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Use and non-use of electronic information sources by undergraduates at the University of the West Indies
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Title: Use and non-use of electronic information sources by undergraduates at the University of the West Indies

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Use and non-use of EIS by students at the University of the West Indies

Abstract

Purpose- To gather some empirical, baseline information on the use/non-use of selected, subscribed electronic information services (EIS) among full time Year Three undergraduates at The St. Augustine Campus of the University of the West Indies, in Trinidad and Tobago and in the geographic area of the Caribbean.

Design/methodology/approach- The study's research design involved a mixed quantitative and qualitative approach: a user survey comprising self-administered, semi-structured questionnaires and face-to-face semi-structured interviews.

Findings- Over half of the total respondents had not accessed any of the EIS. Lack of awareness of the services' availability was revealed as the over-riding factor for non-use. It concludes that undergraduates make infrequent or no use at all of certain EIS largely from lack of awareness.

Research limitations/implications-Due to lack of an available sampling frame and data protection regulations, the study was unable to obtain a probabilistic sample.

Practical Implications- The study's findings are consistent with the results from information behaviour studies in the United Kingdom that underline the critical role of academic staff in promoting the use of subscribed EIS.

Originality/value- There exists a number of studies on the use of EIS, but this is the first of its kind within the English-speaking Caribbean.

Article type: Research paper

Keywords: User study; Electronic information services; Information behaviour; Undergraduate students; Higher education; Trinidad and Tobago; West Indies.

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Introduction

Presently, most Higher Education (HE) libraries all over the world make available a wide variety of electronic information services (EIS) for use by the undergraduates, postgraduates, researchers and staff in their respective institutions. These EIS form an integral part of the reference services provided by the HE libraries. Examples of these sources include:

- Abstracting and indexing (A&I) databases. Many A&I databases are now available for searching on the Web via a subscription to an intermediary service (such as Cambridge Science Abstracts or Dialog as well as those described later) which provides a search facility for these bibliographic records i.e. the information retrieved is a description of the full-text of a published article.

- Scholarly e-journals. Since the late 1990s, many publishers of scholarly journals have made their offerings available on the Web as well as (or sometimes instead of) in print. In these cases, an individual library will acquire a licence to 'use' the e-journal for a period. That library therefore does not actually own a copy of the e-journal. During the 2000s many publishers offered 'bulk' deals to libraries whereby online access to the full text of articles in a range of titles from one publisher was available for a fixed annual fee. E-journals are also accessible from organisations, sometimes called aggregators, which bring together titles from a number of publishers and allow for searching across all.

- Newspapers and magazines. More popular information sources such as newspapers and magazines can be of great relevance in HE studies. The availability of these EIS on the Web is growing.

- 'Quality-assured' websites. Many HE establishments provide links for their users to websites which known 'experts' in particular subject areas have provided a 'stamp of quality'.

- E-books. The availability of books in electronic form which may, or may not, also be available in print is also growing and access to such EIS on the Web is often provided by HE establishments.

Following the emergence of EIS, there has been an international research focus on the study of information behaviour (IB) of users in HE. However, the vast majority of

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these studies have taken place in the developed English-speaking world such as in Australia, Canada, the UK or the US. This paper reports the results of research, carried out at the St. Augustine campus of The University of the West Indies (The UWI) in Trinidad, in April 2004. The primary purpose of the research was to gather previously lacking empirical, baseline, discipline-based data on the use and non-use of selected, subscribed EIS by full-time third-year undergraduates at the university. In particular the following questions were posed:

- Which services are used/not used?
- Which services are preferred/not preferred?
- What influences the use of these services?
- What contributes towards the non-use of these services?

The broad objectives of the study were therefore to:

- undertake a literature review on EIS in HE with emphasis on online subscribed EIS and undergraduates' behaviour towards them;
- design, pilot and conduct a user survey to identify current use and non-use and to better understand users' perceptions regarding the listed services;
- present the survey's findings;
- evaluate the survey's findings;
- propose any necessary recommendations.

