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# Libraries, information and student learning

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Arguably the most important invention in educational history was movable type by Johannes Gutenberg. Around 1439, mass communication and literacy became possibilities as they never had been in previous human history. The implications for universities were obvious: a great university needed a great library since that was where information and knowledge were stored.

As books spread and their cost came down, individuals had significantly more access to information, but no single individual could have a library that ever rivaled the great universities. This was the state of knowledge and information for over five hundred years, and it explains why, at least among academics, the greatest university libraries could even be known by their own names: Widener (Harvard) or Bodleian (Oxford). They were like rock stars—Sting, Cher, Madonna or Bono. The correlation between library quality, usually measured by the number of volumes, and university quality was extremely high. This was in part because a well-resourced library usually meant a great endowment, but access to the information and knowledge in books also meant the potential for a fine education.

In the late 1990s, of course, another information revolution happened. The internet brought the democratization of information much further than cheap books ever could. In less than two decades, anyone with a computer and a good internet connection had access to information that rivaled or even surpassed the great libraries of the world. The internet changed the world of information, data and knowledge. While Widener arguably remains the best academic library in the world, the gap between the information a Harvard student has access to and what a Saint John's University student can get in Collegeville has become almost indistinguishable for the typical undergraduate's needs.

The academic playing field in terms of information access has leveled in ways that were once unimaginable. That is not to say that education quality has necessarily become identical across institutions. Information is only one input into the process. Faculty quality and commitment, the importance of peer quality and behavior (cohort effects), the extra-curricular experience and many other factors are part of a great educational experience. But, nonetheless, something fundamental changed because of the internet.

For educators, one of the most interesting questions and challenges is how students use this amazing gift of information: texts,

data, images, sounds, videos, etc. A recent *Chronicle of Higher Education* article explored one aspect of this new world. Using data from the Association of Research Libraries, Brian Matthews looked at the number of "reference queries" that research libraries received annually. Basically, how many questions did students ask professional reference librarians over the course of a year? The two tables below show the top ten research libraries by reference queries for 1995 and 2014:

**Reference Queries: Top 10 Libraries, 1995**

| Rank | Institution name | Reference Queries (1995 - 2014) |
|---|---|---|
| 1 | WAYNE STATE | 1,161,212 |
| 2 | OHIO STATE | 923,676 |
| 3 | INDIANA | 643,240 |
| 4 | CALIFORNIA, LOS ANGELES | 564,973 |
| 5 | PENNSYLVANIA STATE | 504,321 |
| 6 | TEXAS | 487,775 |
| 7 | WISCONSIN | 452,952 |
| 8 | ILLINOIS, URBANA | 451,300 |
| 9 | MARYLAND | 440,525 |
| 10 | TORONTO | 411,622 |

**Reference Queries: Top 10 Libraries, 2014**

| Rank | Institution name | Reference Queries (1995 - 2014) |
|---|---|---|
| 1 | TORONTO | 205,770 |
| 2 | DELAWARE | 143,971 |
| 3 | UTAH | 139,211 |
| 4 | NEW YORK | 129,253 |
| 5 | HARVARD | 114,618 |
| 6 | ILLINOIS, URBANA | 107,251 |
| 7 | CALIFORNIA, LOS ANGELES | 102,818 |
| 8 | MICHIGAN | 102,143 |
| 9 | TEXAS | 88,713 |
| 10 | SOUTHERN CALIFORNIA | 87,698 |

Clearly student behavior has changed dramatically in the 20 years since the information revolution spurred by the growth of the internet. What is less clear is what this means. Assuming the nature of assignments and student work has not changed dramatically (the same number and type of research projects and papers are being assigned), there seem to be two possibilities:

1. Students are simply finding most of what they think they need for their work on the internet, and therefore they are asking fewer questions.
2. The nature of the questions is changing and reference librarians are doing a different kind of work.

