

# **IRIS Project Report**

**Information Skills Provision: Mapping the information skills of Cambridge undergraduates and induction / training provision across the University**



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**arcadia@cambridge: rethinking the role of the research library in a digital age**

# Executive Summary

## Background

This report summarises the results of the IRIS Project: an eleven-week research exercise undertaken as part of the Arcadia Fellowship Programme. The IRIS Project aimed to map both the provision of library inductions and training for students at the University, and the information skills amongst undergraduate students.

The report focuses on the data received from an online student survey and a series of focus groups. In total, 10.07% of the current student population at Cambridge University participated in the study. The provision of library inductions and training was largely measured through an e-mail questionnaire sent to 75 libraries within the University. Students participating in the study represented a wide range of subjects, colleges, ages and experiences. Key findings from their responses are briefly outlined below:

## Key Findings

### *Role of Reading Lists and Course Notes*

For undergraduates reading lists and course notes received from teaching staff were identified as the dominant source of information about books, journals and other course materials. The size and detail of lists and notes varied between subjects; however, the use of reading lists by students continued throughout the 1<sup>st</sup> to 3<sup>rd</sup> years of study.

### *Varying Awareness of Electronic Resources*

Many students expressed low levels of awareness of electronic resources, combined with a high use of Google. Whilst some resources were registered as being frequently used, these were not necessarily regarded as being the most effective or comprehensive for that subject. Students from some subjects showed a much higher use of course-specific resources.

### *Importance of Relevant Information*

Undergraduate students expressed a preference for relevant information, as compared with finding information quickly or knowing who wrote / researched it. This reflects the time-pressure associated with information seeking, and provides a distinctly different profile to that registered by postgraduate students.

### *High Participation in Introduction Sessions*

The take-up of basic library inductions and tours by undergraduate students was high. This may be due to the fact that some tours are mandatory; however, the study also highlighted that many introductions were provided by peers or teaching staff.

### *Low Level of Communication with Library Staff*

Very few undergraduate students identified librarians as a source of either recommendations, or of help in searching for information. However, they regarded the library as a key source of information material, and as a useful study space.

### *Communication with Students*

The majority of libraries have not undertaken changes to communicate with students by new media, such as social networking or microblogging. Students expressed a desire to access basic information about the physical library, as well as electronic resources, online.

# **Contents**

Project Background	3
Research Methodologies	5
Finding Information	7
Use of Electronic Resources	11
Prioritising Issues When Information Seeking	16
Evaluating Information Search Results	17
Asking for Help	19
Using Information	22
Inductions and Training Provision	26
Information Skills: Beyond Basic Induction	31
Communicating with Students	32
Suggestions for Further Study	33
References	34

# **About the Author**

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# **Project Background**

The IRIS Project is a research exercise forming part of the Arcadia Fellowship Programme. From January – March 2009 data was collected from current students, supervisors and library staff at Cambridge University, with the aim of ‘mapping’ library inductions for, and information skills amongst, undergraduate students.

The purpose of this report is to summarise the findings of the IRIS Project. It is hoped that this will be especially useful for staff involved in the delivery of library inductions and information skills training, and may provide some ideas for future provision. The report will also consider the wider context of information skills within the Higher Education sector and draws on contemporary studies from other institutions.

It should be noted that data was collected for the IRIS Project over a ten week time frame and accordingly the results provide a ‘snapshot’ of experiences, rather than a detailed longitudinal study. Data was collected from postgraduate and clinical students, as well as those on undergraduate courses, to provide a point of comparison and contrast.

## **Information Skills**

The skills associated with finding, evaluating and effectively using information have been the topic of extensive research and debate. However, the terminology used to describe these skills varies between countries and, within the UK, between institutions. The Big Blue project on Information Skills for Students (2002) noted that the term “information skills” and the more-widespread concept of “information literacy” can, in many instances be used interchangeably.

Perhaps the most effective way to envisage information skills is as core competencies which enable students to ‘achieve’ information literacy, defined by CILIP as: “knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner”. Many of these competencies (e.g. the effective use of resources and critical analysis of material) are featured on the University of Cambridge Skills Portal as “research skills” for undergraduate students. Within this report, these competencies are referred to as “information skills” for consistency.

Whilst the IRIS Project focuses on current undergraduate students, the majority of whom are on three or four year degree courses, information skills do not begin or end at University. The transferability of these skills has been linked to graduate employability (e.g. Lloyd and Williamson, 2008) and the University of Cambridge Careers Service features information about using these aptitudes in preparing for job applications (Cambridge Careers Guide, 2009). Similarly, new undergraduate students are likely to have had a range of different experiences with information skills in the secondary and FE sectors , for example, Williams and Wavel (2006) consider the role of teachers in information literacy development) or in the workplace.

Measuring a student’s information skills, or assessing their level of information literacy, is a difficult process; however, as Town (2003) notes “measurement is key to the usefulness of information literacy as a concept”. Walsh (2009) considers a range of methods employed by librarians within the UK and USA, including quizzes, analysis of bibliographies and self-assessment tools. It is noted that self-assessment can be particularly problematic as students will often “think they know more” than they practically do (Maughan, 2001), and the implications of this are discussed within this report. Quizzes and tests can also present difficulties in assessing the varied information skills

called for by a range of different disciplines, and this is reflected in the design of the IRIS Student Survey which is the primary data collection tool for the IRIS project.

## **Library Inductions**

Library inductions and information sessions can take many different forms, such as guided tours, welcome talks, online and printed guides, quizzes, virtual tours and presentations, with varying degrees of interactivity. As Wolf (2007) notes “approaches to induction must take local institutional contexts into consideration”. This is particularly true for the University of Cambridge which has a tripartite library system, consisting of college, department and faculty libraries and the central University Library (UL). Accordingly, all undergraduate students will have the opportunity to utilise several different facilities, each with their own approach to collection management, the arrangement of material and access policies.

This project sought to consider the provision of inductions and training at college libraries, the UL and dependent libraries, and in department and faculty libraries likely to be used by undergraduate students. Accordingly, 75 libraries were asked to contribute to the IRIS Project via a staff questionnaire. The project did not consider the work of highly specialist libraries (e.g. Fitzwilliam Museum Department of Coins and Medals) or other libraries associated with the University but not with a department, faculty or college, though it is accepted that these facilities may be of great value to some students.

It should be noted that the information environment has undergone extensive changes over the past ten years and continues to develop. Accordingly, library inductions needs to be dynamic; whilst the content and formats discussed in this report are reflective of current practice, it is very likely that the needs of students and the resources of libraries will necessitate further changes in the near future.

## **Current Undergraduate Students**

The CIBER Report (2008) notes that “a bewildering array of titles has attached itself to a younger generation that is growing up in an internet-dominated, media-rich culture” (2008). Of the 1019 undergraduate participants in the IRIS online survey, 1000 (98.1%) registered their age as between 16-31. Accordingly, these students fall into the “net generation”, defined by Don Tapscott (2009) as anyone born 1977-1997 inclusive. None of the participants was under 16 years old and therefore the survey population does not include representatives of the “Google generation”, defined by the CIBER Report as those born after 1993. Regardless of the name applied, these students are the researchers of today; this report seeks to identify their experiences to illustrate the current situation.

# Research Methodologies

The IRIS Project used three different tools to collect qualitative and quantitative data sets: a web-based survey, an e-mail questionnaire, and a series of focus group interviews.

## Online Survey

A web-based survey, created with a Survey Monkey ([www.surveymonkey.com](http://www.surveymonkey.com)) subscription, was used to collect data from students. The survey featured 13 questions on a range of issues including:

- Use and awareness of databases and search engines
- Sources of information
- Levels of satisfaction with information seeking
- Attendance at, and use of, library inductions and guides
- Who, if anyone, students would consult for help

Of these questions and sub-part questions (27 in total): only 10 **required** an answer. Accordingly, response numbers for questions will vary. The number of respondents is shown as (n) in the discussion of results. Where a direct comparison within a population is required, only respondents who answered all question parts will be included and this number is again shown as (n).

The use of an online survey allowed for extensive data collection within a restricted time period: a pilot version was pre-tested for five days whilst the modified survey was live for a three week period in total. This was deemed a suitable collection tool as the target population was known to have internet access (e.g. CARET Learning Landscape report). The subject matter of the questions was deemed not to be highly sensitive and no participants expressed concerns about the online survey format, which allowed for anonymous participation. All survey participants providing a valid Cambridge University e-mail identifier were entered into a prize draw, providing an incentive to complete the survey.

In total, 1812 survey responses were received. Of these, 15 were responses to the pilot survey, which were not included in data analysis but entered into the prize draw. A further 26 responses were removed as the participants either did not identify as current students or did not provide any answers beyond the demographic questions. Accordingly, 1771 responses were retained for data analysis.

Of these 1771 responses, 57.5% were from undergraduates (n=1019), 34.1% from postgraduates (n=604) and 8.4% from clinical students (n=148). From the undergraduate survey population, 34.5% were first year students (n=352), 33.5% were second year students (n=341), 26.6% were in the third year of their course (n=271), and 5.4% were in their fourth year or more. Responses were received from student members of all 31 colleges, and from undergraduate members of 29 colleges.

Based on a full-time student population for 2008-09 of 12,015 undergraduate students and 5563 postgraduate students (including clinical students), the IRIS Student Survey achieved an overall response rate of 10.07%. Postgraduates were over-represented within the survey responses: the response rate for postgraduate / clinical students was 13.51% compared to 8.48% for undergraduate students.

## **Questionnaire**

An e-mail questionnaire was used to gather information about the format and content of library guides and inductions and the communication tools used to promote these to students. Questionnaires featuring four multi-part questions, plus three comment boxes, were e-mailed to 75 libraries. Questionnaires were sent to the librarian or, where appropriate, other library staff member responsible for inductions and training. Reminder e-mails were sent to all participants, and all completed questionnaires returned within a two week period were entered into a prize draw. 60 completed forms were returned, representing an 80% response rate. These included 26 from college libraries, 30 from department and faculty libraries and 4 from the UL / dependent libraries.