This survey of use and non-use of EIS within the English-speaking Caribbean is therefore unique and complements work undertaken in other parts of the world.

Related research studies: a brief overview

Tenopir (2003) provides an overview of 'reliable' research studies concerning the use and users of EIS during 1995-2003. The major studies analysed in depth by Tenopir were:

- SuperJournal – a study undertaken in 1995 in the UK into how academic users interact with e-journals.
- Digital Library Federation/Council on Library and Information Resources (DLF/CLIR) – a study for DLF/CLIR was carried out in 2001/2 by Outsell Inc. in the US of 3,234 faculty and students in seven subject disciplines on their use of, and preference for, print and electronic sources of information.
- Highwire/eJUSt – Stanford University's e-journal user study of 2000-2 investigated the use of e-journals (including those published by HighWire) by graduate students, faculty members and clinicians.

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- Pew Internet and American Life – two studies carried out between 2001 and 2002 that looked at use of the Internet by 2,000 college students and their views of their college library.

- OCLC/Harris and Urban Libraries Council – in 2002, these studies compared library and Internet use by students and the public respectively.

- OhioLINK – the Ohio Library and Information Network, a consortium of college and university libraries in the US state of Ohio which makes e-journals available to its 500,000 students has kept a transaction log of this use since 1998.

- Tenopir and King studies – this research, ongoing since 1977, comprises a series of surveys of 16,000 scientists, engineers, medical professionals and social scientists in university and non-university environments measuring the reading and authorship patterns.

- LibQual+ – this study, conducted between 2000 and 2003 by the Association of Research Libraries, in conjunction with Texas A&M University, in the US involved over 70,000 students, faculty and staff. The study investigated the respondents' views on physical and electronic/digital libraries.

- JSTOR – the providers of this digital archive of scholarly journals surveyed 4,000 users of the service in 2000 to discover usage patterns and preferences.

The SuperJournal project, covered by Tenopir, was one of 70 projects funded in the UK by the Joint Information Systems Committee (JISC) as part of the Electronic Libraries (eLib) Programme (1995-2000). eLib (2001) was notably instrumental in making staff within the UK's HE libraries aware of the impact that EIS could have on teaching and learning strategies. JISC itself receives its monies from the UK post-16 and HE funding councils and provides strategic guidance, advice and opportunities in the use of information and communications technologies (ICT) to support teaching, learning, research and administration. Other relevant JISC-funded research in the UK includes:

- Formative Evaluation of the Distributed National Electronic Resource (EDNER) – carried out by the Centre for Research in Library and Information Management (CERLIM) between 2001 and 2004.

- The JISC Monitoring and Evaluation Framework (1999-2004) involving the JISC Usage Surveys: Trends in EIS (JUSTEIS) and JISC User Behaviour in Information Seeking Longitudinal Evaluation of EIS (JUBILEE) projects. These projects carried out over five years, involved investigation of the information-seeking behaviour of large numbers of students in different subject areas in different institutions.

A further study, still in progress at the time of writing, is the 'Sense-Making in the Information Confluence' which runs from 2003-2005. Funded by the Institute of Museum and Library Studies, the Ohio State University and OCLC, this is a multi-stage, multi-disciplinary user-oriented investigation.

Inevitably there exists no single typical user of EIS and most studies identified a difference between the information-seeking behaviour of undergraduates and others. An investigation of the findings of these studies revealed certain patterns and themes with respect to the use of EIS by undergraduate students:

a) *Convenience.* Tenopir (2003) reported that convenience remains the single most important factor in student information use. This was corroborated in the EDNER study (2004) which found that students are frequently satisfied with any resource coming close to meeting expressed needs.

b) *Internet preference.* When seeking information, many studies (e.g. EDNER, JUSTEIS, DLF/CLIR, OCLC and Pew) reported that undergraduates head first for Internet search engines, such as Google.

c) *Continued print reliance.* Some studies (e.g. DLF/CLIR, JUSTEIS) found that undergraduates, especially those in the Humanities, still rely heavily on books and printed materials.

