Digital Information resources)

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Abstract

Development of digital technologies has been very fast and most unpredictable in this era. This paper attempts to describe initiative of Digital Libraries and finds solutions for preservation. It also examines the ways that the digital material are accessible for a long time preservation, as digitization is the process of converting information into a digital format. Digitizing information makes it easier to preserve, access, and share. This article aims to find the obstacles in implementing the Digital Library and to propose the solutions for digitization process.

Keywords : Digital Libraries, Digital Information, E-resources, Electronic Documents , Binary Code , Digitization, Digital Repositories.

சுருக்கம்

நவீனகால நூலகத்துறையில் டிஜிட்டல் நூலகத்தின் செல்வாக்குபற்றி ஆராயமுயலும் இக்கட்டுரை இலத்திரனியல் சாதனங்களின் பரிணாமம் பற்றி ஆராய்வதோடு அவற்றினைக் கையாளும்போது கடைப்பிடிக்கவேண்டிய நடவடிக்கைபற்றியும் கூற விளைகின்றது. டிஜிட்டல் நூலகத்தின் நன்மைகள் பற்றி கூறும் இக்கட்டுரை டிஜிட்டல் சாதனங்களின் மகத்துவம் பற்றியும் குறிப்பிடுகின்றது. மேலும் டிஜிட்டல் நூலக உருவாக்கத்தினால் ஏற்படக்கூடிய நன்மைதீமைகளையும் சுட்டிக்காட்டுகின்றது.

கலைச்சொற்கள் : டிஜிட்டல் நூலகங்கள், டிஜிட்டல் தகவல்கள், இலத்திரனியல் சாதனங்கள், எனலொக், பைனரிகோர்ட்மற்றும் டிஜிட்டல்களஞ்சியம். டிஜிட்டலாக்கம், பட்டியலாக்கல்

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நவீன காலத் தொழில்நுட்ப வளர்ச்சியானது, நூலக சேவைத்துறையில் பாரிய மாற்றத்தை ஏற்படுத்தியுள்ளது. அத்துடன் நூலக தகவல் சாதனங்களின் பரிமாற்றத்திலும் குறிப்பிடத்தக்க புரட்சியை ஏற்படுத்தியிருக்கின்றது. நவீன காலத் தொழில்நுட்பவியலாளர்கள் எதிர்வரும் காலங்களில் ஸ்மார்ட்;(Smart) சாதனங்களின் பாவனையில்லையேல் மனிதனது செயற்பாடுகள் அனைத்தும் ஸ்தம்பிதம் அடைந்துவிடும் என்று எதிர்வுகூறுகின்றனர். அந்த வகையில் தான் டிஜிட்டல் (Digital) தொழில்நுட்பத்தின் செல்வாக்கு நூலகங்களின் சாதனங்களிலும் அவற்றின் பாவனைகளிலும் சேவைகளிலும் மெச்சத்தக்க மாற்றங்களை ஏற்படுத்தியிருக்கின்றது.

டிஜிட்டல் தகவல்களின் செல்வாக்கும், பாவனையும் மனிதனது அனைத்து நடவடிக்கைகளிலும் பிரிக்க முடியாத பிணைப்பிணைக் கொண்டுள்ளது. டிஜிட்டல் தகவல் சாதனமானது பைனரி கோர்ட் (Binary Code) என்று அழைக்கப்படும் ஒன்று அல்லது பூச்சியம் என்ற இரண்டு மின்சார சமிக்கையினால் உள்வாங்கப்படும் தொழில்நுட்ப முறையின் மூலம் தகவல்களைக் கையாளும்முறையை குறிப்பிடுகின்றது. இவை அனேகமாக தகவல்களைத் துல்லியமாக எந்த மாற்றங்களும் இன்றி பரிமாற்றம் செய்யவும் அவற்றை நீண்ட காலத்திற்கு சேமித்து பிரதிகளைச் சேமிக்கவும் உபயோகிக்கப்படுகின்றது.

டிஜிட்டல் தகவல் சாதனங்கள் டிஜிட்டல் தொழில்நுட்பத்தின் மூலமாக உருவாக்கியதாகவோ (Born Digital) அல்லது டிஜிட்டல் சாதனங்களின் மூலம் உருவாக்கப்பட்ட சாதனங்களாகவோ காணப்படுகின்றன. டிஜிட்டல் தொழில்நுட்பத்தின் மூலமாக உருவாக்கப்பட்ட சாதனங்கள் இலத்திரனியல் நூல்கள் (e-Book), இலத்திரனியல் பருவ வெளியீடுகள் (e-Journal), இலத்திரனியல் புதினப் பத்திரிகைகள் (e-Newspapers), வலைத்தளங்கள் (websites), இலத்திரனியல் புகைப்படங்கள் (e-images) போன்றவையாகும். டிஜிட்டல் உருவாக்கும் சாதனங்கள் மூலமாக உருவாக்கப்பட்ட சாதனங்களாக டிஜிட்டல் அல்லாத சாதனங்களையும் டிஜிட்டல் தொழில்நுட்பத்தின் மூலமாக மாற்றப்படும் சாதனங்களையும் குறிப்பிடலாம். உதாரணமாக, நூலகத்தின் கையேட்டுப் பிரதிகளை (manuscripts) ஸ்கேனர் அல்லது புகைப்படக் கருவி சாதனங்களைப் பயன்படுத்தி டிஜிட்டல் சாதனமாக மாற்றும் வழிமுறையைக் குறிப்பிடலாம்.

டிஜிட்டல் சாதனங்களும் இலத்திரனியல் சாதனங்களும்

டிஜிட்டல் சாதனங்களை சிலவேளைகளில் “e” அடையாளத்தின் மூலம் இலத்திரனியல் சாதனங்கள் என்று நாம் அழைக்கின்றபோதிலும் டிஜிட்டல் சாதனங்களுக்கும், இலத்திரனியல் சாதனங்களுக்கும் இடையில் சிறு சிறு வேறுபாடுகள் காணப்படுகின்றன. இலத்திரனியல் சாதனங்களாவன கணனி மூலமாகவோ வலையமைப்புக்கள் மூலமாகவோ பயன்படுத்தப்படுகின்ற போதிலும் அவை டிஜிட்டல் அல்லது எனலொக் தொழில்நுட்பத்தினைக் கொண்டு காணப்படும் அனைத்து சாதனங்களாகவும் அமைகின்றன. இச்சாதனங்கள் கணனி மற்றும் டிஜிட்டல் சாதனங்கள் மூலமாக பயன்படுத்தப்படுகின்ற அதேவேளை பெரும்பாலும் ஆரம்ப காலத்தில் பயன்பாட்டிலிருந்த ஓடியோ தட்டுக்கள் அல்லது விசிஆர்;(VCR) போன்றவற்றில் பயன்படுத்தக்கூடிய சாதனங்களைக் குறிப்பிட முடியும். ஆயினும் டிஜிட்டல் சாதனங்கள் பொதுவாக கணனி மற்றும் கையடக்க சாதனங்கள் (Tab, Pad, Phone) போன்றவற்றில் மட்டும்பயன்படுத்தக்கூடிய சாதனங்களாக அமைகின்றன.

டிஜிட்டல் சாதனங்களின் பொதுவான அம்சங்கள்

1. இச்சாதனங்கள் மீள்பிறப்பாக்கம் செய்யக்கூடியவையாகக் காணப்படுதல். இவை எண்ணற்ற பிரதிகளை சிறிதளவும் மாற்றமில்லாமல் பிரதி செய்யக்கூடியவையாகக் காணப்படுதல்.
2. தேவையான போது எந்நேரத்திலும் மிகவும் இலகுவாக பரிமாறக்கூடிய தன்மையுடன் காணப்படுவதுடன் இவற்றுக்கு எந்த செலவும் இல்லாமல் பரிமாற்றம் செய்யக்கூடிய தன்மையும் காணப்படுகின்றது.
3. இச்சாதனங்களில் தேவையான போது விரும்பிய மாற்றங்களைச் செய்யக்கூடிய நெகிழ்வுத்தன்மை காணப்படுகின்றமை.
4. எச்சந்தர்ப்பத்திலும் டிஜிட்டல் சாதனங்களை மாற்றவோ அவற்றின் பகுதிகளை இல்லாமல் செய்யவோ, மேலதிக மெருகூட்டல்களை செய்யவோ இலகுவாகக் காணப்படுதல்.
5. இச்சாதனங்களில் வெளியாட்களின் தலையீடுகளோ குறுக்கீடுகளோ இலகுவில் ஏற்படுத்தமுடியாமை.

