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A Comparative Analysis of the Information Resource Usage of the Agriculture Students

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Abstract

The purpose of this paper is to illustrate the differences in information resource usage among the agriculture students in University of Peradeniya, so that remedial measured could be adopted to address the identified trends. A 10% sample was surveyed and the data were complimented by the information provided by published literature, statistics, faculty members and the library staff. Findings established that the Search Engines, Wikipedia, Classmates, Lecturers and Recommended Readings are used often by all but there is a variation in the usage across the academic years. Use of Recommended Readings, Library Collection, and Lecturers increased across the academic years while the use of their Personal Collections of material, and the use of Classmates, Friends and Family and the Librarians as an information resource decreased. There was no difference in the use of Search Engines across the years but the use of Wikipedia, and Government Websites decreased in the fourth year. The study proved that the students expect training from the library, and that there is a variation across the academic years in the topics they would like to learn about. The study recommends a well-planned information literacy programme for all the students of the faculty irrespective of their year of study. A limitation of the study was that it covered only *what* and *how often* aspects of the information resource usage but not *why*, due to time limitation, but elucidated the *why* of findings in the light of previous research. However, this paper is the first of its kind, which makes a comparative analysis of the information resource usage of the agriculture undergraduates in Sri Lanka.

Keywords: Undergraduates, Agriculture, Information Resources, Information Literacy, Wikipedia, Internet, Library, Sri Lanka

Introduction

The Faculty of Agriculture of University of Peradeniya, established as an independent faculty in 1972, has eight academic departments and offers three degree programs of four-year duration; B.Sc. in Agricultural Technology &

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Management, B.Sc. in Food Science & Technology and B.Sc. in Animal Science & Fisheries. The annual student intake to the faculty through the University Grants Commission is 275 and the total student population in the faculty is about 1100 (Samarasinghe, 2012).The researcher carried out a university-wide study on the Information seeking and research strategies of undergraduates in the digital age during December 2012-May 2014 with a view to discover the information resource usage trends of the undergraduates. This paper pays a special attention to the information resource usage of the undergraduates of the Faculty of Agriculture.

Survey of Literature

The survey of literature covered the period of 2000-2014 and the literature published before 2000 were not considered as the types of information resource accessible to the undergraduates could have changed significantly 14 years before. The survey of literature below is divided into four sections. Section one presents some of the key research studies which identified the information resource usage trends of the undergraduates in the global context followed by a section on such studies in the Sri Lankan context. Section two is devoted to the information resource usage trends of the agriculture undergraduates in the global and Sri Lankan contexts. Section three presents a selection of studies which compares the information resources usage across different academic years, and Section four provides several studies which attempted to explain the factors affecting the use of information resources by the undergraduates.

Information resource usage trends of undergraduates

Kakai et al. (2004), investigating undergraduates at Makerere University, Uganda ascertained that 97% use textbooks, less than 52% use other resources (theses and dissertations, reference material, and newspapers), 21-30 respondents use Internet, 1-15 respondents use CD/ROMs, online databases, and conference proceedings. Head and Eisenberg (2009), concluded that almost every student in the sample (in the USA) turned to course readings first for course-related research assignments, nine out of 10 students in the sample turned to library's online scholarly research databases for conducting course-

related research, and that they turned to instructors as valued research coaches, as they advanced through the higher levels of their education.

Head and Eisenberg (2010) surveyed 8,353 respondents from 25 campuses across the U.S. in 2010 and compared the findings with the findings of their 2009 study. The authors comment that, the students in the 2010 sample used the same set of information resources for course related research in the same order of frequency as did students in the 2009 sample. Almost all students reported, turning to course readings first. In addition, students consulted Wikipedia to a lesser extent than they used instructors, scholarly research databases, search engines, and course readings when completing research for courses. They established that the findings of 2010 survey validate the findings of the 2009 survey and that the data provided strong evidence that students are driven by familiarity and habit and that they use the same set of information resources in a very similar order of preference for course-related and everyday life research.

Barsky et al (2011), studying engineering students, concluded that they relied most heavily on non-academic internet sources, but they also made use of the academic sources to some extent. The authors suggested that the Librarians be invited to classrooms not only to instruct the students in the use of traditional library databases but also in the use of non-academic internet sources. Weiner et al. (2011), surveyed 70 first semester students of the School of Veterinary Medicine at Purdue University and confirmed that, 69% use Google or Google Scholar, 46% use library websites and 17% use Wikipedia for their class projects.

Cheunwattana et al. (2012) carried out a collaborative project in six public universities in using sample of 2,435 respondents using the same tool used by Head and Eisenberg (2009). Findings proved that 64.84% *almost always* used search engines during their course-related research process. Only 32.74 has almost *always* consulted course readings. Other resources that the students used *often* are Classmates (43.31%), class readings (41.63%), Wikipedia (33.52%), Lecturers (31.49%), and Library Collection (28.86%). Resources that students used *sometimes* include Lecturers (39.65%), Personal Collection (37.79%), government websites (36.45%), and Library Collection (35.63%).

Although Librarians are not included in the main types of resources used, they are still consulted by the students.

In the Sri Lankan context, Perera (2005) studying dental students of Universty of Peradeniya, commented that they prefer printed resources and recommended texts to online resources. Perera (2005) further confirmed that, 90% of the dental students thought that, the library books are the most important of different types of library material. Dharmarathne (2008) studying fifty arts students in thie 2nd, 3rd and 4th years at University of Peradeniya, concluded that the majority do not have a sound knowledge of e-resources, they use computers for entertainment and communication purposes than for academic purposes, majority have not visited the library website, hence not aware of the resources available through the website, and that they lack ICT and English skills while they are not guided by the academics adequately. The author claimed that these drawbacks have affected their information seeking behaviour. Punchihewa and Jayasuriya (2008) explored the use of online databases, user perception towards online databases, and the user satisfaction with facilities provided by the library for using online resources by the undergraduates of University of Moratuwa. They concluded that relatively a lesser usage was observed in the online journals compared to print journals. Seneviratne and Wickramasinghe, (2010) surveying the architecture, engineering and IT students concluded that the undergraduates have difficulties in identifying variety of types and formats of potential information sources as well as assessing economic, legal and social issues surrounding the use of information irrespective of the discipline.