## **Focus Groups**

To complement quantitative data collected via the online survey, a series of five focus groups was organised: three for undergraduate students and two for postgraduate students. All participants were self-selecting, and each had expressed an interest in participating via the online survey. Participants received details of the topics for discussion in advance of the group meetings. Each focus group lasted between 40 minutes and one hour, and the number of students involved ranged from 2 to 8. Discussions were sound recorded and fully transcribed with the consent of the participants. Free refreshments were provided throughout each focus group, and student participants received an Amazon gift voucher for their time. One further focus group was organised for postgraduate students and post-doctoral researchers who act as supervisors for undergraduate courses. Participants for this group were approached through personal contacts and did not receive a gift voucher or other incentive.

**All comments included in this report were received via the online student survey, e-mail questionnaire and accompanying information or in the focus group interviews.**

# Finding Information

Within the online survey, students were asked to consider how and where they found out about the information sources they use through the following question:

How do you find out about books, journal articles, reports or other sources of information relevant to your course?

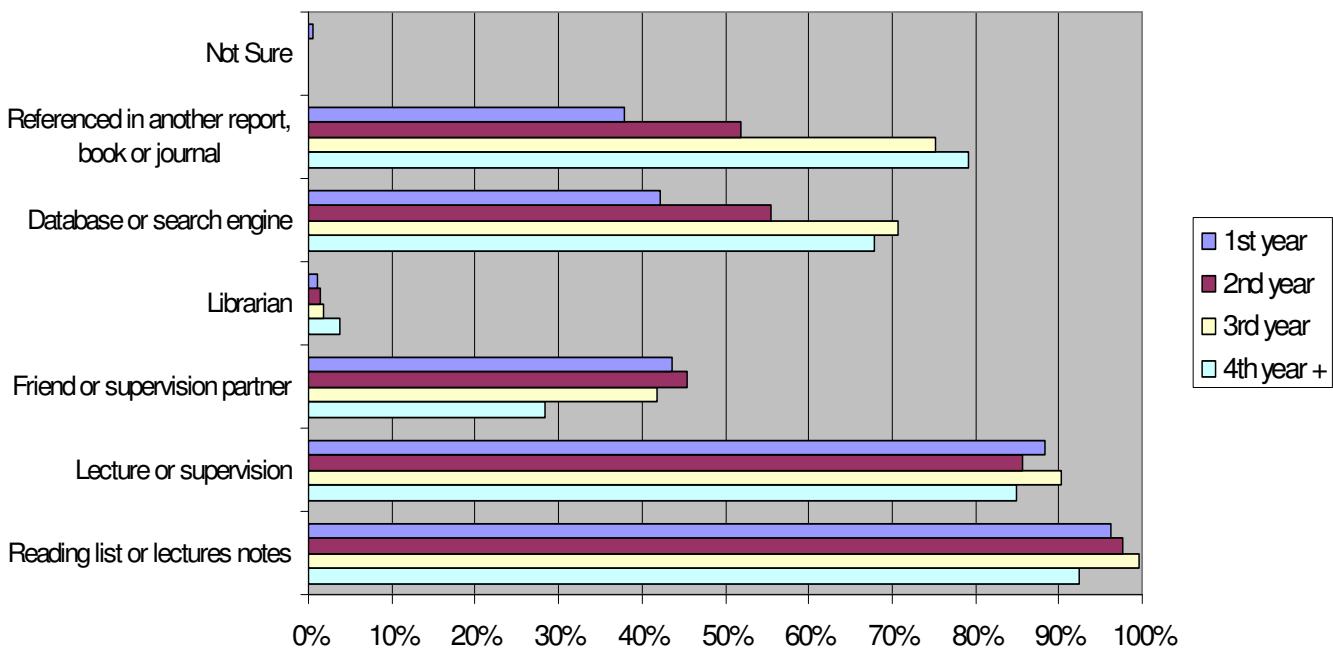
This was a multi-choice question, in which participants were asked to select **all** categories that applied to them. A free text response box also allowed participants to register other categories. 1005 undergraduate students responded to this question, all percentages are shown are worked from this (n=1005).

**Table 1: Finding Out About Information Sources, Undergraduate Responses by Category**

Category	Number of responses	Percentage
On a reading list or lecture notes	979	97.4%
Recommended in a lecture or supervision	882	87.8%
Recommended by a friend or supervision partner	431	42.9%
Recommended by a librarian	16	1.6%
Found on a database or search engine	559	55.6%
Referenced in another report, journal or book	550	54.7%
Not Sure	2	0.2%

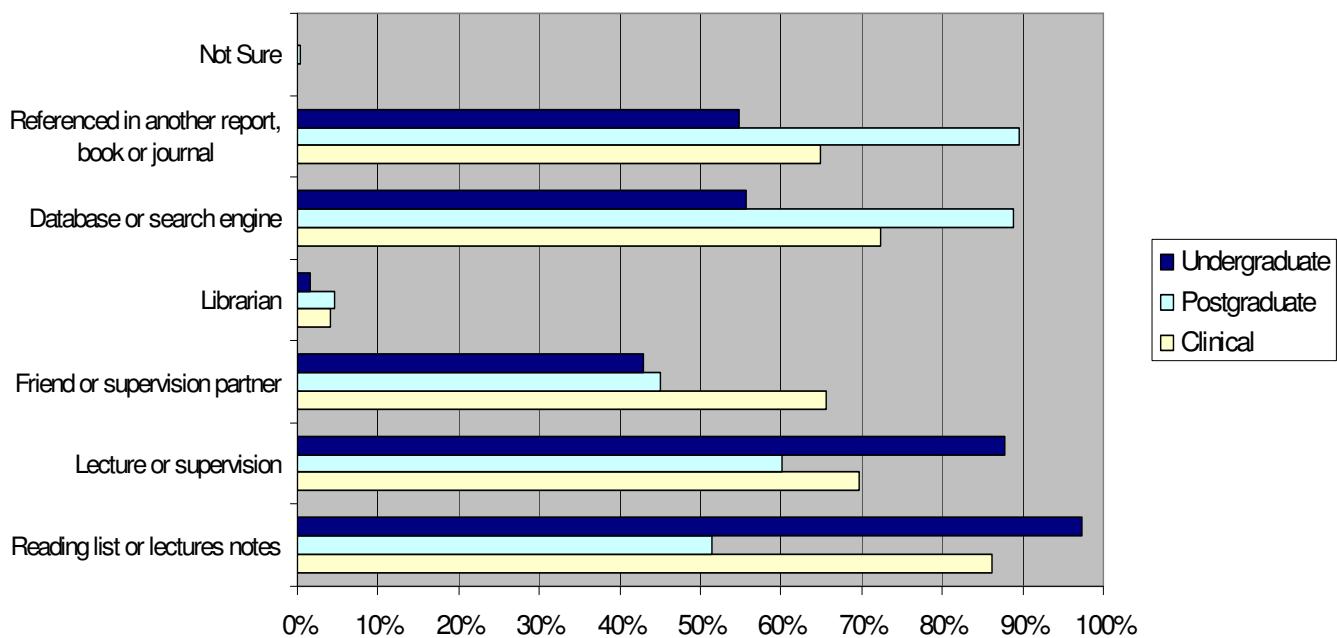
The percentage take-up of each category varied within the undergraduate population by year group, as shown below. However, the continued relevance of reading lists and the recommendations of lecturers and supervisors across year groups is notable:

**Fig.1: Finding Out About Information Sources, Undergraduate Responses by Year Group**



590 postgraduate students and 145 clinical students also responded to this question. A comparison with undergraduate participants is shown below.

**Fig. 2: Finding Out About Information Sources, Responses by Course Type**



The role of supervisors and lecturers in guiding students to information sources appears to be less developed for postgraduate students, and this was reflected in the comments of focus group participants:

*I mean I kind of get the feeling that my supervisor wants me to come to him with the research done and not ask him about where I can find it*

Postgraduate Student, International Relations

The high dependence on reading lists and lecture notes amongst undergraduate students was reflected in the responses of focus group participants. Students particularly commented about the amount of detail many reading lists and lecture notes included which reduced their need to search bibliographic databases or in some cases even the library catalogue.

*[My] supervisor e-mails us the books that she's...a list of the books she'd like us to read and the page numbers that are going to be relevant for that essay. So, and then you sort of have to do that, she notices if you haven't included it in your bibliography or you haven't got any material. So for that it was just being told exactly what to read.*

Undergraduate Student, Modern & Medieval Languages

*From the very beginning we've been given a kind of specific suggested readings for each lecture that we attend and then we get kind of general reading lists as well for the whole course. And quite often it tells you, we're given the kind of class marks for our faculty library so it makes it even easier to go and find them. Often kind of how many copies they hold and things which is really useful.*

Undergraduate Student, Education & Maths

*Some of our lecturers actually picked out the books for us and left them in the reception rather than in the library in the department so we don't have to go that far.*

Undergraduate Student, Natural Sciences

The detailed nature of reading lists and the in-depth course notes provided were largely viewed as very useful by focus group participants in helping them to locate relevant material quickly. The short eight-week terms create an intensive study load for undergraduate students, with essays, questions or other assignments often due in on a weekly basis and many students did not feel they had sufficient time to do an independent literature search.