d) *EIS embedding: disciplinary differences.* EDNER (2004) uncovered apparent disciplinary differences in the way EIS are being integrated into teaching and learning within different disciplines.

e) *Use and non-use.* The main influence affecting the use, or non-use, of EIS by undergraduates was identified by EDNER and JUSTEIS as academic staff. If academic staff members suggest that particular EIS be used, then undergraduate students will use them, otherwise not. Another influence was habit. If students had had a previous 'good experience' with an EIS then they were likely to use that EIS again. The final influences affecting use identified by JUBILEE were the enablers and the barriers. These included:

- greater awareness of student needs by university library staff;
- greater liaison between library staff and faculty;
- wider familiarity and EIS use among teaching staff;
- integration of EIS into the curriculum;
- widespread implementation of strategies/policies regarding ICT and use of EIS.

The literature search undertaken as part of this research revealed many large and small scale studies, each with varying foci, investigating general and specific EIS use. In general though it appeared that few studies have investigated the non-use of EIS and also, few studies have looked at the use of EIS by undergraduate students.

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Background to EIS at The University of the West Indies

The UWI originated at Mona in Jamaica in 1948 as a College under the University of London to serve the British Caribbean territories. In 1962, The UWI was granted its own Charter under the Great Seal of the British Realm and became authorised to grant its own degrees.

Formerly The Imperial College of Tropical Agriculture, The UWI campus at St. Augustine, Trinidad and Tobago, was established in 1960 and is one of the three main UWI campuses. In its strategic plan for 2002-7, the Principal of The UWI, St. Augustine identified seven priority areas for the development of the university - one of which was the need for an appropriate ICT platform. The argument was made that knowledge management (creation, dissemination, transfer, evaluation) is a major function of any university in the twenty-first century and that the role of the library is key and that access to appropriate ICT facilities is very important[1] .

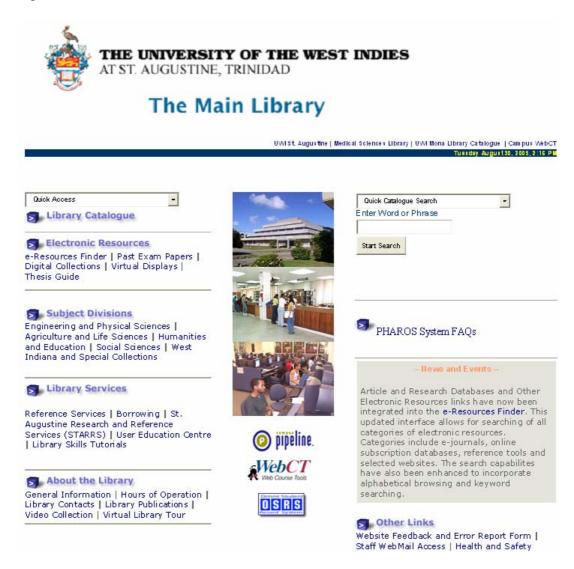The UWI, St Augustine comprises five faculties:

- Engineering
- Humanities and Education
- Medical Sciences
- Science and Agriculture
- Social Sciences.

During the 2003/4 academic year (the period during which this study was undertaken) there were 10,168 registered students at The UWI, St. Augustine of which 7,234 were undergraduates. The introduction of the Evening University (http://sta.uwi.edu/evening/about.htm) during the 2004/5 academic year has expanded the range of undergraduate and postgraduate studies available and the current total student registrations is 11,523, of which 8,996 are undergraduates. A number of general online information systems for students, faculty and administrative staff have been introduced including:

- The Online Student Record System – to provide access to grades and official transcripts (https://osrs.uwi.tt/);
- Campus Pipeline – to provide access to e-mail, course homepages, course schedules, class registration and grades (http://cpipeline32.sta.uwi.edu/cp/home/loginf);
- WebCT – a Virtual Learning Environment to provide access to course notes and class assignments (http://courses.sta.uwi.edu).