Information resource usage of Agriculture undergraduates

Sharma (2000) reports the findings of a study carried out in Punjab Agriculture University, India. The survey population included 530 postgraduate students, 840 teachers and 100 research fellows of the university. The study established that the majority of the users were able to access, use and organize the information efficiently and concludes that the collaborative approach of teachers and Librarians must be encouraged to improve information literacy skills among the users. In addition, including information literacy as a mandatory part of course-curricula is strongly recommended. Rhoades et al. (2008) discussed the attitudes and usage of Internet by students in College of

agriculture in the USA. Surveying 255 second and third year students enrolled in the College of Agricultural and Life Sciences of University of Florida, they comment that 98.8% own a personal computer while high speed and wireless methods are used to access Internet at home. Search engines and WebCT were utilized by most. The Internet was seen to be moderately good, easy to understand, important, easy to find, beneficial, believable and credible. Hadimani and Rajgoli (2010) report the findings of their study carried out in a college of Agriculture in Rainchur, India. The study of 90 undergraduates (with a 100% response rate) established that, 66.66% search Internet for information and 100% search in the college library. Of the respondents, 95.55% are able to search exact information, 94.44% contact library staff to access information, 91.11% has the ability to evaluate information in terms of currency, authority and appropriateness. These findings are contrary to the findings of many other studies reported here. Adio & Arinola (2012) studied 180 senior students in the Faculty of Agricultural Sciences in LAUTECH[2]. The study has established that 74% of the students use followed by textbooks (66%), theses and dissertations (63%), and CD/ROM databases (39%).

Scanning the literature proved that, only two studies are available in the information resource usage of the Sri Lankan agriculture undergraduates. Ileperuma and Mudannayake (2005), studied the undergraduate and postgrdaute students of the Faculties of Agricuture and Science of University of Peradeniya using a sample of 1185 students with a response rate of 76.74%. The cumulative findings determined that, most important information resources are the books, lecture notes and handouts. The resources like CD/ROMs and audio visual material have a low priority. They also established that there is an increasing trend to use Internet. The study further revealed, that the majority of students were not aware of the online public access catalogue and e-resources provided through the library web pages. However, the paper does not separate the findings related to agriculture undergraduates, therefore, the specific characteristics of the agriculture undergraduates' information resource usage are not explicit. Dilrukshi (2014) studied the usage of online journals by the agriculture undergraduates in their fourth year of study at Rajarata Universiy of Sri Lanka and confirmed that 52% preferred using online jorunals while 48% preferred printed journals.

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Findings further revealed that 40% of the respondets have identified absence of training as a barrier to use online journals, 26% have identified limited time for search information, 18% have indicated poor knowledge of online journals and 16% have pointed out that the available computer facilities are not adequate. The study recommends launching sound awareness programme for the users, allocating more tme in their timetables for infromations earching and increasing computer facilities.

Further search for related literature let to a study by Peiris and Peris (2012) at University of Peradeniya on the postgraduate students. They established that all the respondents use electronic information resources, but web pages are the highest accessed resource (24%), followed by online databases (20%). Of the respondents, 29.1% indicated that they learnt to use the e-resources on their own using manuals, 26.4% learnt by trial and error and only 7.7% learnt from the library staff. The authors comment that even if the orientation programmes are offered, student participation in such events is poor and a substantial percentage seeks assistance from friends, Classmates, academic staff and library staff. Lack of equipment, lack of current and relevant resources, and lack of competencies are perceived as barriers for e-resource usage by the authors.

Information resource usage across different years of study

Survey of literature lead to three significant researches carried out by Whitmire (2001a, 2001b) and Callinan (2005). Whitmire (2001a) surveyed 1046 participants who attended 18 different four year institutions in the USA during 1992-1995 academic years and the study examined the factors that influence the undergraduate academic library usage during the first three years of college. Findings established that many variables correlated with the academic library usage. The library usage of freshmen, in the descending order of importance, corelated with the active learning, engaged writing activities, student/faculty interaction, and high school library usage. The library usage of sophomores correlated with engaged writing activities, active learning, high school library usage, and student/faculty interaction. The library usage during the junior year correlated with engaged writing activities, student/faculty interaction, active learning, and high school library usage while the off-campus jobs negatively correlated. Whitmire comments that these findings are

useful for the redesign of academic llibrary services and future research on information seeking behaviour.

Witmire (2001b), using the same data (Whitmire, 2001a) reported that there is a strong relationship between library experience during the freshman, sophomore and junior years. If the students had a successful library experience in their early college years, they continued engaing in the library activities over time and that good initial library experiences were crucial for encouraging subsequent library use. Whitmire (2001b) further commented that, the library use by all academic years were generally low and that future studies should examine the factors that influence the use of academic libraries.

Callinan (2005) made a comparative study of first year biology and final year biochemistry students in the University College of Dublin and established that there are differences in the extent to which sources of information are used by the students in different years of their studies. While there was no significant difference between the two groups in using the recommended texts and handouts from Lecturers, only 61% of the first year students used the library books against the 96% of the final year students. Only 1% of the first yearstudents used journal articles against 48% of the final yearstudents. However, there has been no significant difference between the first and final year students in using the websites, 77% of the first year students and 91% of the final year students used them. Nevertheless Callinan establsihed that, there was a considerable difference in their use of e-library. While 56.5% of the final year students used the e-library only 27% of the first year students used it. The reasons for not using the e-library revealed that 63% of the first year students and 30% of the final year students were unaware of it, 6% of the first year students and 4% of the final year students did not have a need to use it and 4% of the first year students and 9% of the final year students had difficulty in using it. Callinan recommends that the bibliographic instruction should meet the specific information needs of the first and final year students. Any such comparativeor longitudinal studies of information resource usage were not evident in Sri Lanka.

Factors affecting the use of information resources

Many previous researches have established the factors affecting the use of specific information resources by the students. *Ease of accessibility* was identified as a major factor affecting the use of information resources (Burton and Chadwick, 2000; Fidel and Green, 2004; Kim and Sin, 2007; Lee, Han and Joo, 2008; Liu and Yang, 2004 and Xie and Joo, 2009). It is also confirmed that, *ease of use* of the information resource is a deciding factor (Burton and Chadwick, 2000; Kim and Sin, 2007; Liu and Yang, 2004 and Xie and Joo, 2009). *Convenience* has been identified (Xie and Joo, 2009) as another factor, which affects the selection of information resources by the students. Research has also confirmed that students of some disciplines i.e. engineering, prefer channels that require the least effort (Kerins et al., 2004; Ercegovac, 2009 and Ward, 2001), and that they tend to rely heavily on informal information sources and consult one another within their own social spheres (Ellis and Haugan, 1997) in their information seeking process. However, more research will be necessary to pinpoint the specific factors.