டிஜிட்டல் நூலகங்கள்

டிஜிட்டல் நூலகத்துறையானது இந்நூற்றாண்டில் பலராலும் கதைக்கப்படுகின்ற முக்கியமான நூலக துறையாக மாறியுள்ளது. அந்த வகையில் டிஜிட்டல் நூலகம்

என்பது தன்னகத்தே இலத்திரனியல் தகவல் சாதனங்களை டிஜிட்டல் வடிவத்தில் கொண்டுள்ள ஒரு நிறுவனமேயாகும். இவ் டிஜிட்டல் நூலகங்கள் அதனது உருவாக்கம், பணி, நோக்கம் என்பவற்றின் அடிப்படையில் பல்வேறு கருத்துப் பொருட்கொண்டு அழைக்கப்படுகின்றன. அவற்றில் டிஜிட்டல் நூலகம், இலத்திரனியல் நூலகம், மெய்நிகர் நூலகம், ஹைபிரிட் நூலகம் மற்றும் சுவரில்லா நூலகம் போன்ற பதங்களால் அழைக்கப்படுகின்றன. இவ்வாறு பல்வேறு பெயர் கொண்டு அழைக்கப்பட்டபோதிலும் பொதுவாக டிஜிட்டல் நூலகங்கள் சில கொள்கைகளை பின்பற்றுகின்றன. அவையாவன:-

1. ஒரு டிஜிட்டல் நூலகம் டிஜிட்டல் வடிவிலான சாதனங்களையே கொண்டிருக்கும்.
2. இந்நூலகம் டிஜிட்டல் அல்லாத சாதனங்களை டிஜிட்டல் சாதனங்களாக மாற்றும் நடவடிக்கைகளை மேற்கொள்ளும்.
3. வாசகர்களுக்கு வழங்கப்படும் சேவைகள் பொதுவாக இலத்திரனியல் சாதனங்கள் ஊடாகவே வழங்கப்படுகின்றன.
4. இந்த நூலகங்களினால் வழங்கப்படும் சாதனங்கள் நீண்டகால நிலையான சாதனங்களாகக் காணப்படுவது இதனது முக்கிய கொள்கைகளில் ஒன்றாகும்.

இத்தகைய கொள்கைகளின் அடிப்படையில் உருவாக்கப்பட்ட அல்லது உருவாக்கப்படுகின்ற நூலகங்கள் இலங்கை போன்ற கீழைத்தேய நாடுகளில் பொதுவாக டிஜிட்டல் அல்லாத தகவல் சாதனங்களை டிஜிட்டல் வடிவத்தில் மாற்றீடு செய்வதன் மூலமே தமது நூலக வைப்பைக் கையாண்டு வருகின்றன. அதற்காக பாரிய செலவீடுகளை செய்து டிஜிட்டல் சாதனங்களை கொள்வனவு செய்து டிஜிட்டல் நூலகங்களாக இந்நூலகங்கள் தங்களைப் பரிணாமம் செய்கின்றன. இத்தகைய நடவடிக்கையையே நாங்கள் டிஜிட்டலாக்கம் (Digitalization) என அழைப்போம்.

மேற்கூறிய டிஜிட்டலாக்கல் நடவடிக்கையானது சாதாரணமாகக் காணப்படுகின்ற ஆவணங்களையும், எனலொக் (Analog) ஆவணங்களையும் டிஜிட்டல் தொழில்நுட்பத்தின் ஊடாக டிஜிட்டல் தகவல் சாதனங்களாக மாற்றுவதையே குறிப்பிடுகின்றது. இவற்றிலும் பைனரி தொழில்நுட்ப செயற்பாடே பின்பற்றப்படுகின்றது. இந்த நடவடிக்கையின் போது கையாளப்படும் சாதனங்கள் பல்வேறு வகைப்படுகின்றன. அவற்றில் தனித்தனி நூல் மற்றும் நூல் போன்ற ஆவணங்கள், தொகுதி நூல்கள் (Bound Volumes), Menu Scripts, போடோ பிரதிகள், மைக்ரோ பிள்ம், மைக்ரோ பிட்ச் மற்றும் கட்புல செவிப்புல சாதனங்கள், வரைபடங்கள், சித்திர

வேலைப்பாடுகள், முப்பரிமாண ஆவணங்கள் என பல்வேறு வகையானவை காணப்படுகின்றன.

இத்தகைய டிஜிட்டலாக்க நடவடிக்கையை மேற்கொள்ளும்போது நாம் கருத்திற் கொள்ளவேண்டிய அம்சங்களாவன-

- இந்நடவடிக்கையின் நோக்கம், முறை போன்றவை பற்றிய தெளிவைப் பெற்றிருத்தல் அவசியமாகும்.
- நிதி பற்றிய தெளிவான அறிவு இருத்தல் வேண்டும்.
- இத்தகைய நடவடிக்கைகளுக்காக எவ்வாறான ஆவணங்கள் டிஜிட்டலாக்கம் செய்யப்பட வேண்டும், அவற்றை எவ்வாறு தெரிவு செய்தல் வேண்டும் என்பது பற்றிய தெளிவைப் பெற்றிருத்தல் வேண்டும்.
- டிஜிட்டலாக்க நடவடிக்கைகளுக்காக சர்வதேச ரீதியாக கையாளப்படும் நியமங்களையும் வழிகாட்டல்களையும் அறிந்திருத்தல் மிக முக்கியமான ஒன்றாகும். குறிப்பாக meta data standards நூற் பட்டியலாக்க விதிமுறைகள் பற்றி தெளிவான அறிவைப் பெற்றிருத்தல் வேண்டும். அதேபோன்று நிருவாக பட்டியலாக்கல் (Administrative meta data) போன்ற தகவல்களையும் கொண்டிருப்பது மிகவும் அவசியமான ஒன்றாகும். பொதுவாக MARC -2 நியமமே சர்வதேச ரீதியாக தற்போது டிஜிட்டல் பட்டியலாக்கத்திற்கு பயன்படுத்தப்படுகின்றது. மேலும் Dublin core, RDF, EAD, TEI, SGML, XML, HTML போன்ற நியமங்களை உள்வாங்குவது முக்கியமாகும்.
- விசேடமாக, பதிப்புரிமை பற்றிய அறிவையும், புலமைச் சொத்து அதிகாரம் பற்றிய நடைமுறைகளையும் அறிந்திருத்தல் அவசியமாகும்.
- டிஜிட்டலாக்க நடவடிக்கைக்காக எத்தகைய தொழில்நுட்பத்தைக் கையாள வேண்டும் என்பதை திட்டமிடுதல் அவசியமாகும். இதற்காக மென்பொருட்களையும், வன்பொருட்களையும் கொள்வனவு செய்யும் போது நிபுணத்துவ உதவிகளைப் பெறுதல் அவசியமாகும்.
- இந்நடவடிக்கையை உள்ளார்ந்த பணியாகவா அல்லது வெளியார்ந்த பணியாகவா செயற்படுத்தப் போகின்றோம் என்பது பற்றி தெளிவான கொள்கையைக் கொண்டிருத்தல் வேண்டும். மேலும் இத்துறையில் ஏலவே மற்ற நிறுவனங்கள் கொண்டிருக்கும் அனுபவங்களை பரிமாறிக் கொள்ளுதல் அவசியமாகும்.
- நூலகத்தின் கொள்கைக்கு ஏற்றவாறு இத்தகைய டிஜிட்டல் ஆவணங்களை எவ்வாறு பேணிப் பாதுகாப்பது என்பது பற்றிய கொள்கையை எழுத்துருவில் பெற்றிருத்தல் அவசியமாகும்.