At The UWI, St. Augustine various online subscribed databases and services are supplied via institutional licences that involve cross-campus arrangements with the other regional UWI campuses at Barbados and Jamaica. All The UWI's registered users are thus entitled to free searches. At the St. Augustine campus, remote user authentication is under investigation but at the time of this study registered users only had onsite campus access to these services. The Main Library, St. Augustine, provides this access via its three computer laboratories. The default homepage on all the library's computers is the library's website, as shown in Figure 1.

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Figure 1- Homepage -http://www.mainlib.uwi.tt/- of the Main Library, The UWI, St. Augustine:

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Electronic resources were introduced to The UWI, St. Augustine in 2000. An indication of the range of services currently offered is shown in Figure 2 which shows part of the alphabetic listing of EIS available.

Figure 2- Some of the EIS available from the Main Library, The UWI, St. Augustine

The EIS are also accessible by subject area from The UWI's Main Library website. Figure 3 shows some of the links to bibliographic and full-text databases in the field of engineering for The UWI students.

Figure 3   Some of the EIS for The UWI engineering students at http://www.mainlib.uwi.tt/Find/eresources/eng/eng.cfm

The following is a list of Engineering resources in the 'Electronic Indexes' category.

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
| Y | Z |

You can limit the resources listed by entering a keyword search here

Show My Resources

COMPENDEX - EiVILLAGE 2
A comprehensive interdisciplinary bibliographic engineering database which contains records and references of international engineering sources including journal, conference, and trade publications. Coverage is from 1884 to present.

CRC ENGnetBASE -EiVILLAGE2
Gives you online access to some of the world's leading engineering handbooks. Currently, more than 140 titles are available.

EUROPEAN PATENT OFFICE - EiVILLAGE2
This database enables you to search the patent applications published by the European Patent Office over the last 24 months (for EP patents older than 24 months you should select the worldwide database option). Only the bibliographic data of EP patent documents can be searched and displayed.

INSPEC - EBSCO HOST
A bibliographic database that provides abstracts and indexing to the world's scientific and technical literature. It provides coverage to journals, conference proceedings as well as numerous books, dissertations and reports. It is produced by the IEE (Institution of Electrical Engineers).

MIT's DIGITAL REPOSITORY
Provides free access to MIT research. Including preprints, technical reports, working papers, conference papers, images, and more.

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The study

UWI, St. Augustine. The study was conducted in March/April 2004 and involved students in three selected disciplines.

Methodology

The study's research design was exploratory. Current evaluation strategies/approaches for networked-based resources and services are still in developmental stages and Bertot (2004) suggests that there is no one approach that fits all. There are however some initiatives aimed at producing standardised measurements. For instance, the COUNTER (Counting Online Usage of Networked Electronic Resources) initiative is an approach by EIS publishers and vendors to adopt a standard code of practice in reporting usage statistics (http://www.projectcounter.org).

To meet the study's aim and to answer its four research questions, a mixed quantitative and qualitative approach using semi-structured questionnaires and semi-structured interviews was adopted. The quantitative approach, with a positivist perspective, measured and counted responses to questions such as How long? How often? Which? When? The qualitative approach with an interpretive perspective attempted to provide an understanding of Why? from the users' viewpoints. As reported in the literature, many studies had also adopted this mixed approach.

Population and sampling

In 2003/4, undergraduate students at the research site at The UWI, St. Augustine, made up the majority (71.2%; 7,234/10,168) of the total registered student population. The study's targeted population comprised third-year undergraduates since it was felt that this group need to use information sources for their final year research assignments and could be assumed to have had exposure, through time, to the various EIS.

Originally, the study had intended to use a representative sample via a stratified random sample based on status, gender and discipline. However, lack of an available sampling frame and data protection regulations denied a probabilistic sample. Instead,

purposive sampling was adopted which, as stated by Crawford (2000) is where "the survey population is chosen from prior knowledge, using intuition and judgement". The three most popular undergraduate disciplines at The UWI, St. Augustine were selected, namely Engineering, Humanities/Education and Social Sciences. These disciplines also reflected a broad disciplinary view and different perspectives of interest to the study.