*As long as we're doing the reading which the lecturer mentioned in their own lectures, or which is mentioned in the supervision question, these are the readings I include and beyond that we're not really expected to do any more reading*

Undergraduate Student, Economics

*I think in the first year Natural Sciences course there isn't enough time to read around the subject and it's good if the students have just read their lecture notes, which are quite comprehensive*

Supervisor, Materials Science & Metallurgy

The inclusion of a book, journal article or other source on a reading list was taken to be an indication of its validity and usefulness. This format was also used as a basis for wider searches:

*The reading lists and syllabi of similar courses at other universities provide a good resource of alternative course books.*

Undergraduate Student, Natural Sciences

Whilst several articles (e.g. Oblinger 2003) characterise Millennials (and therefore the majority of the current student population) as being increasingly drawn towards group work and co-operative study, the IRIS survey findings suggest that undergraduate students do not regard their friends or peer groups as their primary source of recommendations for course materials. Only 42.9% had received recommendations from friends or supervision partners, compared to 45.1% of postgraduate students and 65.5% of clinical students. This complements the findings of the CIBER report, which concluded that the idea that young people find their peers to be more credible than authority figures was "on balance...a myth" (CIBER, 2008).

However, several focus group participants mentioned that co-operative strategies had been adopted to ensure everyone could access key texts featured on reading lists, or updates relating to their subject of study. These comments focussed on sharing access to a recommended resource between friends, or within a peer group:

*I'll go and get the books out and then we'll sort of pass it along the line so we do the reading like that and then by the time that I've gone through them I can say "That ones not very useful on that, that one's really useful, this particular section is really good". So I think a lot of the time you're running off what other people say*

Undergraduate Student, Modern & Medieval Languages

These comments are consistent with the response of 61.5% of undergraduate participants to a further survey questions who indicated they had sought help from a friend in **accessing** information at some point during the term. These findings are discussed further on page 20.

With reading lists and supervisor / lecturer recommendations appearing to dominate the information-sourcing strategies of undergraduate students, it's interesting to consider how many **different** sources of recommendations were selected by each participant. Excluding responses indicating 'Not Sure', the results by number of categories selected per student are shown below. All percentages are worked from the number of students selecting at least one category (n=1003).

**Table 2: Finding Out About Information, Undergraduate Responses by Number of Categories Selected**

Number of Categories Selected	Number of students	Percentage
Selecting 1 out of 6	47	4.7%
Selecting 2 out of 6	181	18%
Selecting 3 out of 6	296	29.5%
Selecting 4 out of 6	285	28.4%
Selecting 5 out of 6	184	18.3%
Selecting 6 out of 6	10	1%

Participants were invited to suggest any other ways they found out about information sources for their course. 26 open text comments were received from undergraduate students, the majority of these focused on shelf-browsing:

*Find area of library and search shelf*

Undergraduate Student, Engineering

*Looking in the stacks when fetching other books on the same subject*

Undergraduate Student, English

These comments were supported by further discussion within focus groups, where the organization of library materials (e.g. due to the classification system in use) was highlighted as a frustration when it did not allow for effective browsing by subject. This reliance on browsing the physical library seems at odds with the perception of undergraduate students as a techno-savvy "internet generation". However, it poses interesting questions about the role of chance, or serendipity, in the research strategies of students. The same cohort of students also suggested their browsing habits extended to online searching through the use of Google Books, and the Amazon 'look inside' feature.

## Use of Electronic Resources

Awareness and use of database and search engine resources was measured through the following matrix-style question within the online survey:

Have you used the following databases or search engines to help you find books, articles, reports or other sources of information for your course?

Participants were asked about how recently, if at all, they had used six different search engines or databases. Three of these databases were subject-specific, chosen in consultation with the department or faculty librarian, or where this was not possible, chosen from the subject lists of electronic resources featured on the [eresources@cambridge](mailto:eresources@cambridge) web page. In total, 45 subject-based resources were included in the survey. All participants, regardless of subject, were also asked about their use of:

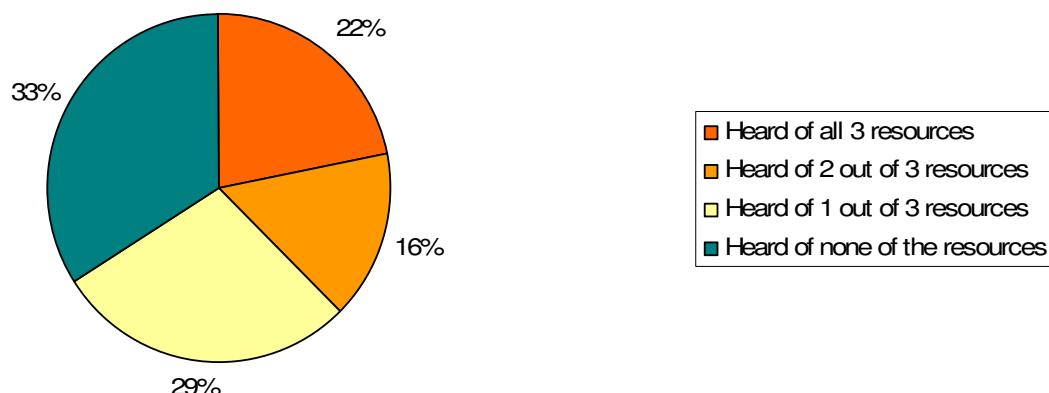
- Web of Knowledge
- Google
- Google Scholar

Participants were asked to rank whether they had used the resources:

- This week
- This term
- At some point
- Heard of it, but not used it
- Never heard of it

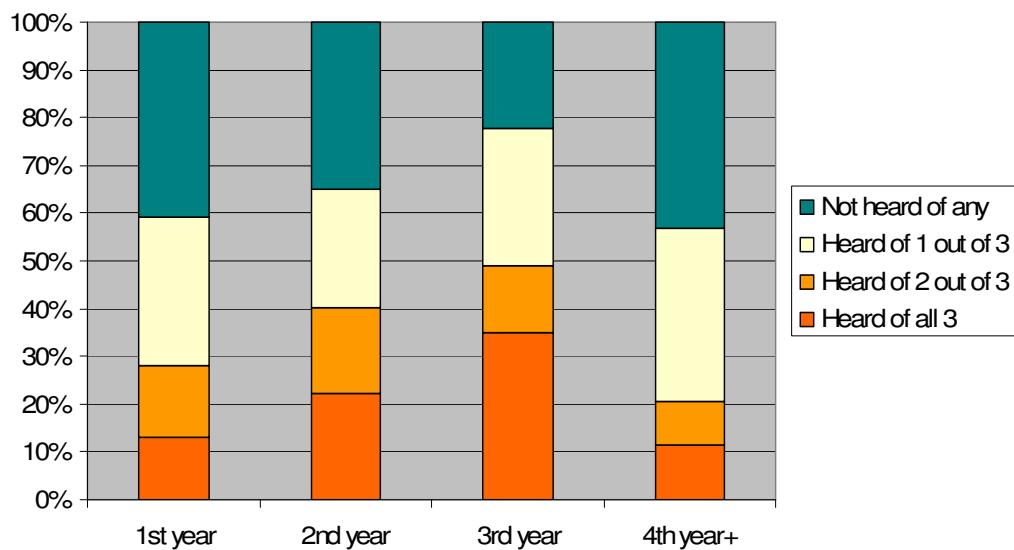
901 undergraduate students provided a response to all three subject-based resources. Their answers were then analysed to measure awareness, based on whether they had heard of all, if any, of the resources (i.e. if they had selected any category other than “Never heard of it”). Cumulative results relating to the subject-based resources are shown below (n=901):

**Fig. 3: Use of Databases and Search Engines, Undergraduate Responses**



33% of undergraduate students had not heard of any of the three subject-based databases selected as being relevant to their area of study. Whilst this may be regarded by some as concerning, results varied widely between subjects and it is accepted that students in different subject areas will have different needs for information, not all of which can be met by databases and search engines. Furthermore, awareness varied by year group, as shown below:

**Fig. 4: Use of Databases and Search Engines, Undergraduate Response by Year**



These findings were supported by focus group discussions which identified a much greater need for independent literature searches within the third year, when many students undertake dissertations or long projects.

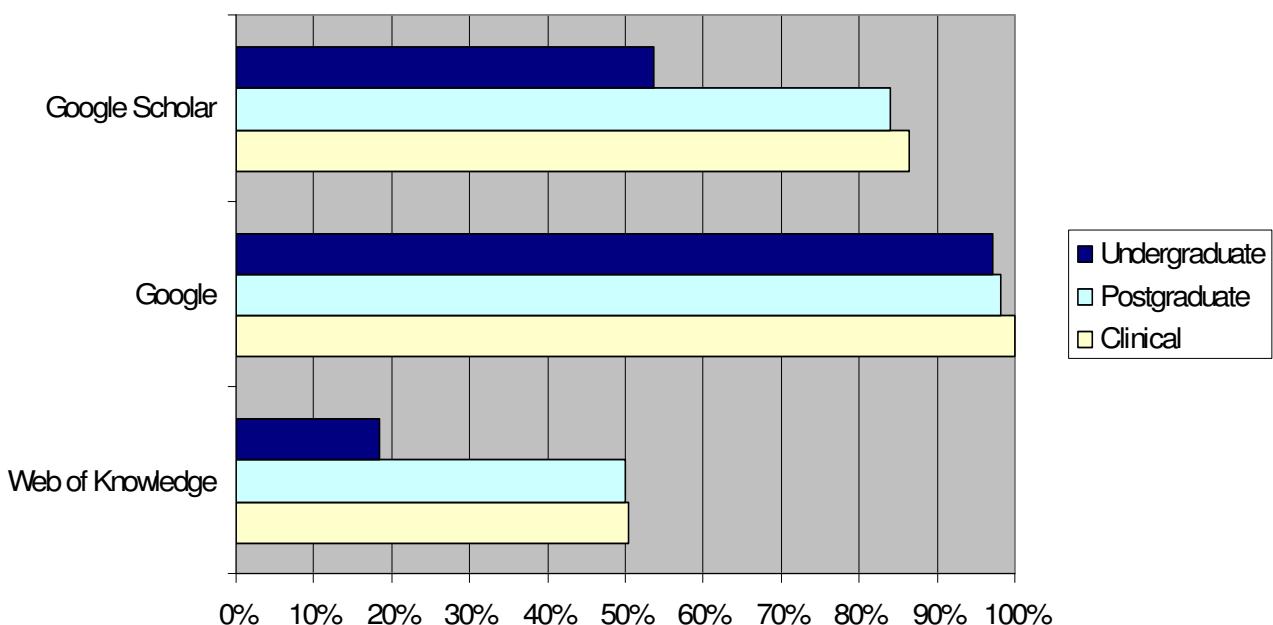
860 undergraduate students provided responses for all the three general resources: Web of Knowledge, Google and Google Scholar, and the percentage figures below are worked from this number. It should be noted that the question specified use of the resource for study purposes, rather than general or leisure use ( $n=860$ ).

