# Awareness of Information Retrieval in Online Environment: A Study on Newcomers to the Faculty of Engineering of General Sir John Kotelawala Defence University

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## Abstract

Undergraduates, in their first year, usually perform poorly in their studies and it has been attributed to the inability of students to effectively retrieve information for academic work. At present there are many problems in retrieving information and proper use of information. The prime objective of the study is to give the newcomers of Engineering Faculty at Kotelawala Defence University, an awareness on information retrieval and thereby to propose methods to teach them to retrieve information and the proper use of information for their study. The total study population is all students of 34th intake of engineering students consisting both cadets and day-scholars. Survey strategy was applied by means of structured questionnaire circulated among students before and after the Information Literacy Instruction (ILI) program, so that it could be collected back at the end of the program. The collected data were analyzed by using SPSS version 20. As per the result of post survey after Information Literacy Instruction Program, the awareness was increased in retrieving information. Hence, it is recommended to conduct more practical oriented lectures on information retrieval in order to uphold their knowledge.

*Keywords:* Information retrieval, Information literacy, E-resources, Library usage, Information literacy instruction

# 1. Introduction

In Sri Lankan Higher education system, there are 15 conventional universities offer degrees in various fields under the purview of University Grants Commission, Sri Lanka. Apart from that, another few universities and higher educational institutions are also recognized by UGC offer degrees of which General Sir John Kotelawala Defence University is an important and unique one as it offers degrees including medicine, engineering, architecture, computing and so forth. In the present context, the retrieval of information and effective use of information is a challenging task as Information Technology (IT) plays a crucial role than before. Earlier days, finding information was a challenging task as scholars depended only on printed sources and at present, the availability of information is not a challenging task as we have a sea of information to swim through, but, retrieval of information and effective use of information became as a challenging task after the impact of information technology by which we retrieve information in printed and non-printed formats. Hence, it was intended to identify the students' capacity of retrieving information.

In the Sri Lankan context, students are selected from various backgrounds with regard to the availability of library usage. As we know from our experience, considering the students who are selected to the Faculty of Engineering come from towns or else they might have studied in town schools with a few exceptions. In addition, these students studied mathematics stream in G.C.E (A/L) and expected to be competent in computer technology as well. However, we need to know whether they are aware of accessing information effectively, especially in an online environment. Hence, researcher did pre and post survey of their knowledge to discover the nature of students in information retrieval.

# 2. Literature Review

With regard to this study area, countless studies were carried out in the past. When we see the content, most of the studies were focused on the Internet usage, e-resources, semantics in web search and so forth.

which are related to the Internet and web search. There were numerous studies conducted in the field. Among the studies Eynon and Malmberg's research (2011) is an important one in this field, it focused on youths who live in a village in the United Kingdom, but not focused on university students. They measured how those youths in that village retrieve information and show the information seeking behaviors of the youths. Similar to this, scholars from Manipal University, Jessy, Bhat and Rao (2010) did pre and post survey of students' information seeking attitude. Their essay on 'Assessing the Effectiveness of Information Literacy Instruction Program: Pre and Post Evaluation Case Study' deals with the same subject, but is a different angle.

Balasubramanian, Catherin, and Suthakar (2014) did a survey on the information retrieval of students, but the study population was postgraduate students who are considered as a learned society. Their intention was to see what types of format the students like to refer. They mainly focused on what types of formats were preferred by the students.

Fordjour, Babu and Adjei (2010) concerned the overall performance of students, especially post-graduate students. According to them, the use of information retrieval tools to retrieve relevant information depends on the information needs of the student and there was no relationship between awareness of information retrieval systems and facilities. As per the study, the information retrieval skills training program should be embedded in the curriculum, undertaken at an appropriate time and supported by academic staff of the University. MacFarlane, Petrie and Jones (2010) conducted a survey of students' needs and information retrieval, but it focused only on disability or dyslexia. This study focused on those who wanted special information needs as it covered dyslexia. Dyslexia's information seeking behavior and the information needs is different.