- இந்த நடவடிக்கையின் போது ஊழியர்களுக்குத் தேவையான காலத்திற்கேற்ற பயிற்சிகளைப் பெற்றுக் கொடுத்தல் அவசியமானதொன்றாகும்.
- இவ்வாறு டிஜிட்டலாக்கம் செய்யப்படுகின்ற சாதனங்களின் தெளிவுத்தன்மை, நிறத்தன்மை போன்றவற்றில் தெளிவான அறிவினைப் பெற்றிருத்தல் வேண்டும்.
- இந்த டிஜிட்டல் சாதனங்கள், மூல சாதனங்களுக்கு விசுவாசமுள்ள டிஜிட்டல் சாதனங்களாகக் காணப்படுவதை நாங்கள் உறுதிப்படுத்துவது அவசியமாகும். அதாவது டிஜிட்டல் சாதனம் மூலசாதனத்தை எப்போதும் பிரதிநிதித்துவப்படுத்துகின்ற அதேவேளை மூல சாதனத்தின் தொடர்புள்ள சாதனங்கள் டிஜிட்டல் சாதனங்களிலும் ஒழுங்கு முறைப்படி அமைந்திருத்தல் அவசியமாகும்.
- டிஜிட்டல் சாதனங்களின் தேடல் பொறிமுறைக்காகவும் மற்றும் பல்வேறு தேவைகளுக்காகவும் OCR தொழில்நுட்பம் பாவிக்கப்படுதல் அவசியமாகும். அதேநேரத்தில் பாதுகாப்புத் தேவைகளுக்காக நிறுவன நீர்க் குறியீடு (Watermark) போன்றவற்றை குறிப்பிடுதல் அவசியமாகும்.
- நீண்டகால பாதுகாப்புத் தேவைகளுக்காக இதனது மூலக் கோவைகள் மாஸ்டர் கோவைகளாக நிரந்தரமான பாதுகாப்பான இடங்களில் பாதுகாக்கப்படல் அவசியமாகும். அதேநேரத்தில் சேவைத்தளத்தில் அவ்வப்போது கையாளப்படுகின்ற கோவைகளையும் தற்காலிக சேமிப்பகங்களிலிருந்து அகற்றிவிடுதல் ஒரு பாதுகாப்பான நடவடிக்கையாகும்.
- இவ்வாறு டிஜிட்டலாக்கம் செய்யப்பட்ட சாதனங்கள் பின்னர் அனைத்து சாதனங்களிலும் பாவிக்கக்கூடிய வகையிலானதாக இருத்தல் வேண்டும்.

இவ்வாறான செயற்பாடுகளைக் கையாளுகின்றபோதிலும் மூல ஆவணங்களை அதே நிலையில் பாதுகாப்பதும் அவசியமாகும். இத்தகைய நடவடிக்கையின் போது ஏலவே பாவிக்கப்பட்ட பட்டியலாக்கங்களை பாவிப்பதை நேரத்தை மீதப்படுத்தும் ஒரு நடவடிக்கையாகக் கொள்ள முடியும். மேலும் வேறு நிறுவனங்கள் இந்த ஆவணங்களை ஏற்கனவே டிஜிட்டலாக்கம் செய்திருந்தால் அவற்றை தமது நடவடிக்கைக்காகவும் எடுத்துக் கொள்வது இரட்டை வேலையை குறைக்கும் உபாயமாகும். ஒரு ஆவணத்திற்காக டிஜிட்டலாக்கம் ஆரம்பிக்கும் பட்சத்தில் அந்த ஆவணம் டிஜிட்டல் ஆவணமாகவும் வெளியிடப்பட்டுள்ளதா என்பதை உறுதிப்படுத்துவது நேர வீண்விரயத்தை தவிர்க்க உதவியாக இருக்கும்.

இந்த பெறுமதிமிக்க நடவடிக்கையின் போது சர்வதேச நியமத்தை கையாள்வதன் நீண்டகால தொழில்நுட்ப வளர்ச்சிக்கு முகங்கொடுக்கக்கூடிய டிஜிட்டல் நூலகத்தை கொண்டு செல்வது சாத்தியமாக இருக்கும். உதாரணமாக Tiff, jpeg 2000 மற்றும் pdf போன்ற கோவைகளில் சேமித்து வைக்கப்படும் ஆவணங்களை பிற்காலத்தில் பல்வேறு

தேவைகளுக்கு பல்வேறு தொழில்நுட்ப முறைகளுக்கு இலகுவாக கையாள முடியுமாகவுள்ளன. அவற்றை CD-ROM அல்லது DVD போன்ற சேமிப்பக சாதனங்களிலும் பாதுகாப்பது மேலதிக நன்மையை அளிக்கும்.

டிஜிட்டலாக்கத்தின் அனுகூலங்களும், பிரதிகூலங்களும்

1. டிஜிட்டலாக்கத்தின் மூலம் பெறுமதிமிக்க சாதனங்களை நிரந்தரமாக பாதுகாத்துக் கொள்வதற்கும், அவற்றினை இலகுவாக பயன்படுத்துவதற்கும், தேவையான போது தேவையான விதத்தில் பரிமாற்றிக் கொள்வதற்கும் முடியும். குறைந்த செலவில் அல்லது செலவே இல்லாமல் இந்த ஆவணங்களை பரிமாறிக் கொள்வதற்கோ பிரதி பண்ணுவதற்கோ மிகவும் இலகுவாக அமைகின்றது. *The Guardian* இன் ஆராய்ச்சிப்படி 2006 ஆண்டில் மட்டும் 161 பில்லியன் Exabytes டிஜிட்டல் தகவல் சாதனங்கள் உலக ரீதியாக காணப்படுவதாக குறிப்பிடப்பட்டுள்ளது.
2. சர்வதேச ரீதியாக பல பில்லியன் கணக்கான டிஜிட்டல் சாதனங்களை இலவசமாக பெற்றுக் கொள்ளக்கூடியதாகக் காணப்படுவது டிஜிட்டல் தகவல் சாதனங்களின் முக்கிய நன்மையாக கொள்ளப்படுகின்றது.
3. டிஜிட்டலாக்க நடவடிக்கையானது ஆங்காங்கு ஒளிந்து காணப்படுகின்ற பல பெறுமதியான தகவல் சாதனங்களை வாசகர் பாவனைக்கு இலகுவாகக் கொண்டு செல்லக்கூடிய ஒரு வழிமுறையாகக் காணப்படுகின்றது.
4. பல ஆயிரக்கணக்கான தகவல் சாதனங்களை CD, DVD போன்ற சிறிய தட்டுக்களிலோ மற்றும் இலத்திரனியல் சாதனங்களிலோ (Hard Disk, Tapes, Pen drive) சேமித்து வைத்துப் பரிமாறக்கூடிய வசதியை டிஜிட்டலாக்கம் ஏற்படுத்தித் தந்திருக்கின்றது.
5. டிஜிட்டல் நூலகங்கள் வருடத்தின் முழுநாளும் 24/7 என்ற சேவையின் அடிப்படையில் எந்த சிரமமுமின்றி சேவையாற்றக் கூடிய வாய்ப்பினைக் கொண்டிருக்கும்.
6. டிஜிட்டல் சாதனங்களை ஒரே நேரத்தில் பலநூற்றுக்கணக்கான வாசகர்கள் உலகத்தில் எந்த இடத்தில் இருந்து கொண்டும் பயன்படுத்தக் கூடிய சந்தர்ப்பம் கிட்டுகின்றது.

இவ்வாறான பல அனுகூலங்கள் காணப்படுகின்ற போதிலும் டிஜிட்டல் நூலகத்தை உருவாக்குவதிலும் அவற்றை பராமரித்து சேவையாற்றுவதிலும் டிஜிட்டல் நூலகங்கள் பல சிரமங்களை எதிர்நோக்குகின்றன.