**Table 3: Use of General Electronic Resources, Undergraduate Responses**

Usage Category	Web of Knowledge	Google	Google Scholar
This week	61 (7.1%)	680 (79%)	244 (28.3%)
This term	56 (6.5%)	111 (12.9%)	108 (12.6%)
At some point	42 (4.9%)	44 (5.1%)	110 (12.8%)
Heard of it, but not used it	117 (13.6%)	23 (2.7%)	172 (20%)
Never heard of it	584 (67.9%)	2 (0.2%)	226 (26.3%)

488 postgraduate students and 140 clinical students also provided responses for all three general resources. A comparison of results based on use of resources can be seen below. This reflects the proportion of students from each course type who selected 'This week', 'This Term' or 'At some point' for each resource:

**Fig. 5: Use of General Electronic Resources, Response by Course Type**



As can be seen, undergraduate students registered comparatively low levels of awareness of Web of Knowledge. eresources@cambridge features Web of Knowledge as a cross-subject database, and was identified by several faculty and department library staff members as being relevant. This suggests that the popularity of a resource is not necessarily linked to its promotion by library staff, although further study with discrete examples would be required to confirm this. By contrast, the use of the main Google search engine was consistently high.

Students were also invited to register other databases or search engines they had used to find information for their course this term. 635 students, 53.8% of whom were undergraduates, submitted a comment in response. Amongst the 342 undergraduate comments, 58 (16.9%) included “Newton” or made reference to the library catalogue. An additional 6 (1.7%) registered use of a department or college-specific catalogue and another 38 (10.8%) registered use of the eresources@cambridge pages or another part of the UL website.

However, by far the most frequently mentioned resource was JSTOR. Of the 342 undergraduate participants entering a comment, 133 had already been asked about JSTOR within the subject-specific resource questions for their area of study and accordingly did not need to enter it in the ‘other’ section. Of the remaining 272, 49% registered that they had used JSTOR. Most notable is that these responses come from a wide background of subjects including maths, medicine, natural science, classics and law. By contrast, only 29.6% of comments from postgraduate students specifically mentioned JSTOR.

*JSTOR: the source of all knowledge (easily better than all of the above [specific maths resources])*

Undergraduate Student, Mathematics

*I rely a lot on JSTOR and the Newton catalogue*

Undergraduate Student, Archaeology & Anthropology

Through the online survey, 25 undergraduate students mentioned their use of Wikipedia to find books, journals or other sources of information. This accounts for 7.3% of respondents; however, discussion in focus groups confirmed that this was not regarded as a trusted resource, and several participants expressed “guilt” or “embarrassment” at using it:

*I mean, if we'd include Wikipedia as one of our references our supervisors would kill us!*  
Undergraduate Student, Economics

*In first year we were told “If you put anything about Wikipedia anywhere near an essay you are going to get a really low mark”*  
Undergraduate Student, Management Studies

*The only thing I wouldn't cite is Wikipedia probably to be honest*  
Undergraduate Student, Natural Sciences

*Everyone knows that everyone uses it but you just don't say*  
Undergraduate Student, Medicine

In considering why student's awareness of electronic subscription resources was generally low, three issues emerged from focus group discussions and comments submitted by library staff via the e-mail questionnaire.

### **Conceptualising Online Content**

Students seemed generally confused by the differentiation between subscription resources (e.g. databases, e-journals and e-books) and other online material (e.g. articles available online, Wikipedia). This had led to some students purchasing online articles which they could have accessed for free; others were unaware that the articles they accessed via Google Scholar included subscription-content. The establishment of several different ‘gateways’ to online information (e.g. the Newton catalogue, Science portal, eresources@cambridge site, department and faculty links pages) created a sense of information mis-management for some:

*I've actually got a University Library folder on my internet favourites because there's about five different websites that I have to use to actually find anything. That's quite frustrating.*  
Supervisor, Materials Science & Metallurgy

However, some students also reported that they felt it was advantageous to use different ‘gateways’ to achieve varying levels of specialist searching. The use of the ejournals search function on the UL website, and the application of search limits to Newton were examples of this.

Responses to the e-mail questionnaire suggest that 52% of libraries feature information about e-books in their guides or introductions for students. Several department and faculty libraries also provide introductions to specific resources (e.g. Web of Knowledge, PubMed etc.) However, subject-specific sessions were reported as having very low levels of attendance, as discussed further on page 31.

## **Confusing IT Skills with Information Skills**

Most students participating in the focus groups reported that they felt confident in using online material. Brown, Murphy and Nanny (2003) note that “college students...perceive their facility with technology to be so thorough that they tend not be interested in learning the information literacy skills necessary”. However, participants noted that the different interfaces presented by search engines and databases presented some barriers in accessing information quickly, and some students experienced issues with re-tracing searches they had successfully performed earlier. General IT problems also become intertwined with information search failure:

*Some students do arrange one-to-one sessions with me. It has to be said that the bulk of queries are general IT ones rather than specifically about library-type resources*  
College Library Staff Member

Reffell (2003) notes that IT skills are based around subject-specific information needs: “for many students the most important skills they require are not centred around the leading Microsoft packages, but in the use of applications and technologies relevant to their discipline”. However, providing these skills to students in a relevant, tailored format presents some difficulties as discussed on page 31.

## **Accessing Subscription Material Away from University**

Postgraduate students reported that they frequently accessed electronic resources from home or whilst on study trips, using their Raven password (a local authentication service providing access to resources previously protected by ATHENS).

*Being able to access it [electronic resources] off campus as well is incredibly important because I tend to do a lot of it from home so having Raven access to all of them, knowing that you can get to them, I've found that's been the single, biggest helpful thing.*

Postgraduate Student, History & Philosophy of Science

However, several undergraduates seemed unaware that this was possible, or unsure of how to access resources when not in residence at college. The short eight-week terms at University dictate that most students will need to undertake further reading during the vacation times, and indeed, this was highlighted as a key practice by supervisors participating in focus groups. It’s suggested that the Athens log-in interface still featured on many resources is not intuitive and accordingly extra support may be needed to ensure students maximise the opportunities.

## Prioritising Issues When Information-Seeking

The importance of different issues related to information-seeking was assessed through the following matrix-style question within the IRIS online survey:

How important are the following to you when finding books, journal articles, reports or other sources of information?

All students were asked to consider four separate issues:

- Finding things quickly
- Finding things that are relevant to my question or project
- Knowing who wrote or researched it
- Being able to find it again

Students were **not** asked to rank each factor directly against the others (i.e. it was possible to register each issue as equally important), but to assign one of four statements to each issue:

- Very important
- Quite important
- Variable
- Not important

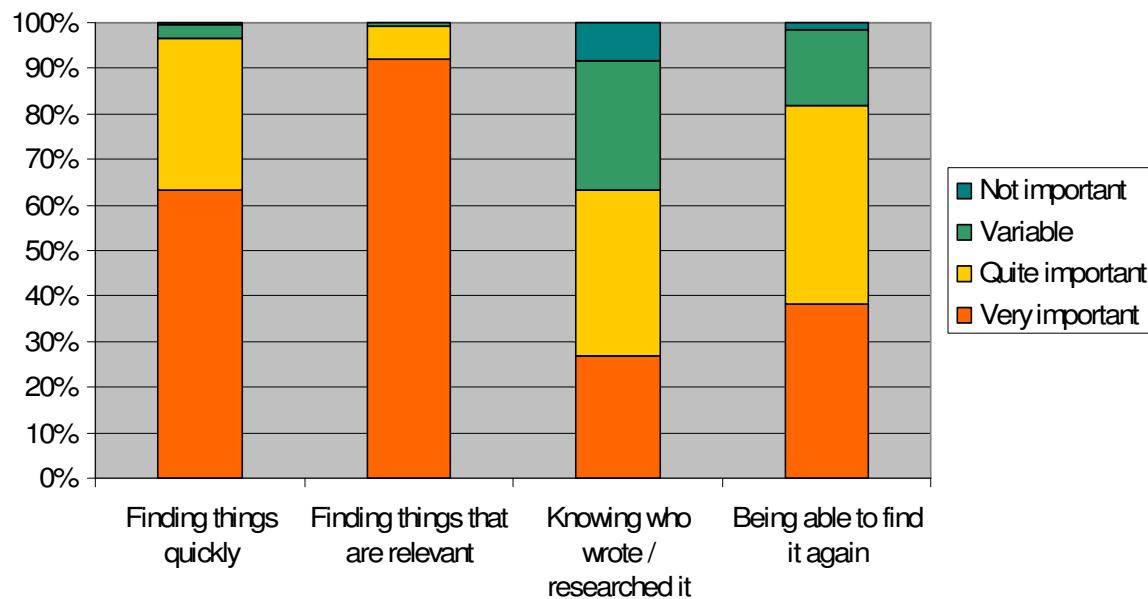
998 undergraduate students responded in part to the question. However, not all respondents provided an answer to all parts. Accordingly, to ensure that the importance of issues can be measured across a set population, 10 partial responses were removed. All results and percentage figures below are worked from the number of total responses (n=988). Results for undergraduate participants are shown below:

**Table 4: Issues When Information Seeking, Undergraduate Responses**

Issue	Very Important	Quite Important	Variable	Not Important
Finding things quickly	626 (63.4%)	330 (33.4%)	29 (2.9%)	3 (0.3%)
Finding things that are relevant	908 (91.9%)	74 (7.5%)	5 (0.5%)	1 (0.1%)
Knowing who wrote / researched it	267 (27%)	359 (36.3%)	279 (28.2%)	83 (8.4%)
Being able to find it again	366 (37%)	437 (44.2%)	169 (17.1%)	16 (1.6%)