William et al., (2011) carried out a study to evaluate pre and post awareness of information retrieval. They did a pre-survey about the awareness and immediately after the lecture. However, the target

groups were senior and junior medical students. Medical students' information seeking behavior and the information needs are different from the target group that they have taken.

Even though there have been numerous researches carried on the subject, which were done in this area of study, our present study is unique and it has attempted to find different problems in a different context. The target group is engineering newcomers who were not selected to conventional universities and they have been selected to pursue their studies after selection of examination and interview. Hence, it was intended to do a pre and post survey on their nature of information retrieval in the online environment.

## 3. Objectives

To identify the nature of existing information and the level of information retrieval among the undergraduates and propose the methods which are to be adopted to improve information retrieval in the online environment.

1. To show the information gaps of undergraduates in an online environment
2. To measure the nature of information retrieval culture in undergraduates
3. To propose suitable and proper methods to be adopted to improve information retrieval in an online environment

## 4. Methodology

The study was undertaken using a quantitative research design. The total student population was 113 (34th intake) students from the faculty of Engineering of General Sir John Kotelawala Defence University. All students, both cadets and days-scholars were taken for the study. Structured questionnaire with close-ended questions were distributed among the students and they were circulated and collected in pre and post information retrieval instructions (ILI) done by the library. Considering both the pre and post questionnaire respondents, 95 have

duly completed and returned the same. SPSS version 2.0 was used to analyze the results. Based on the results, recommendations were derived.

## 5. Data Analysis and Interpretation of Findings

This study examined the awareness of information retrieval in online environment of the newcomers to the Faculty of Engineering of General Sir John Kotelawla Defence University. Questionnaire were distributed to all registered first year students of the Faculty of Engineering at the Information literacy instruction (ILI) program which was conducted by the Main library of KDU and it was circulated before and after the ILI program. Out of which ninety-five (95) respondents completed and returned with a response rate of 84.1%.

The analysis and the interpretation of data were based, on the responses received. Data collected from the questionnaire were analyzed using frequency counts and simple percentage by using SPSS version 20.

### 5.1 Demographic variable

Table 1: Distribution of the respondents by Sex

| Sex | Frequency | Percentage |
|---|---|---|
| Male | 87 | 91.6 |
| Female | 08 | 8.4 |
| Total | 95 | 100 |

From Table 1, it shows that 87 respondents were male who represented the 91.6% of the entire respondents. While only 8 respondents were female who represented 8.4% of the entire respondents. The results then showed that more males were captured during the admission of the first year undergraduates for the Engineering stream.

### 5.2 Previous experience on library usage

Respondents were asked to mention their previous experience on library usage and the results are demonstrated in the following table.

Table 2: Previous experience on library usage

| Previous experience in library use | Frequency | Percentage |
|---|---|---|
| Local Governmental Library | 32 | 33.7 |
| School Library | 61 | 64.2 |
| No response | 2 | 2.1 |
| Total | 95 | 100 |

Table 2 shows that 61 (64.2%) of the respondents had previous experience of using school libraries, while 32 (33.7%) of the respondents had experience by using local government libraries.

## 5.3 Awareness of the library website

Every university library has maintained its own library website in order to provide the comprehensive information about its services, resources and promotes its usage. User awareness of the library website assists to gather detailed information on library and its resources, which will help to improve the resource utilization.

Respondents' awareness on the library website and its resources was analyzed before and after the ILI program. Pre-test results showed that only 5.3% of the respondents were using the library website for access to e-resources. However, the post ILI feedback data indicated that the use of library website for access to e-resources have increased up to 65.3%. The details are demonstrated in the Table 3.

