What do we know about students?

Prepared by: Rich Entlich

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Description:

This report highlights some of what we’ve learned about students from our own recent studies, and to provide some examples of what can be gleaned from non-CUL data sources. It is by no means an exhaustive or comprehensive review, nor is it an attempt to draw major conclusions about the potential implications of those findings for library policies and strategic planning. Instead, it presents a sampling of some of what we already know (but may have buried or forgotten) and what we could know, if we dug more deeply into our own sources, and those outside the library.
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What Do We Know About Students?

Introduction

To effectively allocate limited resources, and reach out to the campus community, the library must know as much as possible about its users and potential users. Who are they? What are their attitudes toward the library and what motivates their current usage (and non-usage) patterns? What information and communication technologies (ICT) do they prefer? How do they conduct information related tasks?

This report is designed to highlight some of what we've learned about students from our own recent studies, and to provide some examples of what can be gleaned from non-CUL data sources. It is by no means an exhaustive or comprehensive review, nor is it an attempt to draw major conclusions about the potential implications of those findings for library policies and strategic planning. Instead, it presents a sampling of some of what we already know (but may have buried or forgotten) and what we could know, if we dug more deeply into our own sources, and those outside the library.

Student demographics

Various Cornell units, including IRP (Institutional Research and Planning), the Registrar, Student Services, and the Graduate School collect data that profiles the composition and interest of the student population currently and over time. Specific areas covered include enrollment by undergraduate college, by declared major, by graduate field, and by age, gender, and country of origin. Also available is data on time to graduation and degree completion rate.

Change in undergraduate enrollment by college, 1980-2009

Figure A.2: Undergraduate Enrollment, Fall 1980-Fall 2009, by College

KEY: AG: Agriculture & Life Sciences
AR: Architecture, Arts & Planning
AS: Arts & Sciences
EN: Engineering
HA: Hotel Administration
HE: Human Ecology
IL: Industrial & Labor Relations
Findings: Cornell's undergraduate enrollment has increased in the past three decades (from a little over 12,000 to nearly 14,000). However, the trends in individual colleges have been extremely variable. While the biggest contribution to growth in total numbers has come from A&S, ALS, and ENGR, the highest percentage growth since 1980 has been in ILR and Hotel, at 44% and 35% respectively. In that same period, HumEc's growth was only 4%. In fact, since 2001, A&S, HumEc, and AAP have experienced enrollment declines.

Use of the Library

Materials

CUL's library management system collects and archives copious amounts of transaction data. This data has been used to good effect for years, but has limitations. Recently, the utility of Voyager data has been enhanced by combining it with human resources data. This gives us a much more granular information about who is using what materials.

Use of home college library monographs, from circulation data for April 19, 2010

Findings: Among undergraduates whose college has a single affiliated unit library, AAP students had the highest percentage of their print monograph needs fulfilled by their college library, at over 60%, while ILR students had the least, at less than 20%. Among graduate students, Vet students stuck closest to home for monographs at nearly 70%, while Hotel graduate students obtained only slightly more than 20% of their monographs from the Hotel library.
Use of non-English language monographs, from circulation data for April 19, 2010

UNDAvg = average for all undergraduates
GrPrAvg = average for all graduate & professional students

Findings: AAP students are by far the heaviest undergraduate users of non-English language materials. Among graduate students, carrel holders use non-English materials at a much higher rate than non-carrel holders. When RAU last studied Olin carrel users in 2007, we noted that data on graduate field of study was not being gathered. That data is now being collected, and could be used to supplement these findings.

The snapshots and related circulation data can reveal numerous other trends and relationships regarding student behavior relative to CUL’s collection of circulating materials.

There are sources outside of CUL’s own data gathering that can provide insight into student use of materials. For the past decade, Cornell’s Institutional Research and Planning unit (IRP) has conducted several large-scale surveys of Cornell undergraduates, such as the Enrolled Student Survey, the Senior Survey, and the Pulse Survey. The participation level on these surveys is much higher than on a typical library survey, and some of the questions deal with issues of direct relevance to the library. Some of those questions have been asked multiple times over the years, allowing trend analysis to be performed.
Findings: The overall undergraduate trend is toward less perceived utility in browsing. AAP students are not only the most enthusiastic browsers, but they are bucking the downward trend. Engineers report the least value from browsing. IRP finds the inter-college differences to have a high degree of statistical significance.