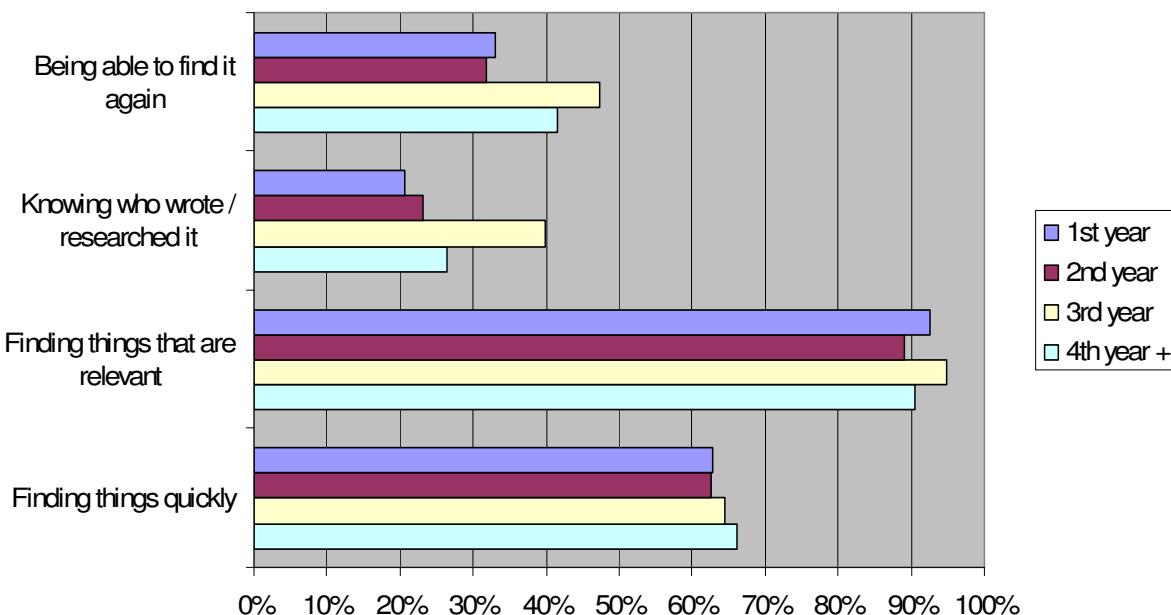
Finding relevant information was ranked significantly higher than all other issues by undergraduate students. This is largely reflective of the task-focused approach to both weekly essays, marked question sets and exams, developed by many students and highlighted by focus group participants. The results are further illustrated below:

**Fig. 6: Issues When Information Seeking by Response, Undergraduate Students**



A breakdown of undergraduate responses by year group is shown below, reflecting the percentage of students in each year who ranked an issue as “very important”. Third year students were more likely to consider **all** issues as very important; however, their attitudes towards knowing who wrote or researched an information source are significantly different from those of first and second year students. This may largely be related to the enhanced need to reference material in third year projects and dissertations, as discussed on page 19.

**Fig. 7: Percentage of Issues Ranked as Very Important, Undergraduate Students by Year Group**



# Evaluating Information Search Results

Students were asked to consider how effective their information seeking was through the following question within the IRIS online survey:

How satisfied are you with information that you end up finding for your course?

Participants were asked to select **one** of the following statements to describe their experiences:

- Very satisfied: I always find useful information
- Quite satisfied: I find useful information most of the time
- Variable: I sometimes find useful information
- Not satisfied: I rarely find useful information

998 undergraduate students responded to this question. All percentage figures are worked from this response number (n=998):

**Table 5: Satisfaction with Information Search Results, Undergraduate Responses**

Statement	Number of students	Percentage
Very satisfied	151	15.1%
Quite satisfied	702	70.3%
Variable	142	14.2%
Not satisfied	3	0.3%

These results can also be broken down by year group. All percentage figures are worked to the number of students in each year group responding to the question:

**Table 6: Satisfaction with Information Search Results, Undergraduate Responses by Year Group**

Statement	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year +
Very satisfied	47 (13.6%)	47 (14.2%)	53 (19.8%)	4 (7.5%)
Quite satisfied	242 (69.9%)	229 (69.2%)	193 (72%)	38 (71.7%)
Variable	56 (16.2%)	53 (16%)	22 (8.2%)	11 (20.8%)
Not satisfied	1 (0.3%)	2 (0.6%)	0	0

Several studies characterise members of the net generation as over-estimating their information skill levels. Gross and Latham (2007) note that “competency theory predicts a miscalibration between students’ self-assessments of their information literacy skills and their actual skill level”. Self-assessment exercises can be hindered by this trend: more experienced students are likely to acknowledge what they do not know and accordingly mark themselves down. Whilst the results of this question should not be dismissed, it is important to note that students were not asked to give real-life examples, or to quantify, what ‘satisfaction’ with information seeking meant to them.

Whilst the majority of students in this survey indicated that they were “quite satisfied”, the proportion of respondents selecting “very satisfied” was markedly higher amongst third year students than other undergraduate year groups. This is supported by focus group participants,

several of whom indicated that they expected to gain confidence in evaluating and using information during their studies:

*As a first year you can't really judge whether the quality of something is reliable and it's only when you get to your second and third years that you can actually judge it.*

Undergraduate Student, Modern & Medieval Languages

*I think as you go along you get more confident about what you put in. Like in the first year you try, well I know I tried, to adhere as much to the lecture material as I could and then sort of throw in odd references. Now I just sort of go off on my own tangent and I think that's very much encouraged, that's how you pick it up*

Undergraduate Student, Natural Sciences

[Moderator: Do people all feel quite confident that they're putting in what their supervisor or what their lecturer wants them to put in if that makes sense?] *Not yet, I'm a first year though...*

Undergraduate Student, History

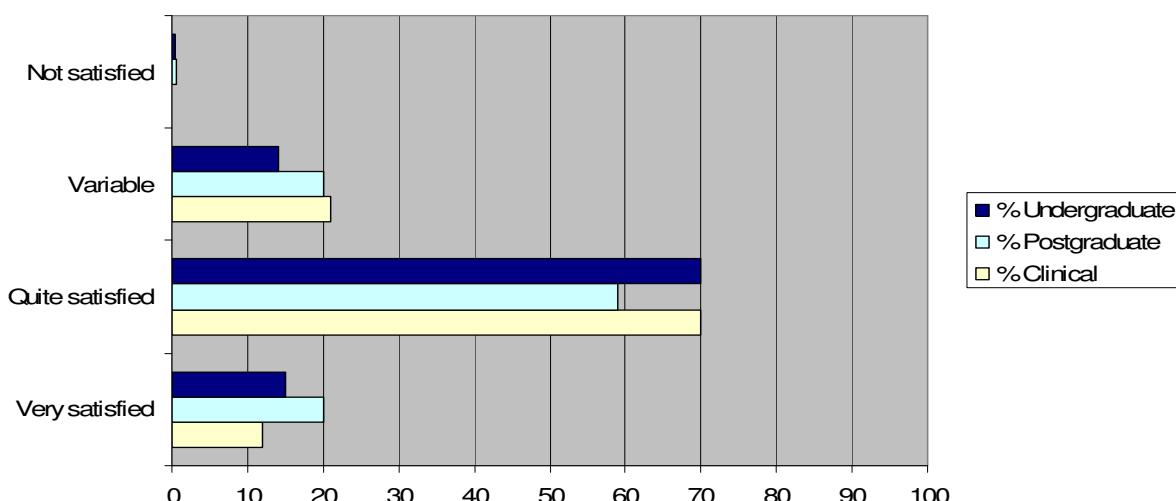
Undergraduate courses lasting three or four years effectively offer students room to develop evaluation skills over a long period of time. However, as students perceptions of their information-seeking needs and abilities change, so do the challenges they encounter. For example, third year students who were satisfied with the quantity of relevant sources found may subsequently have problems in dealing with information overload:

*To get good marks on essays we're supposed to kind of read outside of the recommended reading list but then you start getting just thousands and thousands of papers on any one topic and just kind of picking which ones...*

Undergraduate Student, Medicine

145 clinical students and 587 postgraduate students also completed the above survey question. A comparison of their responses with the undergraduate students is shown below:

**Fig. 8: Satisfaction with Information Search Results, Responses by Course Type**



## Asking For Help

Student participants were asked to consider who and how frequently they would ask for help with finding information through the following matrix-style question in the IRIS Student Survey:

Have you asked any of these people for help or advice about finding books, journal articles, reports or other sources of information for your course?

Students were asked about how recently (if at all) they had asked the following people for help:

- Director of Studies
- Supervisor
- Friend
- Lecturer
- Librarian

995 undergraduate students participated in the question above. However, not all respondents provided an answer to all parts. Accordingly, to ensure that sources of help can be compared across a set population, 61 partial responses were removed. All results and percentage figures below are worked from the number of complete responses (n=934).

**Table 7: Sources of Help, Undergraduate Responses**

Source of Help	This week	This term	At some point	Never
Director of Studies	44 (4.7%)	176 (18.8%)	345 (36.9%)	369 (39.5%)
Supervisor	234 (25%)	368 (39.4%)	233 (24.9%)	99 (10.6%)
Friend	236 (25.3%)	344 (36.8%)	277 (29.6%)	77 (8.2%)
Lecturer	36 (3.9%)	136 (14.6%)	251 (26.9%)	511 (54.7%)
Librarian	31 (3.3%)	91 (9.7%)	206 (22.1%)	606 (64.9%)

Whilst a low number of students were identified as receiving recommendations about specific resources from peers (see page 9), a significantly higher percentage received help in sharing or seeking information from their friends. These results were reflected in the open text comments received via the online survey and in focus group discussions. Most notably, some students suggested that peer-led introductions to library facilities had benefited them, or would have been beneficial. Whilst informal introductions occur between friends and through the 'college parent' scheme in Fresher's Week it is unclear how many colleges, faculties and departments use student guides in a more structured context.