1. டிஜிட்டல் நூலகத்தை உருவாக்குவதற்குத் தேவையான இலத்திரனியல் சாதனங்களைக் கொள்வனவு செய்வதற்காக பாரிய செலவுகளை மேற்கொள்கின்ற அதேநேரத்தில் அச்சாதனங்களை தெரிவுசெய்யும் போதும் நூலகங்கள் சிரமங்களை எதிர்நோக்குகின்றன.

2. இந்நூலகம் முற்றுமுழுதாக இலத்திரனியல் சாதனங்களிலும் அவற்றின் தொழில்நுட்பத்திலும் தங்கியிருப்பதால் அவற்றின் இலத்திரனியல் ஒழுக்கு டிஜிட்டல் நூலகத்தின் சீரான சேவைக்குப் பாதிப்பை ஏற்படுத்துகின்றது.
3. டிஜிட்டல் நூலகத்தை உருவாக்கிப் பயன்படுத்துகின்ற அனைவரும் தொழில்நுட்ப ரீதியிலான விசேட அறிவினைப் பெற்றிருக்க வேண்டிய அவசியமேற்படுகின்றமை மேலதிக சிரமமாகக் கருதப்படுகின்றது.
4. டிஜிட்டல் சாதனங்களைநீண்டகாலம் பராமரித்தலின் போது ஏற்படுகின்ற Virus, Hackers போன்றவற்றிலிருந்து பாதுகாப்பது மிகவும் சிரமமான விடயமாகக் காணப்படுகின்றது.

இவ்வாறான அனுகூலங்களும் பிரதிகூலங்களும் காணப்படுகின்ற போதிலும் இந் நவீன காலத்தில் டிஜிட்டல் நூலகத்தின் உருவாக்கமும் பாவனையும் மெச்சத்தக்களவில் வளர்ந்து கொண்டிருக்கின்ற நாம் காணக்கூடியதாகவுள்ளது. எனவே தற்கால நூலகங்களும் தகவல் வழங்கும் நிறுவனங்களும் தமது சேவைகளை டிஜிட்டல் யுகத்துக்கு கொண்டுவந்து காலத்தின் தேவையாகக் காணப்படுகின்றது.

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Public Library
Jaffna.

Bibliometric analysis of Library and Information Science Theses submitted during 1986-2009, available at The National Library and Documentation Services Board, Sri Lanka

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Abstract

Professional development of a discipline can be determined through literature produced in the particular subject area. This study reviews the reference sources used by the library and information science (LIS) postgraduate degree holders in their Library and Information Science researches. This study is conducted to analyze the citations of 44 LIS postgraduate theses and dissertations submitted to foreign and local universities during the period of 1986-2009 which are placed in the National Library, Sri Lanka. The authors have cited more journal articles and single authorship is visible. Majority of the citations are published between 1986-2006. Among the degree awarding institutions and degree programmes considered, many of the theses were submitted to the University of Colombo in order to obtain Master of Library and Information Science degree. Except five, all other theses and dissertations have been compiled in English Language and in year 2002 more theses have been submitted. The study can be considered as the sole bibliometric and citation analyses of theses and dissertations which are placed in the National Library. Recommendations will provide guidelines for promotion of research in library and information science and as the pioneer institution, National Library will look forward to acquire more postgraduate intellectual property and open its' doors for the researchers to conduct studies revolved around the institution.

Keywords: Bibliometric analysis, Library and Information Science Theses, National Library of Sri Lanka, Collection Development, Citation Analysis

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Introduction

The word bibliometrics was coined by combining two terms namely 'biblio' and 'metrics'. The term 'biblio' is derived from the combination of a Latin and Greek word known as 'biblion' which means 'the book'. Most probably the term 'metrics' derived either from the Latin or Greek word 'metricus' or 'metrikos' which indicate 'measurement'-(Sengupta, 1992).

Several studies have been carried out in relation to bibliometric analyses in various disciplines such as science, literature and more. In Sri Lanka, though there are several bibliometric studies conducted in other subject areas, much work could not have been found in the discipline of Library and Information Science. Further, a limited number of bibliometric studies are available on the postgraduate documents in the field of Library and Information Science. At the same time, few studies have been reported from higher educational institutions, especially from universities, where the theses and dissertations are preserved as archival material. Hence, the present study aims to analyze the library and information science theses placed at the National Library and Documentation Services Board as a legal depository, in view of creating awareness about this collection among researchers and LIS professionals.

Research objectives

The main objective is to identify the distribution of citations by format. On par with the main objective several specific objectives were formulated, such as identifying authorship pattern, distribution of citations by decade, distribution of citations by place, distribution of citations by language and to compile a list of books and journals cited by authors in their theses and dissertations. The Paperback Oxford English Dictionary defines a dissertation as "a long essay, especially one written for a university degree or diploma" (p.205) and the Concise Oxford English Dictionary defines a thesis as "a long essay or dissertation involving personal research, written as part of a university degree." (p.1498) Merriam-Webster online dictionary defines a dissertation as "an

extended usually written treatment of a subject; specifically one submitted for a doctorate” and a thesis as “a doctorate” and a thesis as “a position or proposition that a person (as a candidate for scholastic honors) advances and offers to maintain by argument” as well as “a dissertation embodying results of original research and especially substantiating a specific view; especially one written by a candidate for an academic degree.”

Literature Review

Bibliometric studies have been carried out throughout the world focusing on several areas and by covering a majority of disciplines. In connection to this, numbers of bibliometric studies have been undertaken in the field of Library and Information Science and few have been mentioned here.

Keat and Kaur (2008) applied citation analysis method to 3206 citations in order to examine the use of information resources during dissertation preparation by 40 students of the Master of Library and Information Science course conducted at the University of Malaya during 2000 to 2005. Attention was given to the year of publication, authorship pattern, type of source, bibliographic format, language, subject category and place of publication. The results of the study showed that journals (49.9%) are the most used source of information and there is a steady increase in the use of electronic media by Library and Information Science researchers. The study also revealed that the students’ prefer single authored works with respect to the authorship pattern. United States of America contributed the majority of citations by place of publication, which amounts to 1506 citations. The second highest number of citations with regard to geographical distribution came from United Kingdom and Malaysia with 334 citations placed third. The authors implied that it is a good indication that local information resources are used by the researchers.

To get a better understanding about the information sources used by postgraduate students in the library and information science course at the University of Nigeria,

Nsukka a citation analysis has been done by Echezona, Okafor and Ukwoma (2011) covering a period of eleven years, from 1997 to 2007. Seventy nine theses generated 4,814 citations. Journal articles (53.8%) were the most cited information source by the postgraduate students. According to the authors, this can be attributed to the fact that the scholarly journals act as the major information source for an academic to build a successful research. Secondly books in all forms, including monographs and encyclopedias were also used (30.8%) by the students. The usage of online resources was very low compared to other information sources, as the authors felt that the students were unfamiliar with online searching due to lack of computer literacy and may be due to non-availability of Internet facilities to access and inadequate power supply. Out of the journals, *College and Research Libraries* was the most cited journal (178 times) subscribed by Departmental Library. Here the authors pointed out that the journals are cited mostly when they are available in a place where there is easy access for the researches as they can use the Departmental Library very often. Most were interested in the subject areas of library management and administration followed by user studies. Subject areas such as bibliometrics, library categories, technical services, publishing and book trade, and preservation have been given less importance.

Ravichandran, Sivaprasad and Manoharan (2014) conducted a study at the Bharathidasan University, Tiruchi and analyzed the PhD research scholars' preferences and usage of different types of information sources to write theses in the discipline of Library and Information Science. Authors examined different types of literature cited such as journal articles, books, databases, theses and reference sources. The results indicated that the researchers have cited nearly 69 % of journals and among them majority are foreign journals. Though there are numerous bibliometric studies and citation analyses have been carried out on the theses and dissertations submitted to higher academic institutions all over the world, very few studies have been reported in the Sri Lankan context. Therefore here the studies related to the bibliometric analyses have been reviewed not limiting the discipline of Library and Information Science but also other disciplines as well.