Urquhart and Rowley (2007) made an attempt to augment the factors affecting the information seeking behaviour in their Information Behavior Model which illustrates eleven factors that can affect the student's information seeking behavior. They categorized these as micro (Individual) factors and macro (contextual or organizational) factors. Micro factors include information literacy, search strategies, support and training, pedagogy, academic's information behavior, and their discipline/curriculum. Macro factors, include the information resource design, availability and constraints to access, information and learning technology infrastructure, policies and funding, and organizational leadership and culture.

Objectives

The aim of this study was to identify the trends of the information-resource usage and to make a comparative analysis of the information resource usage across the second, third and fourth academic years. Four specific objectives were formulated to continue with the study:

1. To study the information resource usage trends of the agriculture undergraduates;
2. To compare the information resource usage trends of the second, third and fourth year students;
3. To identify the issues; and
4. To make recommendations for the improvement of information seeking practices of the agriculture undergraduates.

Methodology

The study used the survey method to gather data and questionnaires were used as the data collection instrument. There are several drawbacks of using this method, i.e. the response rate is generally low, there is no opportunity to correct misunderstandings or to offer help or clarification, and it is not possible to check incomplete responses. Despite these drawbacks the questionnaire method was used to gather data from the undergraduates, for several reasons; 1) numbers needed to be surveyed were fairly large; therefore using any other method would have not been cost effective, 2) prospective respondents were scattered over the faculty and the questionnaire was the most effective method of reaching them all at the same time with minimum delay and 3) the responses expected were simple and straightforward; therefore the probability of getting irrelevant responses was not a major issue.

An online survey instrument used by Head and Eisenberg (2009) was revised to suit the Sri Lankan context and to be administered as a printed questionnaire. This instrument was chosen mostly because, it was available open access, its content and construct validity has been established by Head and Eisenberg (2009 and 2010) and Cheunwattana et al. (2012) and a pilot survey conducted by the researcher in 2010 proved that it can be used in the Sri Lankan context with minor adaptations. The original survey instrument contained two components on; academic research and everyday life research, but as the respondents of the pilot study made negative remarks on the length and the time taken for completion, the everyday life research part was omitted from the research. Part I of the original instrument on academic research (Head and Eisenberg, 2009) was adapted with a few terminological changes, and six new questions were added to study the access to computers and training.

Sample

Following the Krejcie and Morgan Table (1970), 357 undergraduates were selected from all faculties for a university-wide survey and 68 students represented the 688 students in their second, third and fourth years of study in the Bachelor's Degree programmes offered by the Faculty of Agriculture. This sample was drawn in such a way to represent eight departments using the Stratified Random Sampling Method. First year stdents were disregraded based on the assumption that their information seeking behaviour is not mature enough to respond to a survey of this nature.

Survey Instrument

The survey instrument consisted of seven sections to gather data. Section one and two gathered data on the biographic details of the respondents and the types of assignments they receive. Section three gathered data on the types and frequency of using different information resources, criteria used to evaluate the resources, and people they consulted for help with their evaluation of information resources. Section four and five gathered data on research practices, and the use of productivity tools, while, Section six gathered data on the difficulties encountered in various information-related research tasks. Section seven surveyed the access to computers and training they received in using the library and Internet. This paper is based on part of the findings of section 3.

Twenty Questions obtained straight forward answers from a given list as well as Likert type answers of seven choices (Almost Always, Often, Sometimes, Rarely, Never, Do Not Know and No Experience). In presenting the findings of the questions that produced Likert type responses, i.e. the types of resources used often, the response categories "Almost Always" and "Often" were conflated in to a new category of "Often". For analysis and interpretation throughout this paper, only the "often" category was used unless otherwise specified. In order to complement the findings faculty website and annual reports as well as the Senior Assistant Librarian in charge of the faculty library and some faculty members were consulted. To analyse and present the findings graphically MS Excel was used.

Limitations of the Research

Due to the use of questionnaire method to gather data, it was not possible to check incomplete responses or clear any doubts for the respondents. Since the responses are personal judgments of the students, and the findings are mostly based on the responses, the reliability of the findings depends on the accuracy of the revelations largely. Nevertheless, the findings can be generalized to the total student body as the sample is representative and the student cohorts are mostly homogenous.

The findings are of a quantitative nature and it was not possible to delve deeper in to their responses to obtain a qualitative perspective due to time constraints. Therefore, further research is recommended to provide insights in to the qualitative aspects of the information seeking and research practices of the agriculture undergraduates.

Findings

The response rates were 92%, 100% and 100%,from the second, third and fourth year students respectively, and the overall response rate was 97%. Of the total respondents, the majority (66%) were in the age group of 24-26 years and 30% were over 26 years while 49% were male and 51% were female. The majority (55%) had a Grade Point Average (GPA) of 3.0 – 3.5 .

The respondents were given a list of information resources classified broadly as printed, digital, and human, to mark according to the frequency of usage, following the classification of Head and Eisenberg (2009, 2010). Cumulative usage of the respondents, indicates that the first five most often used resources are the Search Engines (96%), Wikipedia (73%), Classmates (66%), Lecturers (64%) and Recommended Readings (58%). The highest usage is indicated in digital resources (Search Engines and Wikipedia), more than any other type, followed by human resources (Classmates and Lecturers) and printed resources (Recommended Reading). However, Digital Resources available through the library, Library Collection, Personal Collections and the Librarians, are the least used resources.