*Friends or older students have given advice about how to find information or journals*  
Undergraduate Student, Geography

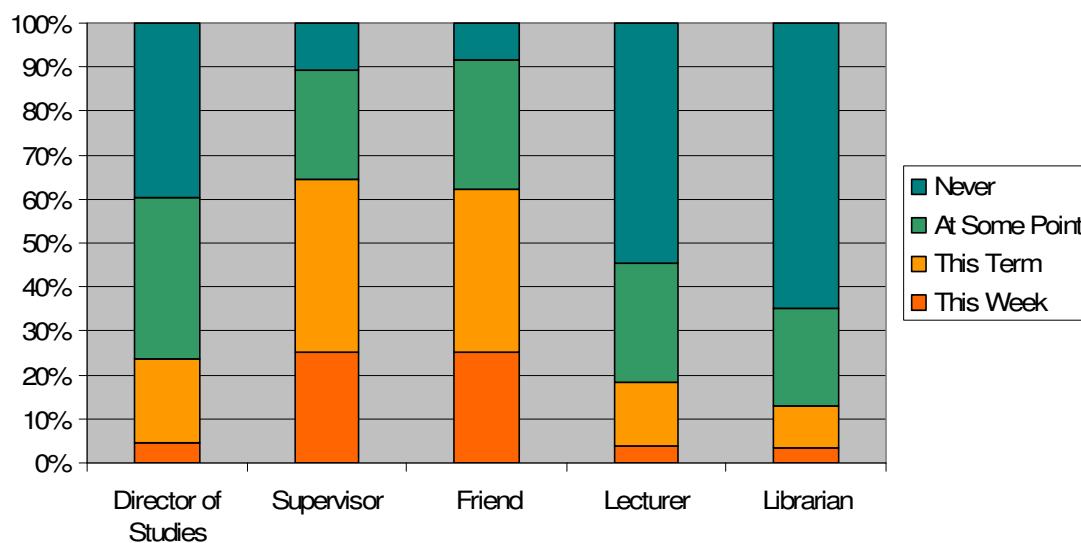
*The department and faculty inductions were particularly useful as they were run by Second Year Historians from college who made everything very relaxed and easy and were able to show how you do things from their own personal experience*

Undergraduate Student, History

*I think talking to past students would be very useful. I mean I struggled just because there's no one at my college who's done them [my papers] for a while*  
Undergraduate Student, Modern & Medieval Languages

A summary of undergraduate responses to the online survey question is shown below. It should be noted that 24 participants (accounting for 2.6%) answered 'Never' to all categories, suggesting that they do not seek help in finding or sharing information.

**Fig. 9 Sources of Help, Undergraduate Responses by Category**



The high level of help and advice, as well as initial recommendations, provided for undergraduate students by supervisors was highlighted. It should be noted that in Cambridge many supervisors are also postgraduate students or post-doctoral researchers, who may have been undergraduate students themselves only a few years previously. This is illustrated by the experiences of supervisors who attended a project focus group:

*I was....an undergraduate here and knew the Director of Studies and before, just before I arrived here to start my PhD, she e-mailed saying she was interested in finding a supervisor for a course and would I be happy to do it. So that's how I got into it*  
[Moderator: So can I just ask, was that in your first year of your PhD?] Yeah, so I started supervising in my first year of PhD

Supervisor, Physics

This rapid role development suggests that it's vital to establish up-to-date information for postgraduate students who may also be acting as key provider of information skills advice to undergraduates. Whilst very few undergraduate students sought help from library staff (13% of respondents had asked for help in the past term), many free-text comments indicated that students did benefit greatly from information received in structured inductions and skills sessions. These are discussed in further detail on page 31, and appear to be viewed as distinct from asking for help and advice.

# Using Information

## Plagiarism and Referencing

During focus group discussions students were encouraged to share their experiences of referencing information within their written work, and their thoughts about plagiarism. Whilst some theoretical questions were raised by both students and supervisors as to the extent to which “common knowledge” should be referenced within scientific work, all participants felt that they had received adequate information about plagiarism from a variety of sources:

*It's [advice about plagiarism] in my handbook. It tends to be more of an official thing and I just think it's a matter, I feel quite confident that I'm not plagiarising, I'm quite happy*

Postgraduate Student, English

*I think we're given very good information about how to, about what constitutes it. And I think perhaps combining that with more instruction on how to reference would be a nice parallel to be able to make sure we feel confident.*

Postgraduate Student, History & Philosophy of Science

The launch of a University-wide website on plagiarism in 2007 frames the use of information within the context of “good academic practice”. Whilst undergraduate students also felt they had received adequate information (e.g. in course handbooks, through e-mails from their college, and in their initial inductions), many expressed doubts about how relevant this information was to them:

*At the moment it doesn't apply to me at all....but maybe in the next year when we have to write our own dissertation on a topic where we actually have to prove something on our own topic then it might become more relevant and also it might be more relevant for postgraduate students rather than undergrads because we're not doing anything original, we're just reading stuff and explaining it*

Undergraduate Student, Economics

*You're made to think that if you accidentally did that then, you know, you'd be hauled in front of your supervisor and your Director of Studies and you know, so I think there, I think there are some myths to a certain extent circulating about maybe the severity of doing anything*

Undergraduate Student, Theology

Responses to the e-mail questionnaire from library staff (n=60) indicate that 15% of libraries provide some information about plagiarism in a guide or introduction. A further 8% were considering providing information about plagiarism in the future. The majority of libraries providing this information were department, faculty or dependent libraries. This is largely reflective of the fact that the format of referencing and the extent to which full citations are expected varies between subjects.

The lack of a uniform referencing model was felt to be highly disadvantageous by both undergraduate and postgraduate students, who were largely reliant on adapting referencing skills they had picked up at school or from other higher education institutions:

*One more point on the referencing, no we weren't ever told how to reference and again I had to go and find out myself. But the main frustration was, you know, couldn't even find a style guide when I was writing my first year report*

Postgraduate Student, Engineering

*I've kind of found it hard because I don't come from kind of an arts background, all my A-levels were science as well so I've kind of never had to really write essays until I came here. And we were just kind of given a few guidelines on how to reference and I'm still kind of never really sure if I'm kind of doing it right or anything*

Undergraduate Student, Education & Maths

*I always go by the rule that if you put it in speech marks it's alright to use it as long as you're not trying to pass it off as your own. But I think something that really is lacking is information on how to reference. And there's no, I don't think there's any University-wide consensus on what style to use*

Undergraduate Student, Modern & Medieval Languages

*I was quite well trained in my sixth form to every time started taking notes from a book just add the title of the book, the author, date and place of publication and all that and I've just kind of got in the habit of doing that now*

Undergraduate Student, History

Several students reported that they use online guides to referencing from other Universities as the University of Cambridge does not provide one. The University Plagiarism website does in fact list a series of referencing conventions, and includes links to a series of guides from other Universities (e.g. Cardiff, Anglia Ruskin University). It is suggested that these guides are publicised more effectively to students, and a guide specific to Cambridge University be considered.

## Exam Skills

Written examinations form the main assessment tool for undergraduate courses at the University of Cambridge, and this has key implications for the way information use is linked to performance. For example, both students and supervisors considered plagiarism to be of limited benefit within exam conditions:

*It's one of the wonderful things about teaching maths is that you know anyone who plagiarises will be punished in the exam for it. Because if you don't understand it's not like you can, if you don't understand how to do it and you copy someone else or just give in what you haven't understood, then that's not going to be any help at all in the exam.*

Supervisor, Physics & Maths

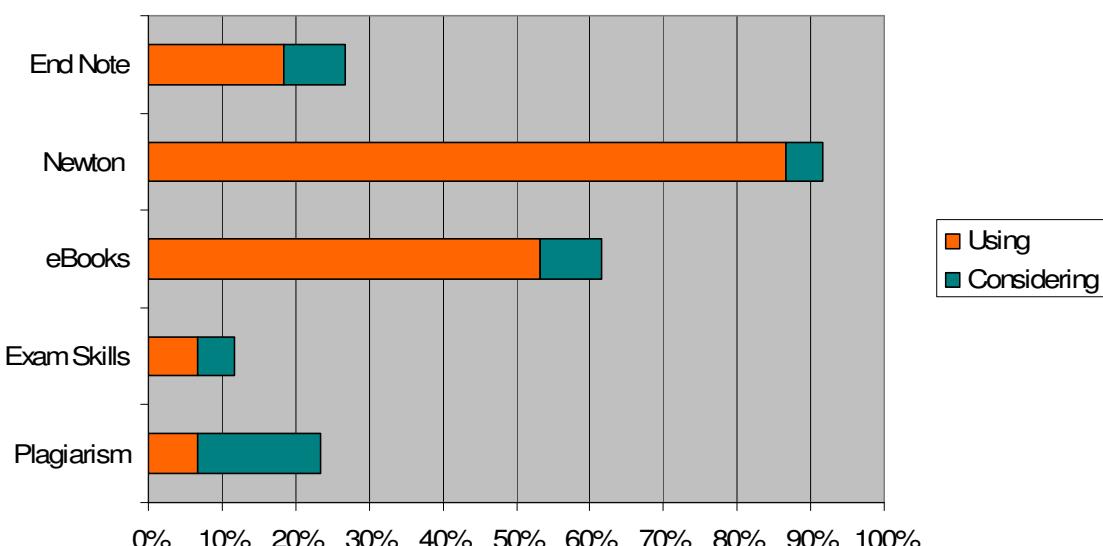
Similarly, the source of material was deemed to be less important in conveying ideas within an exam, which may explain the lower degree of importance afforded it by students (see page 16):

*In our exams they tell us, that because there's just so much you couldn't possibly remember every single thing you can even just say "one study found that"...*

Undergraduate Student, Medicine

Whilst exam-style writing is recognised to be essentially different from that used for weekly supervision essays or assessed coursework, many of the information skills discussed within this report still apply to the revision process (e.g. information-seeking to provide examples within the exam, time management, using information effectively to support arguments). Cambridge University Student's Union provides a specific CamExams website detailing revision tips and exam skills. However, only 8% of libraries responding to the IRIS e-mail questionnaire provide guides or introductions to exam skills. Figure 7 indicates the topics for which guides or introductions were already in use, or were being considered by department, faculty and college libraries as well as the UL and dependent libraries (n=60).