Gunasekera (2013) carried out a citation analysis of Masters Theses on Sociology at the University of Peradeniya submitted from 1995 to 2012 to consider it as a tool for collection development in Academic Libraries. The citations were analyzed to determine the type and age of materials used and most frequently cited journals. The data obtained from twelve theses revealed that 56% of cited items were monographs followed by 22% were journals, 8.5% were reports, 4% were web resources and 3.7% were conference proceedings. According to the author, this is contrary to most of the citation analysis which found that journals are the most frequently used format. Further the results revealed that nine journal titles have been cited frequently by sociology graduates. The study indicated that the average age of materials used was 10 to 20 years. According to the author, this study will be a guide to identify the primary sources for acquisitions in a library and collection development in the field of Sociology.

Citation analysis of 84 theses with 3360 citations submitted to Master of Social Sciences and Master of Engineering degree programmes of University of Moratuwa has been carried out by Punchihewa (2014) and he found that the journals are the most referred material and online resources as the most preferred resource format of the students. The author implied that the students were in favour of online resources as both Library and the University have improved and increased such facilities and services. It was observed that 27% of the cited materials were ten years old or less indicating the students' selection of recent resources for their research.

All the studies mentioned above depict the importance of the bibliometric studies and citation analysis for various fields. Bibliometric studies should be carried out in all the disciplines in order to especially maintain the information sources and build the collection development policy of a library.

Methodology

This is a quantitative research as it used bibliometric techniques. Data was collected from the Library and Information Science theses and dissertations available in the National Library and Documentation Services Board, Sri Lanka. The National Library is acquiring theses and dissertations from Sri Lankans who have completed their postgraduate academic necessities related to the Sri Lankan context. The bibliometric features such as number of pages, number of citations, number of chapters, year of completion, the faculty and the university for which the thesis or dissertation was submitted and the degree programme for which the thesis or dissertation was submitted were considered. The reference list at the end of each thesis was used for the study to understand the sources used by the author to complete the research. Type of publication, number of authors, publisher, place of publication, language, year, edition, number of editors of each information source were considered. Regarding some citations; especially on theses in the citations were classified into degree programme and the university which they were submitted. In the citations related to conferences, seminars and workshops the venue was considered. Total of 44 theses and dissertations were used for the study which belongs to the discipline of library and information science. All the theses and dissertations belonging to the above mentioned discipline were acquired by the National Library till 2014. The collected data were analyzed using Excel 2010 and SPSS (Statistical Package for the Social Sciences) version 16. Statistical methods such as descriptive analysis, cross-tabulation, mean analysis were applied in the analysis and tables and graphs are used to represent the analyzed data.

Results and Discussion

Bibliometric analysis of theses and dissertations.

1. Year wise distribution of theses and dissertations with the Degree Programme

The majority of theses which is seven were compiled in year 2002 and all of them belong to Master of Library and Information Science. The second highest number of theses which is four in number were compiled in the years 2000, 2001 and 2003. All the

theses compiled in year 2003 belong to and also have been submitted to the aforesaid degree programme.

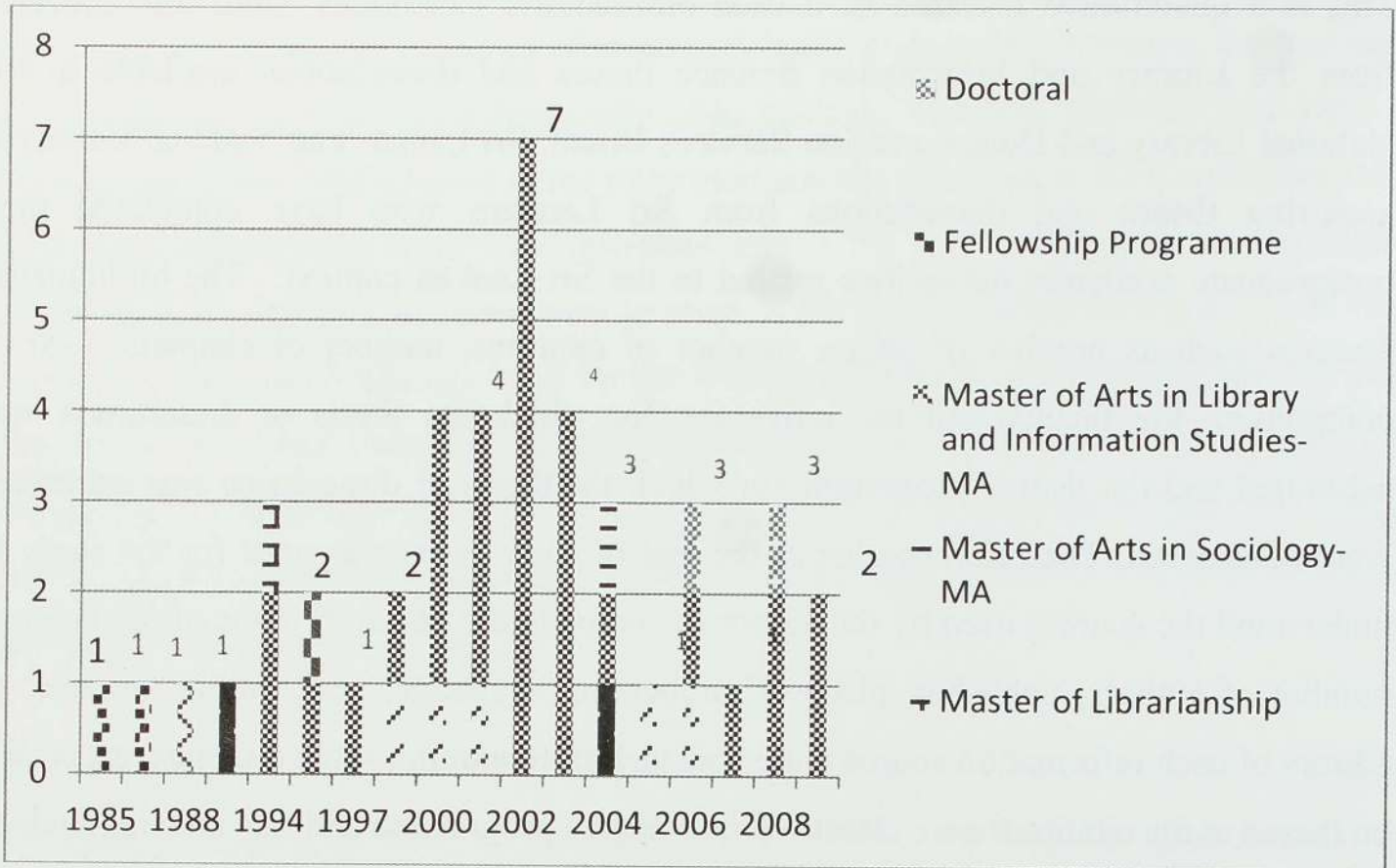


Fig. 1: Year wise distribution of theses with the Degree Programme

2. Language

Thirty nine theses and dissertations were compiled in English Language and only five theses written in Sinhala Language can be found. This has been as the majority of degree programmes for Library and Information Science have been conducted in the English medium.