Services

Tracking of student use of inter- and intra-library delivery services, and RefWorks citation management software

Some student data has been routinely reported in the CUL Annual Statistic Report. For example, graduate students account for about three times the level of use interlibrary services as undergraduates, even though there are more than twice as many undergraduate as graduate students at Cornell. Graduate students are also responsible for about 2.5 times as many intra-library delivery requests as undergrads. It should be noted that grad students are heavier overall users of CUL's general circulating collections, averaging 16.9 charges per student in 2008-09, compared to 7.2 charges per student for undergrads. For RefWorks (citation management software) account holders, the trends are reversed. Undergrads have nearly twice as many accounts as graduate students. The heaviest undergraduate use, as measured in raw numbers, is in A&S and ALS. It would be instructive to look at RefWorks usage at the college level relative to enrollment.

Student Library Advisory Council (SLAC) members rank their library service needs

In February 2010, members of the CUL Student Library Advisory Council were asked to identify their highest priority library services (out of a list of approximately 30). Each member was allowed to choose 10 services. Top vote getters overall were individual study space, group study space, and collection of ejournals in their own field. In all cases, members wanted those services to be enhanced. Among graduate students, top choices were individual study space, ejournals in their field, and print books in their field, with a desire to enhance the first two, and preserve the last at current levels. Among undergraduates, top choices were group study space, the ability to return a book to any library, and access to desktop computers, with a desire to enhance the first and last, and preserve the second at current levels.
Findings: The overall undergraduate trend is down, except for 2009. (CUL reference inquiry statistics also showed an uptick in 2009). AAP are the heaviest users of reference services, at a rate 2-3 times higher than the lightest users, ENGR.

Facilities

Fine Arts Library Survey, a glimpse into students' use of their college library
Findings: In February 2009, the Fine Arts Library, with RAU's assistance, conducted a paper, in-house user survey. Eighty five people participated, over 94% of them students. Questions were asked about frequency of use for various functions, frequency of books in various subject areas, and frequency use of different physical spaces within the library. Demographic data on status and department/major was collected.

Survey participation was dominated by AAP students. Among undergraduates, a little over half the respondents were from AAP, and a quarter from A&S. Seven percent were in Human Ecology. Divided by major, only those within AAP accounted for more than the 10% of respondents (CRP 22.4%; Arch 16.5%; Art 10.6%). Other majors representing over 3% of the respondents were English, Comparative Literature, and Biology. Graduate students were more likely to use the library every day, and to check out books. Undergraduates more frequently used the library to meet someone or for group study.

A look at use of library facilities to read or study (more results from IRP surveys of undergraduates)
Findings: The overall undergraduate trend is up. Usage of libraries for reading and studying is similar across colleges, though somewhat lower for ENGR, AAP, and Hotel.

**Behaviors**

**Digital Sign Survey -- insight into student communications preferences**
RAU conducted an in-house survey on perceptions about the new digital sign in Olin Library. Two hundred sixty nine people returned surveys, nearly 90% of them students. Participants were asked whether they'd noticed the sign, about the impact of digital sign content, and what kind of information they found useful on the sign or would like to see on the sign. Demographics were collected at the status level only.

Not all responses have been cross-tabulated by status (more could be). Among those that have, graduate students were more likely to have been prompted by sign content to attend a library event or check out a web site, while undergraduates were more likely to have used a library service or made to feel generally more aware of the library.

In terms of content preference on the sign, graduate students liked information about library events and collections, while undergrads preferred building information, library news, and general news and weather information.

**Use and ownership of gadgetry (mostly for ICT)**
Since 1997, the University of Virginia has conducted a comprehensive survey of all incoming freshman regarding ownership and use of computing and related technology and published the results on a web site.