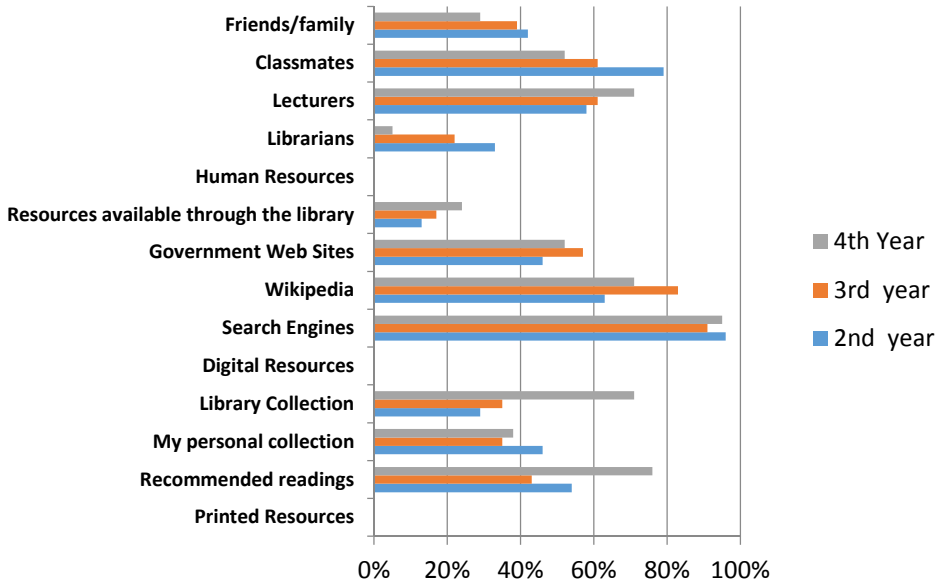

Figure 1: Information Resources usage of agriculture undergraduates

Year-wise trend of resource usage (Figure 1) indicates that, the respondents in their second academic year use Search Engines, Classmates, Wikipedia, Lecturers, Recommended Readings, and Government Websites in that order of usage. The first five preferences indicate that, they use two printed resources, three digital resources and two human resources often. The respondents in their third academic year use the same resources but with a different order of preference; Search Engines, Wikipedia, Classmates, Lecturers, Government Websites, and Recommended Readings. These include one printed resource, three digital resources, and two human resources. The respondents in their fourth academic year also use the same resources but in a different order of preference; Search Engines, Recommended Readings, Wikipedia, Library Collection, Lecturers, and Government Websites. Their preference for Classmates has been replaced by the Library Collection. These include two printed resource, three digital resources, and one human resource. Their preferences remain more or less the same across the years and the Search Engines are the most preferred by the respondents irrespective of their year of study. The following sections will provide detailed analyses of resource usage according to the year of study of the respondents

Use of Printed Resources

Usage of printed resources, according to the year of study is illustrated in Figure 2. Of the respondents in their second year, most (54%) often use Recommended Readings while 46% often use their Personal Collection and the least number of respondents (29%) use the Library Collection. Of the third year respondents, the majority (43%) often use RR while an equal percentage (35%) often use the Personal Collection and Library Collection. Of the respondents in the fourth year, 76% use Recommended Readings, but the order of preferences has changed with regard to the other two types of printed resources. Library Collection is often used by 71% while PC is used by 38%.

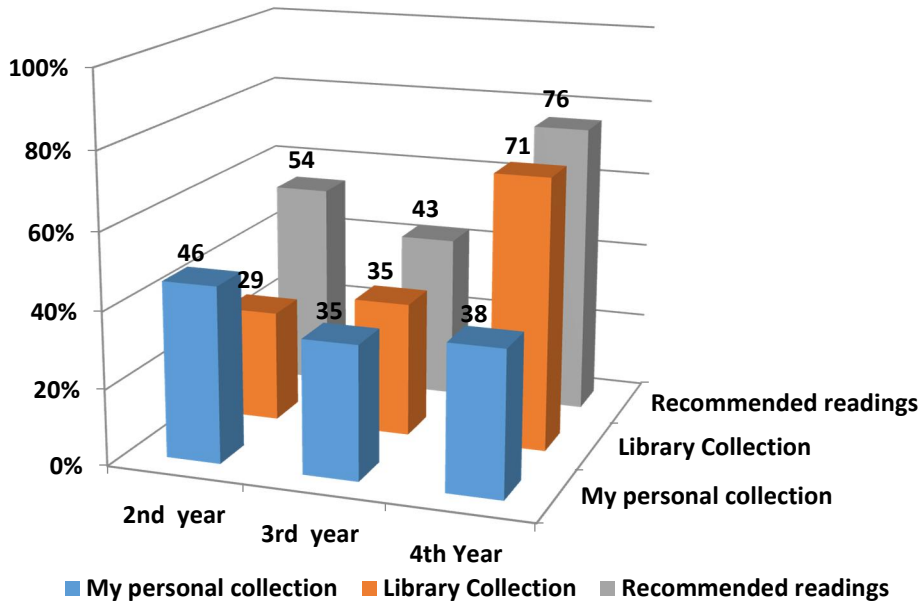

Figure 2: Usage of Printed Resources

These findings illustrate that the Recommended Readings are the most often used resources by the respondents in all academic years, but the second preference changes according to the year of study. Second preference of those in their second year is their Personal Collection (46%) while those in their third year equally use their Personal Collections and Library Collection (35%), but those in their fourth year of study use Library Collection to a significant extent (71%). The third preference of the second year respondents is Library Collection (29%). Among those in their fourth year of study, this is Personal

Collection (38%) but the usage is considerably lower than the usage of other two types of printed resources.

The trend of using printed resources across the years indicate that half of the respondents use Recommended Readings but this has reduced by 11% among those in their third year of study. However, those in their fourth year of study, use Recommended Readings 33% more, than those in the third year do. The usage of Library Collection depicts an increase of 6% among those in their third year of study than the respondents in their second year and a sharp increase by a further 36% among the respondents in the fourth year of study. Use of Personal Collection has dropped by 11% among those in the third year but has increased by 3% among the respondents in their fourth year of study. These trends indicate that, with the advancement of their year of study their use of printed resources generally increase, and that they tend to move more towards the Recommended Readings and the Library Collection from their Personal Collections, indicating an independent selection of quality information resources. However, the respondents in their third academic year depict a comparatively low use of printed resources than the other two groups.

Use of Digital Resources

Usage of digital resources, according to the year of study is illustrated in Figure 3. Of the respondents in their second year, most (96%) often use Search Engines while 63% often use Wikipedia followed by Government Websites 46%) and e-resources available through the library website (13%). The respondents in their third year of study also depicts the same pattern with the Search Engines as the most often used resource (91%) followed by Wikipedia (83%), Government Websites (57%) and e-resources available through the library website e-resources available through the library website (17%). Those in their fourth year of study too illustrate the same pattern with the majority (95%) often using Search Engines, followed by Wikipedia (71%), Government Websites (52%) and e-resources available through the library website (24%).