It seems that one obvious way to test these hypotheses is to look at what has happened to the number of reference librarians. If the questions are the same but fewer in number, we would expect the number of reference librarians to drop, as it would take fewer of them to answer significantly fewer inquiries. If the questions have changed and the nature of the reference librarians' task has become more complicated, the number of librarians could stay the same or even grow.

A quick internet search revealed that in 2014 there were 26,000 academic librarians employed in the US and 59,000 other paid staff. However, comparable data was not readily available for 1995.

Using the *Bureau of Labor Statistics Occupational Outlook Handbook*, overall librarian employment was predicted to grow by

7% between 2012 and 2022. Nothing very definitive here, but there does not seem to be a drop in demand for librarians, suggesting that the changing number of reference queries might also reveal a change in the type of queries.

One librarian, commenting on the data above, offers a description of how his or her work had changed since 1995 that is consistent with what faculty at Saint John's University and the College of Saint Benedict have observed:

> *I worked for 34 years as a reference librarian up to five years ago and my experience was that the nature of the questions changed from fact based to more evaluative inquiries. For instance a question in 1995 would have been, "What is the population of Sudan?" A more recent question would be, "What effect have refugees from Sudan had on the society and economy of Kenya?" Fact and figures, the bread and butter questions of yesteryear, are readily available on the internet or one of the many library subscription databases. The more recent questions call for more critical thinking skills and evaluation skills. Library instruction and higher expectations from the classroom faculty are in part responsible for this trend.*

I think educators observing this change in behavior among students as a result of the second information revolution would have at least two reactions:

1. **A cause for concern**: as students seek out factual data, are they capable of evaluating its quality? To simply say, "I found it on the internet" is hardly a confirmation of legitimacy. Well-educated students swimming in an ocean of information and data need to be discerning consumers of the incredible resources they have access to. It is here that reference and data professionals continue to be necessary, even if students are not always aware of their own needs. Colleges and universities now spend much more time on information literacy than they ever did in the past, and that educational process begins with learning how to evaluate sources of information.
2. **A cause for celebration**: students all over the world are quite literally capable of more and better work than they were before the internet revolution. The "evaluative inquiries" described by the librarian above are much more sophisticated and subtle than merely factual questions. They also readily lend themselves to being framed as hypotheses: refugees from Sudan have harmed (or helped) the economy of Kenya in X ways for Y reasons. Rather than spending many hours gathering factual data, students can move quickly to research questions that were not possible for undergraduates before the internet existed. Faculty know this and teach accordingly. Personally, I have directed senior theses in economics that were undoubtedly masters' quality work in the late 2oth century, yet were "merely" good but not extraordinary work for the 21st.

The second information revolution is almost exclusively a good thing as it democratizes access to information for students (and non-students) around the world. It does suggest that colleges and universities need to think carefully about what it means to graduate well-educated digital natives, as the millennials are sometimes called. Among other outcomes:

1. Information literacy is likely to become as essential as good writing and communication for future students.
2. Faculty will need to continually evaluate their assignments and expectations as the availability of information and data continues to grow.
3. The already close relationship between library staff and faculty is likely to grow stronger as information and data professionals are needed to keep faculty abreast of the constantly growing availability of information in each professor's specialty.
4. And students are going to continue to need ongoing – and maybe growing – help from reference professionals as they navigate the sea of information to ask deeper and more complicated questions.

Our plans to renovate, re-design and add to Marcel Breuer's beautiful Alcuin Library at Saint John's University are driven in part by these new realities brought about by the internet revolution. The result of these internal and external changes will be graduates who are likely to be better educated than any previous generation in history.

By Michael Hemesath | July 6th, 2015 | Categories: Higher Education, History | 0 Comments

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Michael Hemesath is the 13th president of Saint John's University. A 1981 SJU graduate, Hemesath is the first layperson appointed to a full presidential term at SJU. You can find him on Twitter [at] PrezHemesath.