Table 3: Awareness of the Library website

| Awareness of the library website and its use | Number of respondents before ILI (n=95) | | Number of respondents After ILI (n=95) | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| I never check KDU library website | 14 | 14.7 | 0 | 0.0 |
| I check KDU website but not library website | 75 | 78.9 | 33 | 34.7 |
| I check KDU library website for access to e-resources | 5 | 5.3 | 62 | 65.3 |
| No response | 1 | 1.1 | 0 | 0.0 |
| Total | 95 | 100 | 95 | 100 |

## 5.4 Awareness of the type of library resources

Students' awareness of the type of library resources was analyzed in the pre and post-test by using a questionnaire. The pre-test results revealed that the respondents' lower level awareness of the resources like online databases 8 (8.4%), CDs/DVDs 6 (6.3%) and e-journals 11 (11.6%) available at the library. However, the post-test results showed that the respondents' awareness of all types of library resources increased highly. Respondents' awareness of online databases, CDs/DVDs and e-journals comparatively increased from 8.4% to76. 8%, 6.3% to 73.7% and 11.6% to 68.4% after ILI session. The Figure 1 depicts the details of the responses given by the participants.
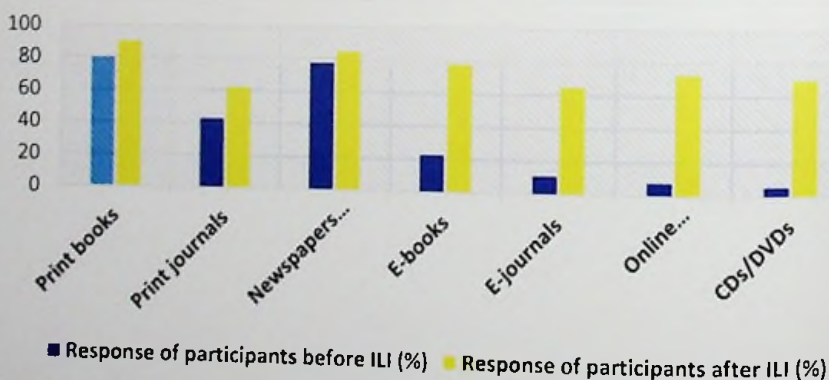


Figure 1: Awareness on the type of library resources

## 5.5 Awareness of library catalogue

In order to get the maximum benefit from the library the student should be aware about the library catalogue. Therefore, in this study, students were asked to mention their awareness on the library catalogue. The majority 91 (95.8%) of participants were not aware about the library catalogue. However, after the ILI session the participants' awareness about the library catalogue increased from 4.2% to 100%. The details results are given in the following table.

Table 4: Awareness of library catalogue

| Awareness of the library catalogue | Number of responses before ILI (%) (n=95) | Number of responses after ILI (%) (n=95) |
|---|---|---|
| Yes | 4 (4.2%) | 95 (100%) |
| No | 91 (95.8%) | 0 (0%) |
| Total | 95 (100) | 95 (100) |

## 5.6 Familiarity with e-resources

The participants were asked to mention their knowledge about e-resources. Pre-test results showed that the participants had a lower level of familiarity with e-resources. The results of the pre-test showed 63.2% of the respondents do not know about e-resources and only 21.1% have been using e-resources for educational purposes. 15% of the respondents replied that they have heard about the e-resources but not used. However, the post-test ILI session feedback revealed that an increase in the number of respondents, 82.1% who used e-resources for educational purposes as indicated in the Figure 2.
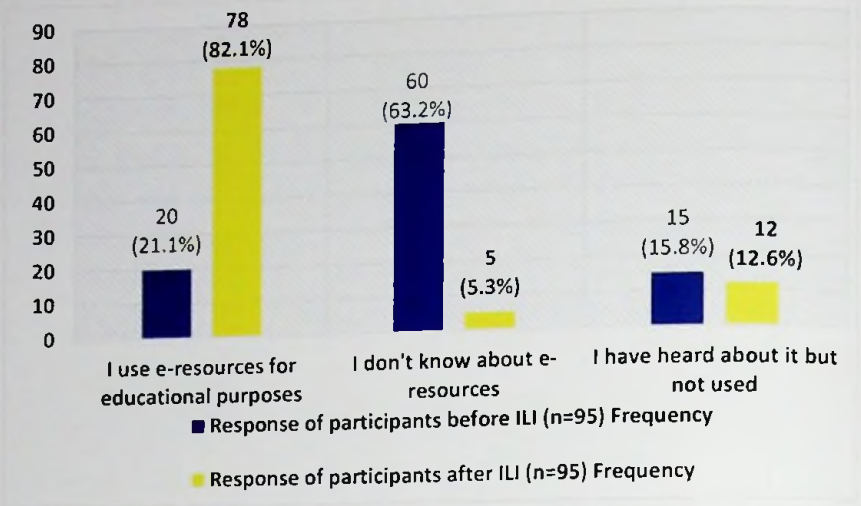
Figure 2: Familiarity with e-resources