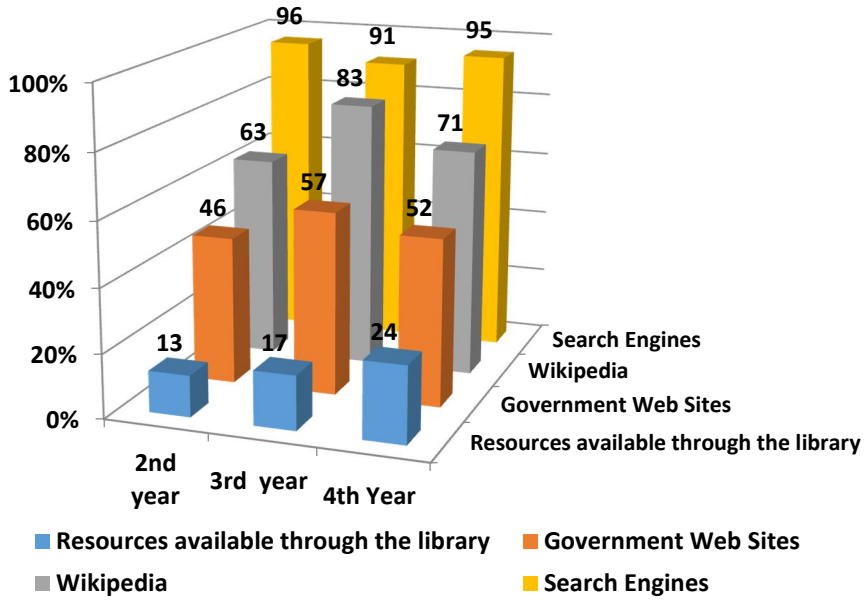

Figure 3: Usage of Digital Resources

As Figure 3 illustrates, usage of digital resources indicate a similar pattern in all academic years. The Search Engines are the most often used resources by the respondents, followed by Wikipedia. However, those in their third year indicate a higher usage of Wikipedia than the other two groups. The third often used resource is Government Websites and similar to Wikipedia, those in their third year of study use Government Websites a little more than those in their second and fourth academic years. The least used resource is the e-resources available through the library website, but with the advancement of their years of study, a minor increase in the usage is portrayed.

The trend of using digital resources across the years indicate that the use of Search Engines starts at 96% in the second year, reduced by 5% among the third years and again increases by 4% among the respondents in their fourth year. Usage of Wikipedia starts at 63% among the second year respondents and increases by 20% among the respondents in their third year of study, but drops by 12% among the fourth years. Government Websites depict an increase from 46% among those who are in their second year of study to 57% among those who are in the third year and 5% drop among the fourth year respondents, but the use of e-resources available through the library website

increases across the academic years but only at an insignificant level. These trends indicate that, all respondents use Search Engines and Wikipedia more than the other two types of digital resources and thee- resources available through the library website are the least used. It is not evident that with the advancement of their year of study their move away from these general resources to the more scholarly resources provided by the library. However, those in their third year of study depict a lower usage of Search Engines and a higher usage of Wikipedia and Government Websites than the other two groups.

Use of Human resources

Use of human resources, according to the year of study, is illustrated in Figure 4. Of the respondents in their second year of study, most often used (79%) resource is their Classmates followed by their Lecturers (58%), Friends and Family (42%) and Librarians (33%). Of the respondents in their third year of study, Classmates and Lecturers are often used equally by 61%, followed by Friends and Family ((39%) and Librarians (22%). Those in their fourth year of study, most often used human resource is the Lecturers (71%), followed by Classmates (52%), Friends and Family (29) and Librarians (5%). Among the respondents in their second and third years, the human resource usage pattern is the same but among the fourth year respondents, Lecturers have become the most often used resource while the Classmates are the second often used resource without any change in their frequency of usage of Friends and Family and Librarians.

The findings illustrate that there is little uniformity in the use of human resources. Classmates are the most often used resources by the respondents in their second academic year, but it drops by 18% among the third year respondents and by 9% among those in their fourth year of study. Use of Lecturers increases by 3% and 10% among the third and fourth year respondents respectively. The usage of both Friends and Family, and the Librarians illustrates a similar pattern of reduction among the second to fourth year of study.

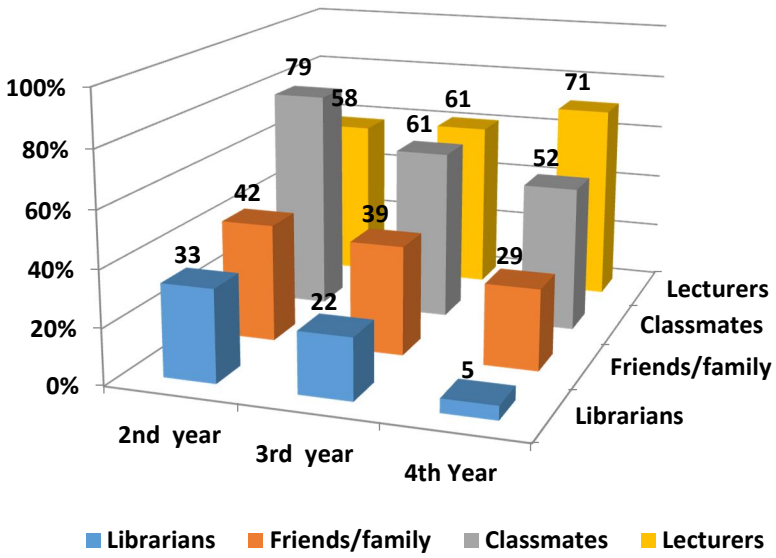

Figure 4: Usage of Human Resources

The trend of using human resources across the years indicates that, with the advancement of the academic year they move from comfort zones (Classmates and Friends and Family) to sources that are more scholarly (Lecturers). For instance, the use of Friends and Family by the students decreases from second to fourth academic year. Use of Classmates also decreases but only negligibly, from 79% in the second year to 52% in the fourth year. The use of scholarly sources i.e. Lecturers increases from 58% in the second year to 71% among the fourth years. Usage of Librarians drastically drops from 33% among the second year respondents to 5% among the fourth year respondents. This trend indicates that they move away from the Librarians further when they advance in their academic year.