A sample size of 200 for the quantitative survey was selected as being both reasonable and manageable given the time and money constraints. That size represented 14% of the total (1,428) of third-year full-time undergraduate students in the three selected subject areas. It was decided that only six interviews, two from each subject discipline, would be undertaken for the qualitative study. This was obviously very small, but was in line with what was believed by Denscombe (1998) to be "quite in keeping with the nature of qualitative data."

In effect, the sample sizes chosen were considered sufficient for capturing the indicative and suggestive data required to fulfil the study's aims.

Instruments for data collection

Two instruments were developed for collecting data:

- Self-administered, semi-structured questionnaires (closed and open questions). These were used to capture both quantitative and qualitative data and represented a relatively inexpensive means of obtaining the required information from a fairly large number of people in a short time.

- Face to face semi-structured interviews. These were used to collect additional data on respondents' opinions and perspectives as well as to supplement the questionnaires' simplicity, impersonality and brevity.

During the literature search, a paper presented at the Victoria Association of Library Automation in Australia had been retrieved which reported on a study of EIS usage at Monash University in Melbourne (2001). Permission was sought, and granted, to use some of the questions developed for that study. Questionnaire construction attempted to focus on one issue per question. Help was provided by three student library

assistants to ensure that the questions were suitable and comprehensible and preliminary drafts were tested on colleagues within the library.

Selection of subscribed EIS

The EIS chosen for evaluation comprised:

a) *Ebscohost* (http://www.ebsco.com). The US information provider EBSCO makes a range of services available. At The UWI, St. Augustine this includes services (such as Academic Search Premier and Business Source Premier) providing access to the full text of contents of journals, A&I services (in agriculture, biology, electrical engineering and psychology), reports from the US National Technical Information Service, and regional newspapers and magazines from around the world.

b) *Emerald Fulltext* (http://www.emeraldinsight.com*).* This service provides access to the full text of articles in the 150 journals in management disciplines such as marketing, human resources management, library and information management, training and education as well as in economics and engineering published in the UK by Emerald.

c) *Engineering Village 2* (http://www.engineeringvillage2.org). Engineering Village 2 (EI2), from Elsevier Engineering Index, provides access to engineering data sources (such as the A&I database COMPENDEX, patents from the European Patent Office and the United States Patent and Trademark office, engineering handbooks and industry standards) through one interface.

d) *LexisNexis* (http://www.lexisnexis.com). LexisNexis is a full-text information service that has a searchable online directory of more than 36,000 sources and provides access to thousands of worldwide newspapers, magazines, trade journals, industry newsletters, tax and accounting information, financial data, authoritative legal information, public records, legislative records, data on companies and their executives.

e) *OCLC FirstSearch* (http://www.oclcfirstsearch.org). OCLC's FirstSearch service provides seamless access to a range of bibliographic databases including catalogues of books held in libraries across the world, A&I databases in biology, education, modern languages and the full text of some e-journals.

f) *ProQuest* (http://www.il.proquest.com). The ProQuest® online information service provides access to databases with thousands of current periodicals and newspapers, many updated daily and containing the full text of articles such as ABI/Inform, Academic Research Library and the US National Newspaper Abstracts.

Pilot

The questionnaire was piloted with 15 volunteer second-year students taking a course on Qualitative Methods in Sociological Research. The questionnaires were distributed to the volunteers and completed at the end of a lecture class. The research purpose and completion instructions were included on the questionnaires and no further written or verbal instructions were provided. The pilot study provided useful information concerning completion time (five to six minutes) and content ambiguities. The pilot also revealed that instructions for some filter questions posed certain problems. A revised version of the questionnaire was developed and further tested with three members of the library staff. The final questionnaire had 21 questions of which 19 were closed and two were open.

Test interviews were conducted on four volunteer second-year students. This procedure enabled the researcher to gain self-confidence through practice, test recording equipment and overcome other unanticipated difficulties.