**Fig. 10: Introductions or Guides In Use by Libraries, by Topic**



### Feedback About Using Information

Undergraduate focus group participants largely felt that they received feedback from their supervisors regarding the amount and type of information used in assessed work. Supervisions also provided an opportunity to share or suggest alternative resources:

*I have some supervisors who pick up on kind of certain references that weren't on the reading list and say "Oh, that's interesting, whereabouts did you find that?" and things and then say "Have you thought you might follow this up with looking at these people?" and things which is quite useful in kind of pointing you in different directions*

Undergraduate Student, Education & Maths

As the above comment implies, feedback may be centred around whether or not a source was featured on reading lists for that course. Some students also mentioned that they had used this opportunity to inform teaching staff of new resources that they may not be aware of. This was especially true of postgraduate students where some sources used were highly specialised.

*It depends on the supervisor as well as to how comfortable they are with say electronic resources, as to whether they will suggest them to you or whether you have to say to them "Oh, by the way, I found this on here" and they're then surprised.*

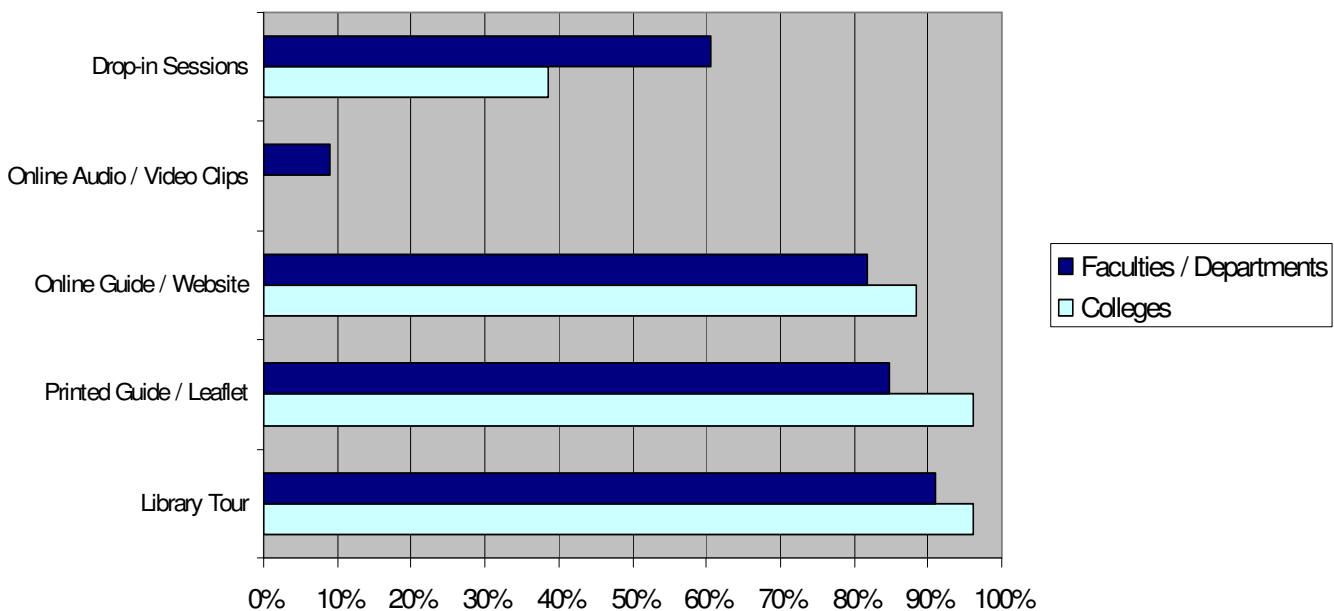
Postgraduate Student, History & Philosophy of Science

This approach to information sharing characterises students as generators, as well as receivers, of information. Hoare (2009) reports on the use of student mentors to provide technical assistance with information sharing to faculties and departments at some Universities; however, it is understood no formal arrangement for this exists at Cambridge University as yet.

## Inductions and Training Provision

Colleges and departments responding to the IRIS e-mail questionnaire indicated that they already provide library guides and inductions in a range of formats. Figure 8 illustrates provision across libraries, excluding the University Library. The guides and inductions of dependent libraries are included under 'faculties and departments' (n=26 colleges; 33 faculties/departments).

**Fig. 11: Format of Library Inductions by Colleges and Faculties / Departments**



Within the IRIS online survey students were asked to consider which inductions and guides they'd used for help in finding information, via the following question:

Have you used or attended any of the following to help you find books, articles, reports or other sources of information for your course?

This was a multi-choice question, in which participants were asked to select **all** categories that applied to them. A free text response box also allowed participants to register other categories.

884 undergraduate students responded to this question by selecting at least one category. Unfortunately, the question did not include a category (e.g. None or N/A) to indicate that a respondent had not attended any inductions or used any guides. Accordingly, it's not possible to verify whether a further 135 respondents not submitting a response were indicating their experiences, or simply skipping this question. However, it should be noted that 125 (93%) of these students went on to answer further questions regarding the IRIS prize draw and focus groups, indicating that the majority of those who did not register a response to this question had not left the survey altogether.

Results for the confirmed student participants (n=884), are shown below:

**Table 8: College Induction and Guide Use, Undergraduate Responses**

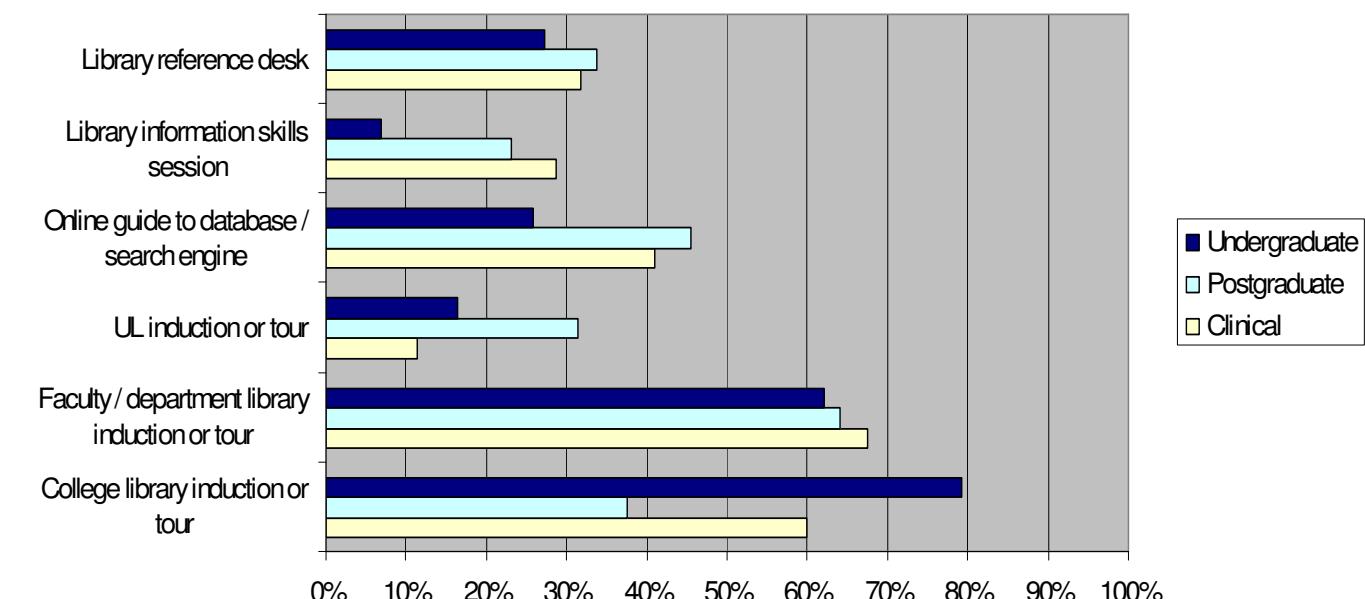
Category	Number of responses	Percentage
College library induction or tour	700	79.2%
Department or Faculty library induction or tour	549	62.1%
University Library induction or tour	146	16.5%
Online guides to search engines or databases	228	25.8%
Library information skills session	60	6.8%
Library reference desk	241	27.3%

The results by number of categories selected per student are shown below. These results exclude respondents who only submitted free text comments; all percentages are worked from the number of respondents who selected at least one category (n=796):

Number of Categories Selected	Number of students	Percentage
Selecting 1 out of 6	242	30.4%
Selecting 2 out of 6	340	42.7%
Selecting 3 out of 6	198	24.9%
Selecting 4 out of 6	77	9.7%
Selecting 5 out of 6	14	1.8%
Selecting 6 out of 6	5	0.6%

A comparison of undergraduate use with postgraduate and clinical students is shown below:

**Fig. 12: Use of College Inductions and Guides by Course Type**



## Tours and Basic Introductions

As can be seen above, college library inductions and tours received higher use from undergraduate students whereas postgraduates were more likely to attend faculty or department tours. It should be noted that 11 out of the 26 colleges responding indicated that some aspects of their tour or induction programme were compulsory for students wishing to use the library facilities. This was reflected in the IRIS online survey where several students noted they had received a mandatory induction. However, monitoring the take-up of such guides and inductions is in practice very difficult:

*In theory all freshers must attend a tour. All freshers get a printed guide via their pigeonholes. We can't force them to read or use it...*