Discussion

The study established that, the respondents, as a whole, prefer Search Engines, Wikipedia and their Classmates to the other types of resources. Although in this study it was not checked why they prefer these resources to others, there are other research, which throws some light on the trends. Adio and Arinola (2012); Cheunwattana et al. (2012); and Rhoades et al (2007) concluded in their studies, that the students perceive Internet as the most effective method

of obtaining information because it is easy to understand, important, beneficial, and accurate. Ajiboye and Tella (2007) also confirmed that the students rated Internet as the most crucial source of information. They further established that the level of study significantly influence the information seeking behaviour**.** However, among the Sri Lankan survey respondents, irrespective of their year of study the usage of Search Engines was in the highest level (96%, 91% and 96% among the second, third and fourth year students). Wikipedia is the second preferred resource irrespective of the year of study by the respondents (63%, 83% and 73% by the students in their second, third and fourth years of study). Colon-Aguirre and Fleming May (2012) as well as Head and Eisenberg (2009, 2010) established that Wikipedia's unrestricted approach to presenting information, its user friendly design, its coverage, currency, convenience, comprehensibility, its inclusion of hyperlinked citations, and its free availability makes it popular among the undergraduates.

The current study established that the agriculture students use Classmates as their third preference (79%, 61% and 52% respectively in second, third and fourth academic years). Head and Eisenberg (2010) established in their study that, 65% of the respondents used Classmates as an information resource whileCheunwattanaet.al. (2012) also proved that 43% of their subject, used Classmates as an information resource. While further in- depth study is required to confirm why such a higher percentage turn to their Classmates for support with their research, in the Sri Lankan context, Lee et al. (2012) confirmed that their respondents use friends and colleagues as an information resource because of ease of accessibility, efficiency, and understanding.

Nearly three fourths of the respondents (64%) use their Lecturers as an information resource with the highest percentage in the fourth year. Head and Eisenberg (2009) identified several reasons for the students' turning to their Lecturers for information; because they graded the assignments of the students, they are available through e-mail whenever needed, they provided guidelines and reviewed drafts provided by the students, engage in individual sessions with the students and have in-class discussions. In other words, Lecturers had closer interactions with the students with regard to their course related research; therefore, they turn towards the Lecturers for information.

According to the findings, only those in their fourth academic year use Library Collection significantly, conforming to the global trends. Lee et al. (2012) have proved in their study that the most significant influence is the year of study of the students, on the use of information resources. They comment that, higher the student go up the academic ladder, they need more academic information, to address the various challenges. At a higher academic level, students are given more assignments and projects and theses for which they require more information. While Callinan (2005) also proved that the final year students borrow more library books than the first year students do. Colon-Aguirre and Fleming-May (2012), provided several reasons for the low use of the library by their survey subjects; inconvenience, lack of time, confusion over how to begin the search for resources, having problems with navigating the mechanisms to locate materials, and getting intimidated by seeking assistance from the staff in addition to library anxiety. Adio and Arinola (2012), established that the unwillingness of the library staff to assist them, inadequacy of library opening hours, lack of relevant books, periodicals and other information resources in library affects the use of the library by the students. The Sri Lankan survey respondents also have commented that the library opening hours are not convenient for them, therefore they find it difficult to use the library as much as they would like to do.

The findings proved that the use of the e- resources provided through the library website is very low. Further inquiry in to the e-resources provided by the library indicated that during the period in which the survey was carried out, CABI in CD/ROM format, AGORA and JSTOR were available for the students. Several factors could be identified for this low use of trend. CABI requires frequent change of CDs to search. It was further ascertained that, CABI CDs are not lent out and the students have to use it only when the library is opened. Access to JSTOR is provided only through IP authentication which denotes that they have to use the database within the university premises, but access to AGORA is provided through a password. The survey revealed that the library only has two computers for the use of students and the Faculty Computer Centre has 75. It was proved that during the survey period, the students per computer ratio was 8:1. While 88% accessed the computers through the Faculty Computer Centre, 62% used their own laptops/personal

computers. The relevance of JSTOR despite its availability is not confirmed and the use of AGORA requires a considerable amount of training. Findings of the survey established that 52% of the respondents have not received any training in using the Internet or library and the findings further established that 57% of the respondents would like the library to offer such training. Further research is required to substantiate whether the relevance and not-so-friendly interface of AGORA has any effect on their usage.

Poor use of e-resources provided through the library is further explained by Callinan (2005), that the use of subject specific e-resources provided by library are underused both by the first and final year students due to lack of awareness. Rempel and Cossarini (2013, 52) echoes that "The Internet, for better and for worst, has fundamentally changed the way that students and academics carry out their research. The abundance of information available on the Web has made accessing information more convenient than ever; however, this quantity of conveniently-available information has made students less inclined to seek out the quality information available in their institutions' libraries." Waldman (2003), presenting a different viewpoint, comments that, the use of library e-resources depend on their general library usage. According to him, more an undergraduate uses the library, more familiar the students become with the resources it offers, but if they use the library only to study, the usage of e-resources will be low. As Waldman comments, a further obstacle to use the library's e-resources, is that they are not as straight forward Internet where a single keyword search will provide thousands of hits. Waldman (2003) as well as Tella (2009) also make certain that self-efficacy has a positive relationship with the library e-resource usage. Self-efficacy is part of an individual's belief in one's capability to organize and execute the courses of action required to manage prospective situations (Bandura, 1997, p. 2).

Use of Librarians as an information resource was at a minimal level with a reduction of the dependence on Librarians towards the fourth year of study. Whitmire (2001b) commented that, asking the Librarians for help was the only library experience that declined and never increased during the three years of the study of her survey subjects. Whitmire (2001a) speculates that, the negative experiences with the library staff, lack of knowledge of what services can the library staff provide, preference of getting assistance from peers,

library anxiety, and poor quality of reference interviews, can be reasons for low use of Librarians. Head and Eisenberg (2009a), also determined that the use of Librarians by their respondents was low and they comment that there was a strong "student-librarian disconnect" occurring among students in their sample and that, their results suggest that students do use libraries, but not librarian-related services. Cheunwattana et al. (2012), echoed this trend and confirmed that Librarians are not approached as a key information resource by the undergraduates in the six universities they surveyed in Thailand. Callinan (2005), ascertained that the students were more likely to ask their peers for assistance in using the library and its resources rather than ask library staff. However, unlike the Sri Lankan subjects, final year students surveyed by Callinan were more likely to ask assistance of the Librarians than the first year students. More research is needed to establish the specific reasons why the Sri Lankan students drift away from the Librarians with their advancement in the year of study.