## 5.7 Knowledge about anatomy of URL

Respondents were asked to state their knowledge about anatomy of a URL (Uniform Resource Locator) which is a basic knowledge for access resources on the Internet. The results of the pre-test showed that only 27 (28.4%) of the respondents aware about the anatomy of the URL. However, the post-test results showed that majority 77 (81.1%) of the respondents were aware about the anatomy of the URL. The response to the question administrated in the figure below.
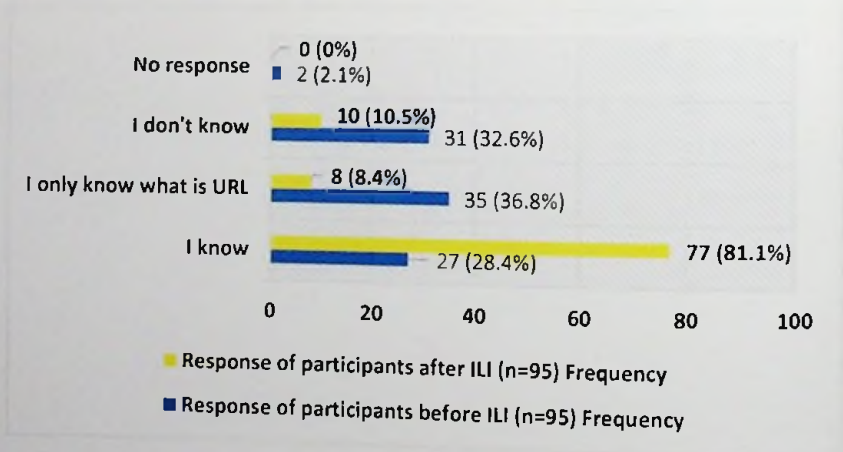


Figure 3: Knowledge about anatomy of URL

## 5.8 Knowledge about the Internet Search Engines

Students were asked to mention their knowledge about the Internet search engines and the results of the pre-and post-test are depicted in the Table 5.

Table 5: Knowledge about the Internet search engines

| Knowledge about internet search engines | Response of participants before ILI (n=95) | | Response of participants after ILI (n=95) | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| I know | 83 | 87.4 | 92 | 96.8 |
| I don't know | 11 | 11.6 | 3 | 3.2 |
| No response | 1 | 1.1 | 0 | 0.0 |
| Total | 95 | 100.0 | 95 | 100.0 |

As per the Table 4, there were no big difference about the knowledge on the Internet search engines by students in the pre and post-test. According to the results of the pre-test 83 (87.4%) of the respondents were knowledgeable about the internet search engines and it was increased up to 92 (96.8%) after the post-test of the ILI.