College Library staff member

It is interesting to note that attendance at some events and inductions is higher than might be expected for some course types (e.g. 16.5% of undergraduate respondents registered that they had participated in a tour of the University Library). This could suggest a bias within the survey population (e.g. students who attended tours are more likely to have taken part in the online survey); however, I would suggest that many students received “ad hoc” or “unofficial” tours led by other students or staff members, attendance at which may not be recorded. This is supported by comments received via a free text comments box in the online survey and in focus group discussions:

*My college Mum she showed me around the college library and the faculty library and she took me to the UL as well which I was quite grateful for because, like, when you enter for the first time you have no idea where to go and you feel a bit like a deer caught in a headlight*

Undergraduate Student, History of Art

*Our Director of Studies took us around the UL in Freshers week and explained how to find books*

Undergraduate Student, English

*My supervisor took us along to the library and showed us which books we would want to use for the course, which books were the best*

Undergraduate Student, Natural Science

Initial tours and inductions don’t provide an effective forum for discussing information skills in depth. As Collinson and Williams (2006) note there is a need to “differentiate between options appropriate to the induction stage, at which students are overcoming initial emotional barriers created by anxiety, and later stages when they are more receptive to, and better able to benefit from, in-depth e-literacy training”. Feeling associated with “library anxiety” were expressed by several student participants:

*I avoided going to the faculty because I hadn’t sort of had an induction so didn’t really think that I’d know my way round so I just tried to do everything from my college library which was fine because we have a very large library*

Undergraduate Student, Theology

*Coming to the UL was just a sort of case of taking it as it came really cause it was all a bit weird and not knowing, you know, having to go to the lockers and things and sorting yourself out*

Undergraduate Student, History

*I think one of the most helpful things about tours and inductions and things is that it simply removes your fear of going to somewhere new for the first time*

Undergraduate Student, Medicine

Whilst students felt confident in using their own college and faculty / department libraries after receiving inductions, several focus group participants expressed anxiety about using resources at other faculties or departments. Both undergraduate and postgraduate students were unsure as to whether they could access content at other libraries which they had found on the Newton catalogue. For students who were using multiple facilities, the ability to manage several different library accounts and maximise their benefits was a skill in itself:

*Learning the kind of skills of, you know, hunting books down through multiple libraries, you know I don't think you could actually learn that in an induction course I think you have to kind of figure it out for yourself*

Undergraduate Student, Classics

*For me anyway the first port of call was the departmental library 'cause it was the most relevant. So it would be quite handy if from that point they could point you to some resources that included the UL, and just mention if there was going to be a tour or something you could sign up. Because they're really not linked at all.*

Postgraduate Student, Zoology

*I've worked in other libraries but I sometimes sit there thinking "am I supposed to be here?" and yeah, there's not like a clear instruction*

Postgraduate Student, English

Student participants recommended that the variety of library facilities available to students be publicised either through a central portal similar to the existing Libraries Directory or via co-operative inductions. However, it's appreciated that the co-ordination of times and staff to achieve this presents some serious challenges.

## Before and After Fresher's Week

"Fresher's Week" is essentially a five-day period before the start of the lecture timetable in which students are orientated within their colleges and departments. Accordingly, most library tours and inductions take place during this time and in the following week. Whilst college library tours were attended by 79% of survey participants, and faculty / department library tours by 62%, several students indicated they were unable or unwilling to attend during this period:

*There were times when we were supposed to go the UL to kind of get your cards sorted out, and I think that was all like there was so much going on in Fresher's week that it all sort of got lost in the snowstorm of information that you get.*

Undergraduate Student, Medicine

*There were induction tours on offer at my college but I didn't go because I think really because there was so much going on in Fresher's Week*

Undergraduate Student, Theology

Whilst most undergraduate students who commented that they did not attend inductions or tours did so out of choice, several postgraduate students were unable to attend due to the start dates of their courses or because they were registered on part-time courses and therefore not resident in Cambridge for long periods:

*I should say that I applied quite late to do my PhD and there were various Board of Graduate studies-related problems when I first came which meant actually that I was admitted into college a bit late so I missed all the, all the induction things*

Postgraduate Student, Chemistry

Many colleges and departments indicated in the e-mail questionnaire that they are able to offer one-to-one tours or skills sessions for students, and the UL runs a programme of inductions throughout the academic year. However, several students suggested it would be helpful to access an online induction. As yet, only 3 of the libraries which participated in the IRIS e-mail questionnaire provide a virtual induction or guide through audio or visual clips.

## Information Skills: Beyond Basic Inductions

When asked about the guides or inductions they'd used or attended, 6.8% of undergraduate students registered that they had attended a library skills session. Numbers amongst other students were significantly higher with 23% of postgraduate and 29% of clinical students having attended similar sessions. However, comments received via the free text box within the IRIS online survey indicate that some undergraduate students receive information embedded within their course syllabus, rather than through an additional library session. Key examples of these mentioned by student participants were:

- Freshfields Legal Research Skills Course (Law)
- Practical session within Molecules in Medical Science module (Medicine)
- Chemical Informatics lecture course (Chemistry)

Students from several other subjects noted the provision of one-off sessions and / or printed guides detailing specific electronic resources. Many colleges, faculties and departments have also provided non-mandatory courses for students, however, without the co-operation and support of teaching staff, attendance is generally reported to be low:

*We have trialled subject specific one hour sessions on electronic resources, but take-up was only very patchy except in cases where [the] Director of Studies instructed students to attend*

College Library staff member

*I would need to liaise closely with tutors and directors of studies to ensure a reasonable turn-out. Finding a suitable time to talk to each group will be a significant challenge*

College library staff member

*Attendance is generally low although all that attend sessions seem very grateful for the help!*

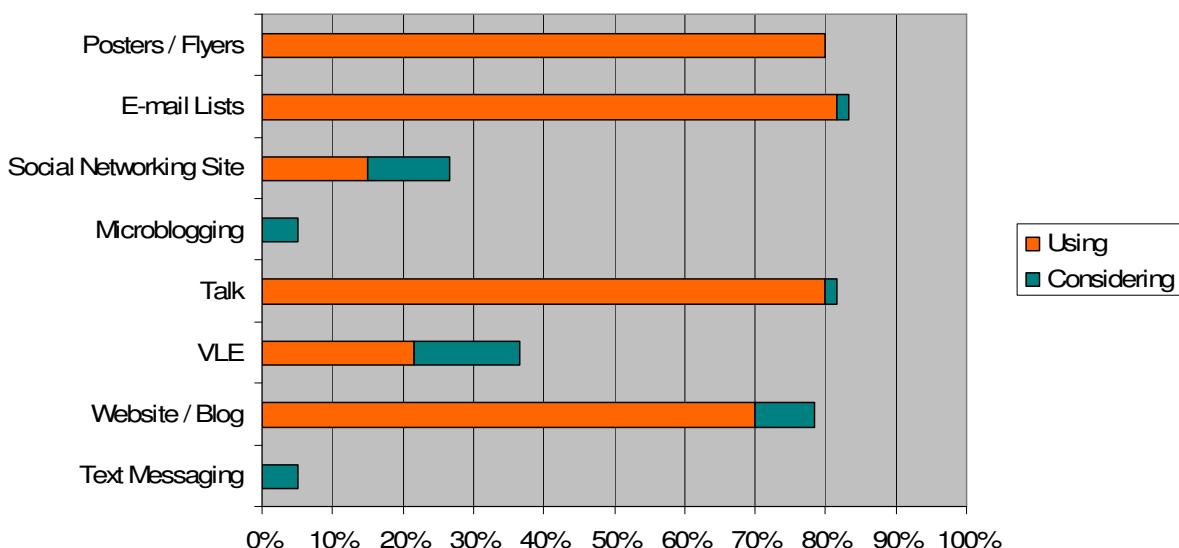
Department / Faculty library staff member

These comments are reflective of the fact that despite registering a demand for relevant information, students do not seem to attend subject-specific courses without encouragement from teaching staff. Whilst this is not a comprehensive study, some library staff members submitted alternative strategies they have developed to provide relevant subject-based information to students. This included the use of subject-specific e-mail lists which could be used to target the promotion of new resources.

## Communicating With Students

Libraries participating in the IRIS e-mail questionnaire were asked which (if any) means of communication were used to inform students of library inductions or available guides. The results are shown below for all library responses ( $n=60$ ). It should be noted that these do not include libraries who have access to a communication tool (e.g. Twitter, Facebook page) but do not choose to use it, or are not considering using it, for the promotion of inductions or guides.

**Fig. 13: Communication Methods Used By Libraries**



Several college libraries also noted that they communicated with students before or on arrival through information packs sent out by the Tutorial Offices. As can be seen above, whilst many libraries utilised multiple methods, the take-up of new media (e.g. microblogging tools such as Twitter and social networking sites such as Facebook) has not been high. Connell's (2009) study of student responses to library social networking profiles indicated that "most..would be accepting of library contact through those web sites, but a sizable minority reacted negatively to the concept"

None of the students participating in the IRIS project focus groups expressed concerns or negative views about a library's use of new media. However, some undergraduates did note that they were unsure what the purpose of library Facebook sites were, and did not gain any benefits from them. Furthermore, it is accepted that some of the methods featured are highly transient and will not provide a long-term solution for promoting library guides and courses more effectively.

# Suggestions for Further Study

## **Measuring the Impact of Library Inductions and Training Over Time**

Due to the short time-scale of this project, results do not reflect the impact of library inductions or information skills training on a select cohort of students over a period of time. To achieve this a longitudinal study would require careful management, and would ideally consider the preparedness of students before coming to University.

## **Discussing Methods of Information Skill Delivery**

The IRIS Project has touched on the formats of inductions and guides currently being considered by college and departmental libraries, and the University Library. However, there was insufficient time to consider student reactions to these formats, or the implications of discontinuing some methods (e.g. tours, printed guides) to accommodate others.

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