Research site

Institutional approval was obtained from the University Registrar at The UWI, St. Augustine. As with studies such as JUBILEE and JUSTEIS, securing access to the relevant students involved the goodwill of academic staff. This involved a layered process of negotiation needing advanced planning, constant communication and 'lucky' timing. The access procedures involved:

- Contacting support staff to ascertain timetables, class sizes.
- Requesting (via e-mail/phone) assistance from the Deans of the faculties. Some Deans copied letters of co-operation to Heads of Departments.
- Follow up requests to Heads of Departments.
- Contacting individual lecturers.

Out of nine departments approached, eight responded: Engineering (five), Social Sciences (two); Liberal Arts (one). Ultimately access to the sample of students required for the study was constrained by:

- assignment of specific classes by Heads of Departments;
- time;
- limited human resources.

Data collection

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As experienced by JUSTEIS, term dates and examination timetables created some difficulties in attempts to contact students. It transpired that there was only a small time frame to administer the questionnaire as students would be busy revising for examinations and completing projects and assignments. During a 17-day period, 300 questionnaires were distributed via several routes: some in lectures, some in engineering laboratory classes and a few in the library.

The questionnaires offered a book token draw for any respondent who volunteered for a more in-depth interview. The first names to appear under the different categories were selected and contacted for interview. The face-to-face interviews lasted for 15-20 minutes. Permission was sought from interviewees to tape their responses. Several volunteers (in both use and non-use categories) requested a mini-tutorial after the interview to learn more about the selected EIS and expressed surprise when information relevant to their discipline or topic was retrieved.

Ethical considerations

All the questionnaires were anonymous and so views of respondents were safeguarded. Voluntary co-operation with informed consent was obtained via covering statements on confidentiality, anonymity and data protection along with research purposes and survey outcomes.

With the interviews, anonymity could not be guaranteed but interviewees were assured that responses would be confidential. All questionnaires, tape recordings and transcripts were properly secured in a locked drawer.

Data analysis

After the final questionnaire design, a coding frame was developed using Microsoft Excel for each variable. Before analysis, returned questionnaires were sight-edited for missing data. Checks were also made to ensure that instructions for routing questions were followed. Quantitative data were analysed using descriptive statistics from the Statistical Package for the Social Sciences (SPSS), release 11.0 for Windows 2000. Inferential statistics were not employed due to the study's non-probability sampling technique. Three sets of frequencies were analysed:

- frequency of response to individual questions;
- frequency of multiple responses;
- frequency of responses from individual disciplines.

Results were presented using figures and tables generated by the Excel software. The responses to the open questions were transcribed using Microsoft Word. They were then arranged according to discipline and grouped according to occurrence of words or ideas.

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Recorded interviews from the six interviewees were also transcribed using Word with wide margins and double spacing for coding and comments. The interviews resulted in some 50 pages of transcribed data. Individual transcripts were read closely several times and ideas and thoughts were noted by the researcher. Word was also employed to note recurring words or terms. This analysis resulted in a number of identified categories/issues based on recurring patterns. Interpreted data were arranged via a scheme of categories with useful quotes.

Results

Questionnaires were completed by 200 respondents. The breakdown by subject studied is shown in Table 1.

Table 1- Background data on sample

Engineering (85)	
Female	21
Male	64
Humanities/Education (35)	
Female	25
Male	10
Social Sciences (80)	
Female	71
Male	9
Total	200

When asked about their use of the Internet, most (68.5 %; 137/200) claimed to use it on a daily basis. Nineteen (just less than 10%) reported that they rarely or never used the Internet. The most frequent Internet users were those studying Engineering (73/85) followed by those studying Social Sciences (45/80). In response to a question about their perceived Internet search skills, the majority (72.5%; 145/200) of respondents expressed high confidence (i.e. they replied that they almost never, or only occasionally, needed help). Of the respondents claiming they almost never needed help, 44 were from Engineering and 38 were from Social Sciences.

Which of the selected EIS are used/not used?

The study's use indicators for this research question comprised the following:

a) *Access.* Just under half of the 200 respondents (46%; 92) reported that they had accessed at least one of the six specified EIS during the first two semesters. Of these, 51 were from Social Sciences, 32 were from Engineering and 9 were from Humanities/Education. The remainder (54%; 108) reported that they had accessed none of the services. Table 2 shows the services used by the 92 respondents. The most used Engineering source was EI2 (25/32) and

the most used Social Sciences source was Ebscohost (45/51). From Table 2 it could also be seen that the most used service was Ebscohost and the least used service was LexisNexis. Table 2 also shows that some users from all disciplines had used Ebscohost, Emerald and OCLC.