Measures have included whether or not a computer was brought to campus and what kind (desktop, laptop, and more recently tablet), operating system preference (Mac OS vs Windows), and usage of portable devices such as MP3 players, PDAs and smart phones. The data is particularly valuable because the survey response rate is close to 100%, and it targets only freshman, so it provides a good leading indicator of changing technology adoption by incoming students.
Findings: The above graph is a composite of trends for five different measures. Recent trends include a sharp (though now leveling) rise in Mac OS usage, with a corresponding decline in Windows usage, and a dramatic climb in smart phone ownership, just over the past two years.

Similarly comprehensive data is not available at Cornell. We do have limited data (see below) on desktop vs laptop ownership and Mac OS vs Windows usage, but it is for a shorter period of time, and only for dormitory dwelling students who are subscribed to ResNet, CIT’s wired Internet service. It is not exclusive to freshman. The Cornell data reveals the same overall trends as the UVa data, but is not as dramatic.

Student computer form factor preference from 2003-2009 at UVa (all freshman) and Cornell (subscribers to wired Ethernet services in dormitories).
Student preference for operating system platform from 2003-2009 for UVa (all incoming freshman) and Cornell (subscribers to wired Ethernet services in dormitories).

Similar measures are tracked at the national level by ECAR (Educause Center for Applied Research), which publishes a periodic study of undergraduate use of information technology. Their samples are broader (students from 39 different institutions), but also includes students at schools other than research universities.

Findings: Student computer form factor preference from 2006-2009 at 39 different higher education institutions across the US who a similar, though less steep shift from desktop to laptop computer ownership.

Other findings from the 2009 ECAR Undergrads and IT report, relative to the 2006 report, include:

- No significant change in use of library web sites
- Increase in use of social networking sites
- Increase in use of course management systems
- Increase in text messaging
- Decline in instant messaging
- 1/2 of all respondents now own an internet capable handheld device

Student research habits and behaviors have been the object of intense study in recent years, by a variety of non-profit and government sponsored organizations.

The Digital Information Seeker*

A summary and analysis of twelve UK and US studies published in 2010, with common findings across the reports, as well as key findings from each report.

Some common findings (includes direct quotes from the report)
Disciplinary differences do exist in researcher behaviors

Though generally confident in their own ability to use information discovery tools, information literacy has not necessarily improved, so high-quality metadata is becoming even more important for the discovery process.

People still tend to think of libraries as collections of books

More digital content of all kinds and formats is almost uniformly seen as better

"Information Behaviour of the Researcher of the Future\textsuperscript{xi}

Sometimes referred to as the "Google Generation" report, it was published by JISC and the British Library in 2008, based on literature reviews and original research conducted in 2003-2007.

Some key findings regarding age-related information behavior (includes direct quotes from the report)

- Young people prefer print to onscreen reading but students aged 21 or younger are much more comfortable with on-screen reading than older students, while still preferring print.
- Young people use a range of article and book discovery methods but lack search skills
- Young people underutilize print information sources. Print would appear to be in steep decline in the academic reading mix if this trend sustains as they get older.

"How College Students Seek Information in the Digital Age\textsuperscript{xii}

Conducted in 2009, this survey of over 27,000 students at six US institutions of higher learning is part of Part of Project Information Literacy.

Some key findings (includes direct quotes from the report)

- Nearly all students had developed an information-seeking strategy reliant on a small set of common information resources
- Students exhibited little inclination to vary the frequency or order of the sources they consulted, regardless of what kind of research they were conducting
- Students turned to course readings first for course-related research assignments (not Google)
- Librarians were tremendously underutilized by students
- Students turned to instructors as research coaches rather than librarians, especially in higher levels of their education

Perceptions, satisfaction, needs

CUL has used a variety of means to gauge user perceptions of the library's quality, value, and impact, ranging from broad surveys such as LibQUAL+ to anecdotal mechanisms like suggestion boxes. There are other sources, both local and non-local.

Focus groups with student users of ILR, Hotel, JGSM, conducted by RAU during Spring 2010.