## 5.9 Knowledge about Search Methods

Students were asked about the knowledge on search methods that they used. The pre-test results revealed that lower level knowledge of the respondents about search methods like Boolean operators 8 (8.4%) phrase searching 11 (11.6%) and field searching 13 (13.7%). Further, it was remarkable to state that none of the respondents were aware about the truncation method. Further, it was revealed that majority 66 (69.5%) of the respondents did not respond to this question due to their lack of knowledge about search methods. But in the post-test ILI session feedback revealed that an increase in the number of respondents who aware about the search methods. The details are given in Figure 4.
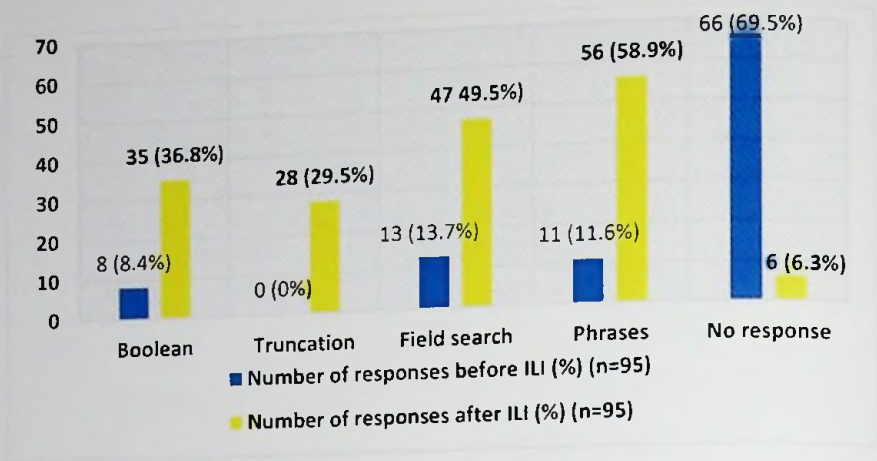
Figure 4: Response of the participants about their knowledge of search methods

## 5.10 Feedback about the instruction

Evaluating the feedback on the library instruction program is very essential to assess the librarians' efficiency and to improve the effectiveness of the ILI program. The students' opinion on the librarians' efficiency was also gathered from the participants' feedback. The majority of the participants were either highly satisfied (66.3%) or satisfied (28.4%) with the instructional methods in imparting information seeking skills. The details of the participants' response are given in the Table 6.

Table 6: Respondents' feedback about the instruction

| Response of participants | Number of respondents (n=95) |
|---|---|
| Highly satisfied | 63 (66.3%) |
| Satisfied | 27 (28.4%) |
| Not sure | 5 (5.3%) |
| Unsatisfied | 0 |
| Highly unsatisfied | 0 |
| **Total** | **95 (100)** |

In response to the open ended question inviting suggestions from the participants for the improvement of ILI programs, they suggested that this kind of programs should be done at a regular intervals as well as hands-on sessions may be included in the future ILI programs.

## 6. Conclusion and Recommendations

The results of the present study for assessing the effectiveness of ILI program for the first year undergraduates of the Faculty of Engineering, demonstrated the satisfactory improvement in the information competency skills of the students.

The results of the study revealed the following:

- Participants' awareness about the type of library resources and the awareness of library website increased substantially after ILI program.
- The post-ILI program feedback indicated that 100% of the students were able to aware of the library catalogue and their familiarity with e-resources increased considerably.
- The participants' knowledge of the anatomy of the URL and the search engines increased to a great extent (from 28.4% to 81.1% and from87. 4% to 96.8%) after ILI.
- Participants' awareness and skills on search methods, including Boolean operators, truncation, index phrases and field search also increased to a significance level after ILI.
- ILI program conducted by the library has been effective and created awareness about various resources of the library, search strategies as well as services and facilities of the library as evidenced from the students' responses and comments.

Based on the above results of the study, the following recommendations have been made.

- In order to examine the impact of ILI program, user oriented studies may be conducted in a regular intervals.
- Opportunities for hands-on session should be given to the participants for effective of ILI programs.

- It is recommended to incorporate the ILI program with the students' curriculum for better understanding of the methods for information resources utilized.

In the pre evaluation study conducted at the library, it has been identified the actual level of awareness among the students about the library website and resources of the library, knowledge about the library catalogue, knowledge about the URL and internet search engines, search methods and their previous experiences of using a library. Further, from the post-test feedback, it is revealed that the ILI program was effective and helped to improve the information literacy skills of the participants. In addition, it was identified the important areas to be focused upon while designing the future IL programs to be organized by the library for their user community. Even it is expected that engineering students have knowledge to handle online environment, the fact is contradictory. Hence, it can be concluded that this method of pre and post evaluation study is helpful in assessing the effectiveness of information literacy programs in the academic libraries, and that the newcomers can access information effectively.

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