Table 2- EIS accessed

EIS	Engineering	Humanities/Education	Social Sciences	Total
Ebscohost	7	4	45	56
EI2	25	0	0	25
Emerald Library	4	1	15	20
LexisNexis	1	0	2	3
OCLC FirstSearch	12	4	9	25
ProQuest	0	0	20	20
Responses (149/257)	49	9	91	149

Most (57.6%; 53/92) of those who said that they used these EIS had only used one. Over a quarter (27.2%; 25/92) reported using two EIS and 16.2 % (14/92) reported accessing three or more.

b) *Searching/finding useful information*. 51.1% (46) of the 90 undergraduates who used any one of the listed EIS stated that they found useful information some of the time. Only one user reported that no useful information had been found and one user did not respond to this question. Students from the Social Sciences (43/51) expressed most satisfaction with their search results (most of the time (16), some of the time (27). Their responses contrasted with the Engineering students whose respective responses were 8/32 and 16/32.

c) *Download/prints*. Respondents were asked when they had last downloaded or printed a document from any of the listed EIS. Just under a quarter (22.5%; 20 out of 89 responses) reported that they had never downloaded or printed a document; of these 11 were Engineering students. 57.3% (51/89) of the respondents to the question indicated that they had downloaded or printed documents either within the last month or the last week.

The overall responses showed that Social Science students made most use of the selected EIS. However, the majority (108) of the 200 students had not used any of the EIS and of those 108 non-users, 50% (54) were Engineers.

Which of the EIS are preferred/non-preferred?

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Table 3 shows the breakdown of the responses from 63 of the EIS users who responded to the question concerning which EIS they would use again. It can be seen that Ebscohost and Engineering Village 2 are the two main services that users would be happy to use again.

Table 3- EIS preferred by discipline

	Ebscohost	EI2	Emerald Library	LexisNexis	OCLC FirstSearch	ProQuest	None
Engineering	2	17	0	1	2	0	0
Humanities/Education	2	0	0	0	0	0	1
Social Sciences	29	0	1	0	2	4	2
Total	33	17	1	1	4	4	3
Total Respondents	63						
Non Respondents	29						

Only 18 of the 92 respondents answered the question about which EIS they would not use again and the three identified services were Ebscohost (6), Emerald (4) and ProQuest (8). Analysis of the qualitative data (open responses and interview data) indicated that the chief reasons for non-repeat use were difficulties related to a perceived lack of useful information and the unfriendliness of the search interface.

What influences use of the EIS?

In response to a question on the frequency of use of the library's website, 73.6% (67/91) of the EIS users stated that they accessed it on a daily (24) or weekly (43) basis. The following question asked all respondents whether they were aware that they could access the specified EIS via the website. The overall response showed that 83.7% (77/92) who stated that they had used the selected EIS were aware of this. Of these the breakdown of awareness by subject was:

Engineering: 93.75% (30/32)

Humanities/Education: 77.78% (7/9)

Social Sciences: 78.4% (40/51).

Lecturers' recommendations were the most likely reasons for any students to use a particular EIS. Complementary interview data from non-users revealed that they had not been directed to any service by any lecturers so had not used any of the six selected EIS. The second major influence on use of EIS was found to be recommendations from friends and other students. Students also reported learning how to use the EIS was mainly achieved by trial and error through self-teaching.

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What contributes towards the non-use of the EIS?
Non-users of the selected EIS were asked why they had not used any of the services and a choice of options was given. Some non-users ticked more than one box and 64.1% (75/117) indicated that lack of awareness of the availability of the EIS was the primary reason for non-use. The responses to an earlier question asking all respondents if they were aware they could access the EIS via the library's website indicated the majority (92.6%; 100/108) of non-EIS users were not aware of this. Nearly half (47.2 %; 51/108) of all non-users also rarely or never accessed the library's website. Interview data indicated that complete non-users perceived that the only purpose of the library's website was to enable access to the OPAC and to past examination papers.