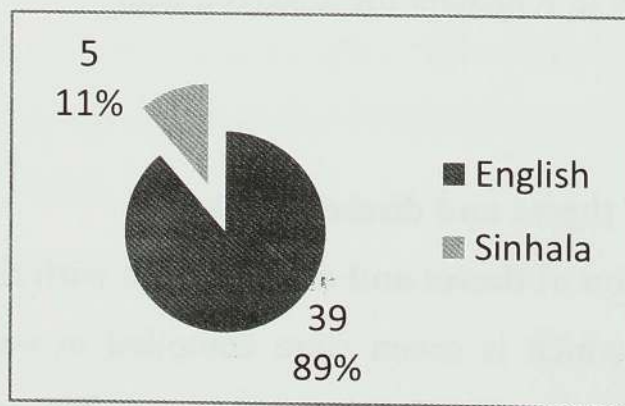


Fig. 2: Language used by the compilers

3. Submitted institution of theses and dissertations and the medium

The number of theses and dissertations submitted to both local and foreign universities is 39 which were compiled in English Language. Only the Sinhala medium degree programme for Library and Information Science has been carried out in University of Kelaniya and also a thesis written in English medium has been submitted to the University of Kelaniya. A thesis written in Sinhala language has been submitted to the faculty of Education at the University of Colombo. Ten theses/dissertations have been submitted to the overseas universities and majority of those which numbered three have been submitted to University of Malaya.

Table 1: Distribution of theses according to the institution submitted and the medium

Degree Programme	Institution	Medium	
		English	Sinhala
Fellowship Programme	Sri Lanka Library Association	1	
Doctoral	University of Colombo	1	
Master of Library and Information Science-MLS		26	
Master of Philosophy-Mphil			1
Master of Social Sciences in Library and Information Science-MSSc	University of Kelaniya	1	4
Master of Arts in Library and Information Studies-MA	University of London	1	
Master of Philosophy-Mphil		1	
Master of Library and Information Science-MLS	University of Malaya	3	
Master of Librarianship	University of New South Wales	1	
Master of Library Science	University of Philippines	2	
Master of Arts in Sociology-MA	University of Sri Jayawardanapura	1	
Doctoral	Wuhan University	1	
TOTAL		39	5
		44	

4. Faculty

The majority of these which is twenty eight in number had been submitted to Faculty of Graduate Studies of University of Colombo. Among them, a thesis has been submitted to Faculty of Education of the same University. The Faculty of Social Sciences of University of Kelaniya received five theses. Three theses were submitted to the Faculty of Computer Science and Information Technology of University of Malaya. The Institute of Library Science at University of Philippines has received two theses. The Sri Lanka Library Association does not have faculties as it is a sole institution.

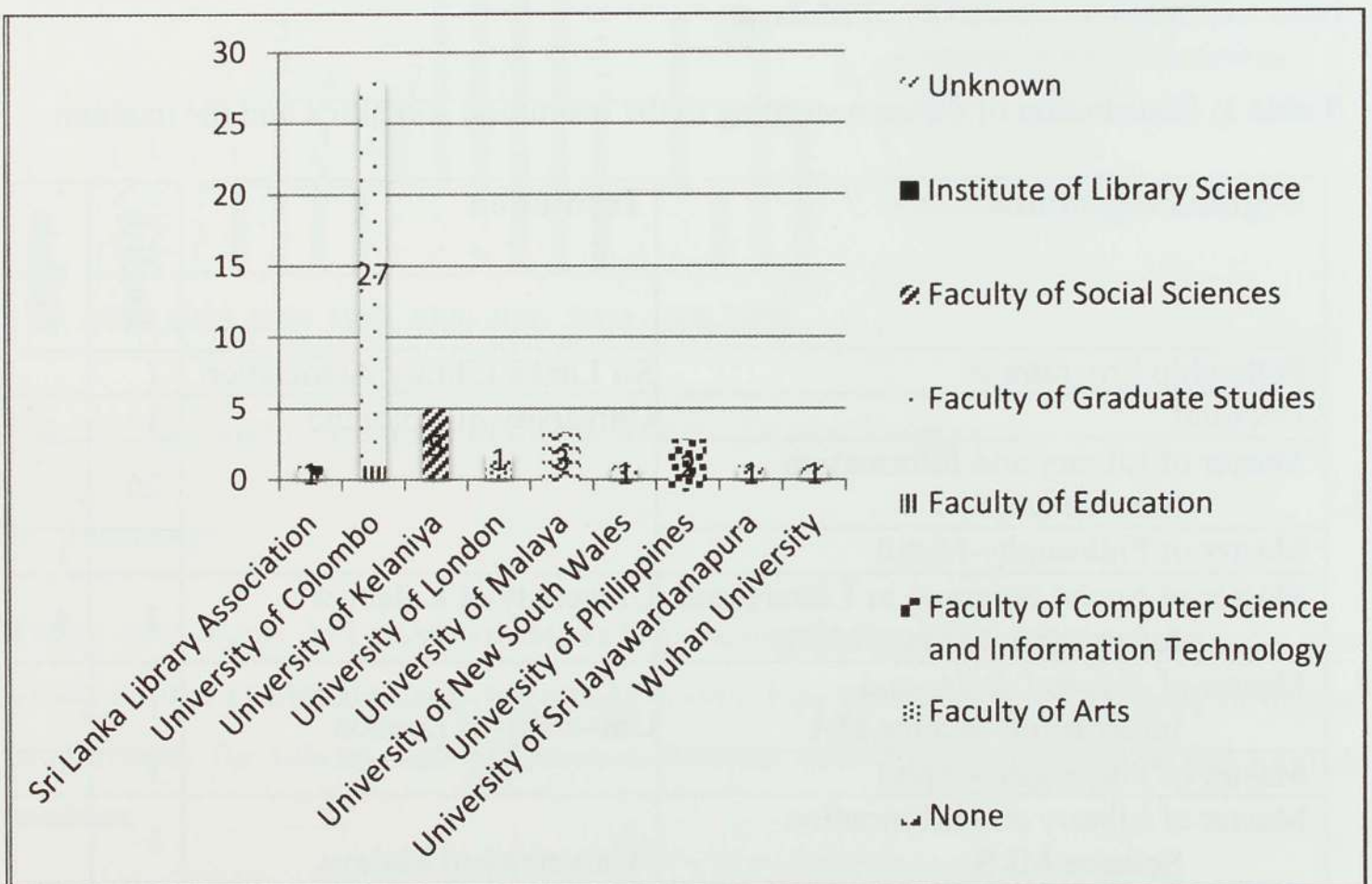


Fig. 3: Faculty wise distribution of theses

5. Number of Chapters

Out of 44 theses, five is the majority number of chapters found in twenty three theses. There are eleven theses with six chapters. Thirdly seven chapters are included in the seven theses. The highest number of chapters in a thesis is nine and the lowest number is four chapters.

Table 2: Number of chapters of each theses

Number of Chapters	Frequency	Valid Percent
4	1	2.3
5	23	52.3
6	11	25
7	7	15.9
8	1	2.3
9	1	2.3
Total	44	100

6. Number of Citations

In the reference lists used by the students, the number of citations varies and the citations belong to the range of 14 to 186. Three theses had 41 and 59 citations. There are 31, 32, 44, 45 and 73 citations in each two theses.