Analysis of the training received by the respondents in using the library / Internet indicated that only 48% have received training. The study ascertained that, at the enrolment, an orientation is offered only for the students of two B.Sc. programmes but for the students enrolling for the third B.Sc. programme any training is not provided. In the second year training is offered for the students of one B.Sc. programme but not for the other two. This training covers Introduction to Information resources, selection of relevant quality text books, reference materials, periodicals and how to locate them by using the in-house data bases, Online Public Access catalogue etc. It was established that for the students in their third year of study, training is provided on ad hoc basis, only for certain students who are going to start their research projects in certain subject specialties. For those who are in their fourth year of study, some training sessions in how to do a literature survey by using abstracting and indexing services, print and online journals, and compiling reference lists etc are conducted. In response to the question of the topics they would like the library to cover, the students have mentioned several topics (Figure 5). It illustrates that the second year students expect more on using the library while the fourth year students expect more on finding information and writing their thesis. These findings indicate that there is no training offered in an organized comprehensive manner, which can cause the overuse of certain information

resources ignoring the others even if they are scholarly and more relevant to their academic work.

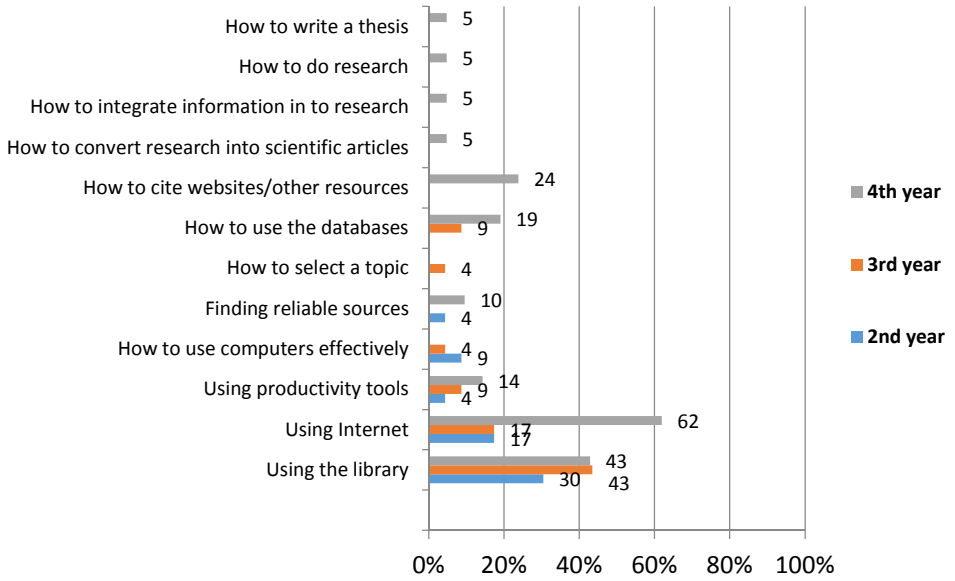

Figure 5: Topics need to be covered in library training programmes

Conclusions

The study ascertained that, of the Printed Resources, there is an increase in the use of Recommended Readings and Library Collection, but a decrease in the use of Personal collection across the academic years. Of the Digital Resources, no difference was witnessed in the use of Search Engines across the years of study. However, an increase in the use of Wikipedia and Government Websites in the third year and a decrease in the fourth year than that of the second year were observed. A gradual increase in the use of e-resources available through the library was identified but the overall usage is poor. Of the Human Resources, an increase in the use of Lecturers across the academic years and a decrease in the use of Classmates, Friends and Family and the Librarians were observed.

Based on these findings, it is recommended to increase the use of Library Collection among all groups but especially among the second and third year students and to drastically increase the use of e-resources provide through the

library across all academic years. It is also recommended to educate the students about the difference in quality between the information found through the Search Engines and Wikipedia and e-resources provided through the library. It is also recommended to educate the students with the use of search interfaces of the e-resources provided through the library and to address the issue of low access to computers and databases by the students. It is recommended to encourage the students to contact there lecturers more with a special emphasis on second and third year students and to encourage the use of the Librarians across all years, but paying special attention to the fourth year students.

In order to increase the usage of above mentioned information resources, implementing a properly planned Information Literacy programme from the first to fourth years is vital. Implementation of the Common Information Literacy Curriculum (Wijetunge 2012), consisting of four levels which covers the library skills to research skills with the advancement of the academic year to suit the changing information needs of the students, which has already been approved by the university, without a further delay is strongly recommended.
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References

Adio, G., & Arinola, A. A. (2012). Information needs and information seeking behaviour of agricultural students at LAUTECH, Ogbomoso, *Pacific North Wetsern Library Association Quarterly*, 76 (3). Retrieved from www.pnla.org

Ajiboye, J.O., & Tella, A. (2007). University undergraduate students' information seeking behaviour: implications for quality in higher education in Africa. *Turkish Online Journal of Educational Technology*, 6(40), 40-52.

Bandura, A. (1997). Self -efficacy: the exercise of control. New York: Freeman.

Barsky, E., Berndt, A., Greenwood, A., & Paterson, C. (2011). What information sources do engineering students use to address authentic socio-technical problems? findings and conclusions. Retrieved from http://www.sefi.be/wp-content/papers2011/ASEE/270.pdf

Burton, V.T., & Chadwick, S.A. (2000). Investigating the practices of student researchers: patterns of use and criteria for use of internet and library resources. *Computers and Composition*, 17(3), 309-328.

Callinan, J.E. (2005). Information-seeking behaviour of undergraduate biology students: a comparative analysis of first year and final year students in University College Dublin. *Library Review*, 54 (2), 86-99.

Cheunwattana, A. et al. (2012). Survey of information literacy practices of college students in Thailand. Retrieved from http://www.albertkb.nl/mediapool/60/608240/data/IMILS_Final_Report_Rev.pdf

Colon-Aguirre, M., & Fleming-May, R.A. (2012). You just type in what you are looking for: undergraduates' use of library resources vs. Wikipedia. *Journal of Academic Librarianship*, 38 (6), 391–399.