Open responses from non-users resulted in comments such as:
Need a better designed website
You have to know what you are really looking for
Another reason for non-use noted by the interviewees was that they relied mainly on books, lectures and the Web; with comments such as:
I buy the books – the recommended texts – and then the lectures are quite sufficient for me.
I usually use Google – so I guess it's more convenient as I say to use Google.
Other results
Some users of the EIS had high expectations regarding the amount of information they were able to retrieve on their topic. Others recognised the importance of search skills when using the EIS and also that the EIS were not as "straight forward as Google". Users of EIS also experienced various other problems:
- Access: slow connections; insufficient computers
- Barriers in knowing which EIS to use: inadequate subject coverage; lack of online/printed help; lack of library staff help
- Confused concepts: comparing the listed EIS to the search engine model

Conclusions and recommendations
As expected, reported access of the EIS varied according to obvious disciplinary differences or individual preferences. Interestingly, students from all three disciplines reported accessing Ebscohost, Emerald and OCLC FirstSearch. Overall reported access indicated that among the three disciplines Social Sciences students had made most use of the EIS. This finding was consistent with other research (such as

JUSTEIS, 2004). For instance, Rowley et al. (2002) noted that EIS are less embedded in some disciplines (English) than others (Health and Business) and Jones et al. (2004) in the EDNER study found that greater use of EIS within the Social Sciences was linked to how these EIS are being integrated into teaching and learning programmes. The reported low use of the given EIS among Humanities/Education users was based on a small sample, but was nevertheless consistent with findings from other studies such as JUSTEIS and research by Dilevko and Gottlieb (2002). Overall, the results indicated sub-optimal use of the EIS as well as a troublingly high level of complete non-use. Again this finding was consistent with that found with UK students within the JUSTEIS study.

The majority of the users of the EIS expressed high confidence in their searching skills and so noted that they almost never needed any help. The concept of the 'satisfied but inept' searcher of a computer-based system was first noted by Plutchak in 1989 and has caused concern for many librarians ever since. In 2005, Plutchak noted that the "challenge now is to work tirelessly to educate and enlighten those we can and to establish the partnerships that will steadily enhance our reputations as those who can best be counted on to blaze a trail through the information wilderness."

The study fulfilled its fundamental aim of producing previously lacking empirical baseline data regarding the use and non-use of the given EIS at The UWI, St. Augustine. As with other similar studies, it was found that the mixed quantitative and qualitative approach offered valuable insights into users and their perceptions. However there were limitations in this study:

- the lack of an available sampling frame meant that the used sampling approach denied generalisations.

- the non-responses from several departments in the Faculty of Humanities/Education and limited time resulted in low numbers attached to that discipline and thus data comparisons across the three disciplines were tentative.

- the timing of the survey was not optimal (just prior to the examination period).

- the novice interviewing skills by the researcher might not have captured all the salient information.

Use and non-use of EIS by students at the University of the West Indies

Based on issues raised in the reviewed literature and in the study's findings the following recommendations have been suggested for further research and library action within The UWI, St. Augustine:

- more research is necessary within the local (The UWI) and regional (English-speaking Caribbean) area.
- the use of the EIS should be regularly monitored (see also Banwell et al.2004).
- training sessions should be held for those EIS shown to be underutilised.
- a marketing strategy should be developed to raise awareness among academic staff as well as students of the EIS' availability and potential usefulness.
- more collaboration between library and academic staff to promote use of the EIS.

Finally, it is felt that the study has made some important contributions as it has:

- filled a local/regional research gap
- added to the body of international literature investigating undergraduate EIS use and non-use in HE
- provided some measure of empirical baseline data on the IB of undergraduate students.

Note. This paper is based on a dissertation carried out by Rabia Ramlogan as part of her Master's degree in Information and Library Studies at the University of Wales, Aberystwyth.

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