- What assistance and services will students need? More desktop computers (up-to-date hardware and software); easier printing from laptops and mobile devices; more outlets; more laptops at Hotel; assistance from people knowledgeable about their subject, coursework and culture; face-to-face assistance from staff available without scheduling; longer hours; better promotion of services not just by librarians but a promotion of library resources by faculty; more and more focused library instruction that is better timed to curricular needs and their schedules; providing and supporting individual school communities (although the MBA students feel they suffer from the isolation of separate communities and would welcome more mixing with other communities.)
• How will they want to access information (both print and physical) in the next 2 - 5 years? Online, online, and online! No school-based restriction to resources (e.g. JGSM ID needed for accessing certain resources even if non-JGSM students are taking JGSM classes). Appreciate and use print reserves so that they don’t have to buy all textbooks. Current delivery mechanisms for print resources are sufficient. It is OK to merge print collections, they are willing to walk or wait when in need of a print volume (it seems to be a pretty rare occasion.)

• What does the library mean to them? What is the non-quantifiable value of the library to their school? Community, support structure, competitive edge in student recruitment for the schools, they feel they are getting exceptional service from the staff, small school atmosphere with large school resources nearby.

• How do they use the library and for what? Study space, computing, print reserves, ask the “research guy,” socializing with peers, napping, community, databases, up-to-date software, meeting place, source of pride (except Hotelies who feel that their library is just too old and run-down.)

• What kinds of spaces do they need and for what? How close does the library have to be to the college? Important right in their building: computing, study space (mostly quiet, as group study space is provided elsewhere in school for Hotel and JGSM, and ILR grads), napping, printing, reserves, social space, assistance from staff. Can be elsewhere: print stacks collections.

• What is the relationship between the students (e.g. ILR) with the programs in the other schools (Hotel & Johnson)? Taking classes at other schools. One Hotel student took a library workshop at JGSM because he saw the poster there but not in Hotel. They all seem to be somewhat territorial about non-school students taking up what they see as their resources.

• Is anything missing from current offerings that will be important to them in the next 5 years? Napping space, digitize more resources or combine collections to make more user space, printing from mobile devices, better promotion of existing library services and resources both by librarians and professors, MBA students feel that getting all their needs met inside Johnson makes them isolated and they want to feel part of the larger university community.

Focus groups with student users of the Engineering library, conducted by RAU during Spring 2010.

Undergraduate engineering students are independent of the physical library collection in their information gathering activities, relying on their assigned textbooks, materials provided by faculty through Blackboard, and on their own use of Wikipedia, Google, and, in some cases, library-provided online resources. Most don’t write research papers, so their use of information resources is largely to clarify understanding of lecture material and assignments. They want reserve readings, homework sets, and other supporting material to be available online. Some undergraduates use only online information, but some report a 5% to 10% to even 75% print use. The print sources they use are text books, mostly their own. Their use of print reserves is often times to check out a volume the content of which they have electronic access to, but they find it more convenient to use in print.

Undergraduates’ library use is almost all related to library as a space. They value a space that is accessible for very long hours, safe, and is conveniently proximate to their other main activities. They need individual and group study space as well as computers with fast processors and specialized software. They also value computers and equipment for more general purpose activities including scanning and printing. They also need a community where it is likely they will run into classmates, TAs, and others who share their interests and can provide advice and support for their academic pursuits.
Graduate students make heavy use of online research portals such as ArXiv, Google Scholar, and various library databases and field-specific collections. Online access is valued, if it eventually leads to the full text of the items they want to explore. Some graduate students report 5-10% to 30% to even 50% of print use in their research. Even those with the lower percentages make a point of the print’s intellectual significance being higher than the actual percentage of use, maybe up to 50-70%. They all identify browsing and the availability of related material as essential. They need rapid access to a wide variety of material. Current ILL and Annex retrieval are too slow. Speeding them up to same day could partially make up for loss of collection access. ILL loan periods are seen as too short. They still use and need access to monographs, including newly published ones, and e-books are seen as poor substitutes due to crippling printing limitations. They wind up having to buy them with research funds. They suggest it would be more efficient to divert more research grant overhead to the library so these items could be purchased centrally for everyone to use. Beyond their information needs, they also use the library for accessing computers with fast processors and up-to-date versions of specialized software. They also use the library as a nearby facility of quiet refuge for study when conditions in their offices are not conducive.