Dharmarathne, W.G.A. (2008). Electronic information resources (EIR): do the undergraduates reap the benefits of information communication technology? Retrieved from http://www.dlib.pdn.ac.lk/archive/bitstream/1/4393/1/W.G.A.Dharmarathne.pdf

Dilrukshi, W.P.T. (2014). Utilization of online journals by undergraduates: a case study based on the Faculty of Agriculture, Rajarata University of Sri Lanka. NILIS Symposium 2014, National Institute of Library and Information Sciences, University of Colombo, Sri Lanka, 271-272

Ellis, D., & Haugan, M. (1997). Modelling the information seeking patterns of engineers and research scientists in an industrial environment. *Journal of Documentation*, 53 (4), 384-403.

Ercegovac, Z. (2009). What engineering sophomores know and would like to know about engineering informaton sources and access, Isues in Science and Technology Librarianship. Retrieved from http://www.istl.org/09-spring/refereed3.htm.

Fidel, R., & Green, M. (2004). The many faces of accessibility: engineers' perfception of information sources. *Information Processing and Management*, 40 (3), 563-581.

Hadimani, M. B., & Rajgoli, I. U. (2010). Assessing information literacy competency among undergraduate students of College of Agriculture, Raichur: a case study, DESIDOC. *Journal of Library and Infmation Technology*, 30 (2), 70-78

Head, A., & Eisenberg, M. (2009). Lessons learned: how college students seek information in the digital age. Retrieved from http://projectinfolit.org/pdfs/PIL_Fall2009_finalv_YR1_12_2009v2.pdf

Head, A., & Eisenberg, M. (2010).Truth be told: how college students evaluate and use information in the digital age. Retrieved from http://projectinfolit.org/pdfs/PIL_Fall2010_Survey_FullReport1.pdf

Ileperuma, S., & Mudannayake, I. (2008). Information gathering behaviour of undergraduate and postgraduate students in the Faculties of Agriculture and Science at University of Peradeniya. Proceedings of the Peradeniya University Research Sessions, University of Peradeniya, Peradeniya, 10, 118.

Kakai, M., Ikoja-Odongo, R., & Kigongo-Bukenya, I.M.N. (2004). A study of the infromation seeking behaviour of undergraduate students of Makerere University, Uganda. *World Libraries*, 14 (1). Retrieved from http://www.worlib.org/vol14no1/kakai-v14n1.shtml

Kerins, G., Madden, R., & Fulton, C. (2004). Information seeking and the students studying for professional careers: the case of Engineering and Law students in Ireland. *Information Research*, 10 (1). Retrieved from www.informationr.net/ir/10-1/paper208.html

Kim, K., & Sin, S.J. (2007). Perceptions and selection of information sources by undergraduate students: effects of avoidant style, confidence and personal control in problem solving. *The Journal of Academic Librarianship,* 33 (6), 655-665.

Krejcie, R.V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychologica Measurement*, 30, 607-610.

Lee, J., Han, S., & Joo, S. (2008.) The analysis of the information users' needs and information seeking behavior in the field of science and technology. *Journal of the Korean Society for Information Management*, 25 (2), 127-141.

Lee, J.Y., Paik, W., & Joo, S. (2012). Information resource selection of undergraduate students in academic search tasks. *Information Research*, 17 (1). Retrieved from http://informationr.net/ir/17-1/paper511.html

Liu, Z., & Yang, Z.Y. (2004). Factors influencing distance-education graduate students use of information sources. *The Journal of Academic Librarianship*, 30 (1), 24-35.

Peiris, N.D., & Peiris, B.L. (2012).Use of electronic resources by postgraduate students: a case study. *Journal of the University Librarians' Association,* 16 (1), 46-69.

Perera, P. (2005). A study on the pattern of usage of library facilities at the Medical library, University of Peradeniya. *Journal of the University Librarians' Association*, 9, 41-61. Retrieved from http://www.sljol.info/ index.php/JULA/article/view/312/355

Punchihewa, C., & Jayasuriya, S. (2008). Use of online journals and databases: a case study based on University of Moratuwa. *Journal of the University Librarians' Association*, 12, 124-149. Retrieved from http://www.sljol.info/index.php/JULA/article/view/332/375

Rhoades, E.B., Irani,T., Telg, R., & Myers, B. E. (2008). Internet as an information source: attitudes and usage of students enrolled in a College of Agriculture course. *Journal of Agricultural Ediucation*, 49 (2), 108-117.

Samarasinghe, K. (2012). Dean's message, Faculty of Agriculture. Retrieved from http://www.pdn.ac.lk/agri/about/deans_message.html

Seneviratne, T., & Wickramasinghe, V. (2010). Information Literacy Skills of Undergraduates of University of Moratuwa. *Journal of the Univeristy Librarians Association*, 14 (1), 15-30. Retrieved from http://www.sljol.info/index.php/JULA/article/view/2685/2162

Sharma, Y. (2000). Information literacy in Indian Agricultural Universities: a study of Punjab Agricultural University. *Library Herald*, 48 (4), 345-357.

Tella, A. (2009). Correlates of undergraduates' information-seeking behaviour, *College and research Libraries*, 16 (1), 1-19.

Urquhart, C., & Rowley, J. (2007). Understanding student information behavior in relation to electronic information services: lessons from longitudinal monitoring and evaluation, Part 2. *Journal of the American Society for Information Science and Technology*, 58 (8), 1188-1197.

Waldman, M. (2003). Freshman's use of library electronic resources and self-efficay. *Information Research*, 8 (2). Retrieved from http://www.informationr.net/ir/8-2/paper150.html

Ward, M. (2001). A survey of engineers in their information world. *Journal of Librarianship and Infromation Science*, 33 (4), 168-176.

Weiner, S.A., Stephens, G., and Nour, A.Y.M. (2011). Information-Seeking Behaviors of First-Semester Veterinary Students: A Preliminary Report. *Journal of Veterinary Medical Education*, 38 (1), 21-32.

Whitmire, E. (2001a). The relationship between undergraduate background characteristics and college experiences and their academic library use. *College and Research libraries*, 62 (6), 528-540.

Whitmire, E. (2001b). A longitudinal study of undergraduates' academic library experiences. *The Journal of Academic Librarianship*, 37 (5), 379-385.

Wijetunge, P. (2012). Information Literacy Common Curriculum for undergraduates of 1st to 4th years of the Sri Lankan public universities. Retrieved from http://www.dlib.pdn.ac.lk/archive/bitstream/123456789/3584/1/Information%20Literacy%20Common%20Curriculum%20for%20undergraduates.pdf

Xie, I., and Joo, S. (2009). Selection of information sources: types of tasks, accessibility, and familiarity of sources. Proceedings of the American Society for Information Science and Technology.