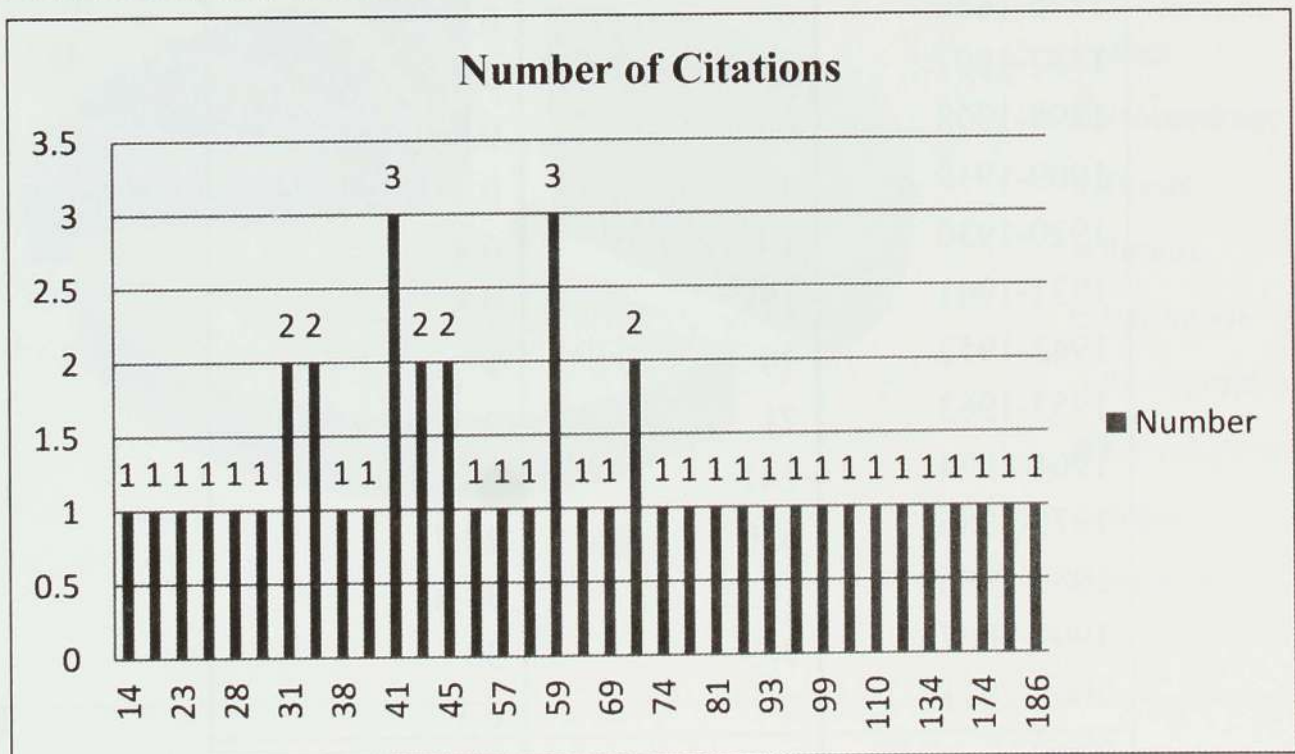


Fig. 4: Number of citations included in the theses

Citation Analysis of theses and dissertations

1. Authorship Pattern

Out of the total population of citations which is 3028 in number, single authorship is visible in most citations. There were 1960 citations with Single Authors. Co- Author citations were 398 and three author citations were 80.

2. Age of Citations

Citations used in the theses had been published during 1821 to 2011. As the time range is too broad, the citations were divided into groups of decades. The highest number of citations which is 1022 in number has been published during 1986-1996 time period and 909 which are the second in citations time period belong to 1997-2007 category. The year is not depicted in several citations.

Table 3: Age of citations

Time Period	Frequency	Valid Percent
Not mentioned	64	2.1
1821-1831	1	0
1854-1864	1	0
1865-1875	3	0.1
1876-1886	6	0.2
1887-1897	8	0.3
1898-1908	9	0.3
1909-1919	4	0.1
1920-1930	13	0.4
1931-1941	17	0.6
1942-1952	29	1
1953-1963	71	2.3
1964-1974	241	8
1975-1985	626	20.7
1986-1996	1022	33.8
1997-2007	909	30
2008-2011	4	0.1
Total	3028	100

3. Language of used reference sources

Majority of references used by the authors were written in English language and very few sources written in Sinhala language. Though some theses were written in Sinhala language, the compiler has used more English references for the study.

Table 4: Language used in the reference source.

Language	Frequency	Valid Percent
English	2888	95.4
Sinhala	140	4.6
Total	3028	100

4. Information sources according to the usage

Out of the reference sources used in the citations, journals and books come to first and second places. There is no significant difference between the numbers of usage. There were 198 citations for web sources and 123 citations consist of conference proceedings. The number of theses included in the citations is 96.

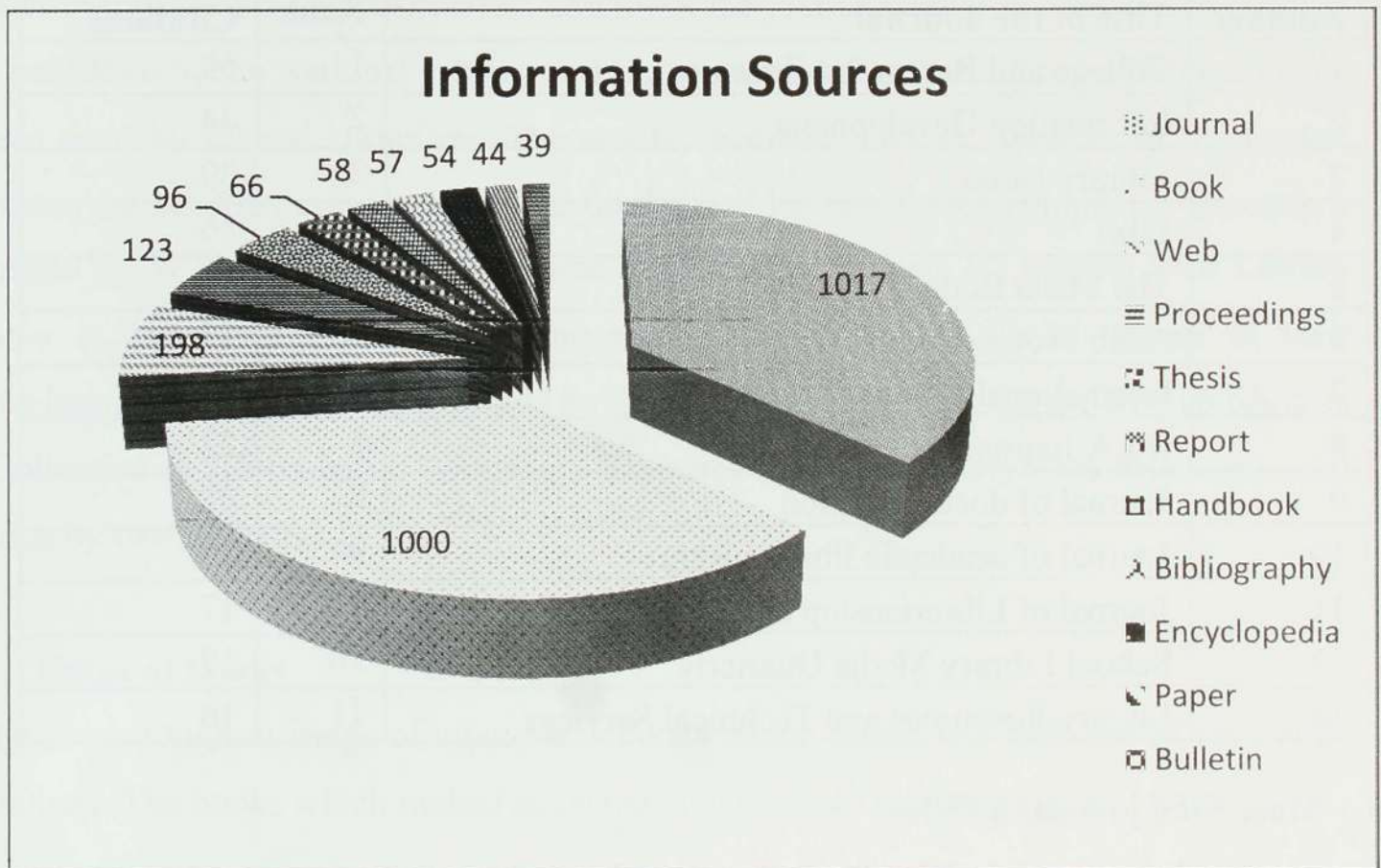


Fig. 5: Usage of Information Sources

5. Usage of Journals

The highest amount of information resource used in the theses is journals. Out of the total number of 3028 citations, the usage of journals was 1017 exceeding the number of usage of books which was 1000. With 59 citations the journal named as *College and Research Libraries* reached the highest number of citations where *Information Development* and *Library News* became second and third respectively. Only Sinhala medium publication in the list is *Pustakala Pravurti* which is published by National Library and Documentation Board of Sri Lanka. Except it other Sri Lankan publications in the list are *Library News* which is published by the National Library and the publication of Sri Lanka Library Association named as *Sri Lanka Library Review*. The citations were extracted from 265 titles of journals. The titles of the highest usage of journals appear in the following table.