Cornell undergraduate perceptions of library impact (from the IRP 2010 Senior Survey, conducted by IRP, as described in a “Did You Know” posting by RAU to CU-LIB on 5/27/2010)

- 57% of the seniors said that the library contributed ‘quite a bit’ or ‘very much’ to their ability to conduct research, while only 15% said it contributed ‘very little’ or ‘not at all.’ Of the four areas, conducting research was the one most significantly impacted by the library.
- The second most impacted area was student efficiency (49.7% report a significant impact, while 19.6% say there is no or very little impact.)
- Academic success was a close third (48.7% significant impact vs. 18% no or little impact.)
- The area that was least impacted by the library’s resources and services was the student’s ability to evaluate the quality of information found (40.6% report a significant impact, while almost 25% reported very little or no impact.)
- Gender: across all areas, females consistently rated the library as having a greater impact to their college careers than did males, by 6 to 10 percentage points.
- College affiliation: Of all the undergraduate colleges, AAP and Human Ecology seniors credited the library with the greatest impact across all surveyed areas, while Engineering and Hotel seniors consistently assigned it the least. In fact, in a unique result, more Engineering respondents said the library had little or no impact on them in two areas (research efficiency and information evaluation) than those who said the library impacted them quite a bit or very much. See the bar graphs below for more details.
- Race and GPA seemed to make no significant difference in how these impact questions were answered.
Some key findings (includes direct quotes from the report)

- College students, indicated that search engines deliver better quality and quantity of information than librarian-assisted searching—and at greater speed.
- College students trust both the information they get from libraries, and that they get from search engines almost equally.
- College students are happy to self-serve and they are confident that they can serve themselves well. Most say they have not asked for help using any library resources.
- Libraries lack relevance in the lives of younger respondents. Library resources and services are not clearly differentiated from other information sources.
- The majority of college students are still not making high use of the array of electronic resources libraries make available.
- The library is not the first or only stop for these information seekers. Search engines are the favorite place to begin a search.
- Many college students do not differentiate between what is offered by libraries and what is offered by search engine companies.

Conclusions

The examples given here only scratch the surface in terms of available sources, and the level of analysis possible. Through judicious collection of original data, thorough analysis of any data collected, and supplementation with results of work in the scholarly literature, a wealth of data about students is available.

Others universities that have made an investment in large-scale studies of their students' research needs and habits, such as Ohio University (Informing Innovation: Tracking Student Interest in Emerging Library Technologies) and the University of Rochester (Studying Students: The Undergraduate Research Project), report significant value in their findings. They also acknowledge that we must all allow ourselves to be informed, at least in part, by high-level trends revealed in national and international surveys and studies of college students. The key, they say, is to find the proper balance between reliance on broad trend data, and an understanding of the unique characteristics and requirements of the local student body.

In some cases, such as patterns of information technology ownership and adoption, Cornell trends seem to mirror those found at other institutions, and nationally. We can't necessarily assume this will carry over to all areas, but if we reject
the applicability of findings made elsewhere to Cornell, we should be prepared to explain what is different about the local student population to justify such a stand.

This report is not designed to assess how of the findings presented here should inform strategic planning. Still, we can encourage thinking about their potential relevance. For example: are our efforts to support services for mobile devices warranted by the facts? Should more attention be paid to the needs of users who prefer Mac OS as their primary computing platform?

We need more data, and we need to make the best use of the data we already have. But we also need to be thoughtful in our interpretation of data, and recognize that even comprehensive, highly localized data has the potential to be misapplied.

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1. Catherine J Alvord and Marin E Clarkberg, Fall 2009 Undergraduate Enrollment Report, Cornell Institutional Research and Planning
4. ibid Enrolled Student Surveys
5. ibid Enrolled Student Surveys
7. UVa First-Year Student Computer Inventory
8. CIT's ResNet statistics are not publically available. Some published sites have obtained the data and summarized them such as Mac Market Share Rising at Cornell University and Percentage of ResNet Subscribers Registering with a Macintosh Computer.