Table 5: Journal usage of the theses compilers

Number	Title of the Journal	Rank	Citations
1	College and Research Libraries	1	59
2	Information Development	2	44
3	Library News	3	39
4	Libri	4	36
5	The Maha Bodhi	5	35
6	Aslib Proceedings	6	27
7	International Library Review	7	23
8	IFLA Journal	8	22
9	Journal of documentation	8	22
10	Journal of academic librarianship	9	19
11	Journal of Librarianship and Information Science	10	17
12	School Library Media Quarterly	10	17
13	Library Resources and Technical Services	11	16

6. Most cited journal articles

Several similar journal articles have been cited by various thesis compilers in their studies. As the journal named *College and Research Libraries* reached rank one among

the journals with 59 citations, the journal article which majority used represented the same journal. The most cited journal article was “Job satisfaction among support staff in twelve Ohio academic libraries” written by Coleen Parmer and Denn East which was published in 1993 in volume 54 number 1.

The article, “Job satisfaction among support staff in Michigan academic libraries” written by J. Voelck which appeared in *College and Research Libraries* in 1995 in the volume 56 number 2 was cited in three theses. The volume 10 number 4 of *Information Development* which was published in year 1994 was cited by three theses where the article is named as “Educating users at Moi University (Kenya)” which was written by Cephas Odingi. Three theses cited the article, “Information seeking and Information providers among Zambian farmers which was written by Andrew M. Kaniki. The article was published in volume 41 number 3 of *Libri* in year 1991.

Considering the Sri Lankan context, articles of the journal named as *Library News* which is published by the National Library and Documentation Services Board of Sri Lanka has been used by several compilers. The article “National Library Services in Sri Lanka” written by N. Amarasinghe has been used twice by two theses compilers. The article written by W.R.G. De Silva which was published in volume 21, number 1 of *Library News* in year 2000, named as “University Libraries in Sri Lanka: trends in their development” is also an article used twice. In the same journal, the article published as “Collection development in University Libraries” by S. Jayasuriya has also been used twice by two students.

7. Usage of Books

The second highest usage of citations is books which numbered 1000 out of total 3028 citations. The books which ranked as second and third are published in Sri Lanka.

Table 6: Most preferred books

Number	Title of the Book	Rank	Citations
1	Cost analysis, cost recovery marketing and fee-based services	1	16
2	Libraries in Sri Lanka: their origin and history from ancient to the present	2	13
3	Libraries and People: Colombo Public Library Commemorative Volume 1925-1975	3	11
4	Human Resource Management	4	8
5	Research methods in Librarianship: Techniques and Interpretation	4	8
6	The measurement and evaluation of Library Services	4	8
7	User education in Academic Libraries	4	8
8	Academic Library Management	5	7
9	Classification in the 1970's: A Second Look	6	6
10	Emerging dimensions of HRD: Role and orientation	7	5

The majority of the cited articles in books were written in English Language. Out of 1000 citations, there were 989 citations written in English language.

Conclusions

This study was conducted to analyze the citations of 44 postgraduate theses and dissertations related to Library and Information Science submitted to both foreign and local universities. The authors have cited more journal articles than books. Single authorship is visible and 1986-2006 is the time period which the majority citations are published. Out of the 44 theses, Master of Library and Information Science (MLS) theses are the majority submitted to the University of Colombo. More theses have been compiled in English Language and in year 2002 more theses have been submitted. The higher number of the pages in a thesis is 308 pages and the highest number of chapters in nine in number. The highest number of citations is 186 and the highest length of pages of reference is 24 pages.

While considering about subjects, more researchers have paid their attention on usage of online resources for their studies. This may occur to the rapid development of information technology among the communities. Secondly researchers have put an eye on information seeking behavior or the user requirements in order to identify the needs of the serving community.

Single authorship is visible in many citations as there were 1960 single authors found in the study. Two authors and corporate authors are also visible in the context. As the citations covered the period of 1821-2011, the most cited materials came out in the decade of 1997-2007 which is 1022 in number. This may be the reason for using contemporary materials for the studies by the researchers. The majority of publishers have been found from Colombo and it shows that the researchers have used more local published materials in their studies. This ranges up to 350 in number where London becomes second considering the global places of publication.

The National Library and Documentation Services Board has served as the main publisher in local context and globally American Library Association has reached the majority by having 100 in number. Out of the fifty two types of information sources, journals have been used by the majority and books and web sources respectively. Journal usage is 1017 in number out of total 3028 citations and *College and Research Libraries* was reached first in usage.

Recommendations

Bibliometric analysis as the citation analysis is a tool that a library can use as an indicator to evaluate the usage of the collection. The National Library as the major reference library in the country can rethink about its collection development policy and it paves the way for future research. The National Library should acquire more theses for the Library and Information Science collection for the convenience of future researchers. The collection should consist of journals, books, government publications and reference

sources in order to satisfy the requirements of the readers. More foreign publications should be included in the collection as the researchers require recent information for their academic work. The collection development policy should be maintained and changed whenever needed and continuous research should be done in order to build the collection with current information sources.

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GUIDELINES FOR SUBMISSION OF PAPERS TO THE SLLA JOURNAL

Introduction

Library Review (LR) is the official journal of the Sri Lanka Library Association. LR is an annual publication with one volume published in the month of June each year. All articles published in the Library Review will be peer reviewed by at least two experts in relevant fields.

Disclaimer

Acts and opinions published in LR express solely the opinions of the respective authors. Authors are responsible for their citing of sources and the accuracy of their references and bibliographies.

Summary of Technical Requirements

Double-space all parts of manuscripts.

Review the sequence: title page, abstract and keywords, text, acknowledgments, references.

Enclose transfer of copyright and other forms.

Preparation of Manuscript

The text of observational and experimental articles is usually (but not necessarily) divided into sections with the headings **Introduction**, **Methods**, **Results**, and **Discussion**. Articles also may need subheadings within some sections (especially the Results and Discussion sections) to clarify their content.

Use Microsoft word to type out the manuscript on, **216 x 279 mm (8.5 x 11 inches)**, or **ISO A4 (212 x 297 mm)**, with margins of at least **25 mm (1 inch)**. Use **double spacing** throughout, including for the title page, abstract, text, acknowledgments, references, individual tables, and legends. Number pages consecutively, **beginning with the title page**. Put the page number in the **lower right-hand corner** of each page.

Provide a copy in electronic form (on a disk or e-mail to : sllaoffice@gmail.com or slla@sltnet.lk

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The title page should carry:

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The second page should carry an abstract of **no more than 250 words**. The abstract should state **the purposes of the study or research, basic procedures** (selection of study subjects; observational and analytical methods), **main findings** (giving specific data and their statistical significance, if possible), and **the principal conclusions**. It should emphasize new and important aspects of the study or observations.

Below the abstract authors should provide, and identify as such, **3 to 10 keywords** or short phrases that will assist indexers in cross-indexing the article and may be published with the abstract.

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Present your results in logical sequence in the text, tables, and illustrations. **Do not repeat in the text all the data in the tables or illustrations**; emphasize or summarize only important observations.

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Emphasize the new and important aspects of the study and the conclusions that follow from them. **Do not repeat in detail data or other material given in the Introduction or the Results section**. Include in the Discussion section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies. State new hypotheses when warranted, but **clearly label them as such**. Recommendations, when appropriate, may be included.

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Acknowledgments

List all contributors who do not meet the criteria for authorship, such as a person who provided purely technical help, writing assistance. Financial and material support should also be acknowledged.

Abbreviations and Symbols

Use only standard abbreviations. Avoid abbreviations in the title and abstract. The full term for which an abbreviation stands should precede **its first use in the text** unless it is a standard unit of measurement.

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(For more details, please consult the 6th edition of the *Publication Manual of the American Psychological Association, 2010*)

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SRI LANKA LIBRARY REVIEW

Volume 30 (2016)

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