Patterns of Journal Use: What Are Our Users Telling Us?

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There is, of course, no such thing as a monolithic "information user." We have typical groups and subgroups of users and select or design products and services that best meet these typical needs of major groups. Certain caveats underlie all of our comments and conclusions:

- **There is no one "user," only indicative user types or groups.** We design products and services for a majority of our user group or the groups and subgroups that are most readily identified.

- **User behavior is like evolution.** Sometimes it advances in a steady progression, but at other times it may be subject to fits and starts or slow periods followed by quantum leaps. Another way to express this is that patterns of user behavior may be subject to disruption temporarily or permanently by unforeseen technological innovations (for example, the Web in the mid-1990s) or world events (for example, 9/11). In most cases users' expectations build as they use and experience new things.

- And finally, whenever we talk about human behavior we are by necessity talking about averages of groups or subsets—typical behaviors, not every single thing every individual will ever do. The unexpected individualistic behavior is interesting but not always helpful for product design.

In spite of these caveats, we actually now know quite a bit about average and typical behaviors of our major groups through hundreds of studies conducted over the last decade. Tenopir's recent report for the Council on Library and Information Resources (CLIR) summarizes these studies and provides further details.¹

This chapter concentrates on subject expert users: faculty and other researchers who know about their subject and about quality of sources. Clearly there are many subgroups within this main group, including different branches of science and different workplaces. For a further discussion of the differences between engineers, chemists, and others, see Tenopir et al. and King et al.² Boyce describes one user group, astronomers, in detail (see also previous chapter).³ In this chapter we concentrate more on what we have learned in general about science faculty during three recent surveys. The surveys were conducted between 2000 and 2003 at the University of Tennessee, University of Pittsburgh, and Drexel University. For more details on these surveys see King.⁴

University scientists read more than almost any group except graduate students. As shown in Figure 1, on average the number of articles read by university science faculty has increased from approximately 150 articles per year in surveys done by Donald W. King in 1977 to more than 216 articles per year in our 2000–2003 surveys.⁵ Because scientists are reading more, they value system features and services that help them read more in not much more time. They tell us loud and clear that desktop delivery, no waiting, and no direct charges to them are important factors in e-journal use.
There is still considerable variation among subject disciplines, with engineers reading the fewest articles per year (on average 72 articles per year), and university medical faculty the most. Total time spent reading varies as well, because engineers spend the most time per article (81 minutes per article on average), and university medical faculty read the greatest number of articles (322 articles per year on average) but in rapid fashion (spending on average 22 minutes per article). Medical faculty need portable, well-organized articles for the large amount of current awareness reading they do on the run; engineers like to sit down and get their teeth into an article they choose for reading.

The number of personal subscriptions has gone down steadily for most researchers, from nearly six several decades ago to under two currently. (See Figure 2.) Medical faculty still subscribe to over six paper journals, however, university faculty subscribe to more than other researchers. In conjunction with the decline in number of personal subscriptions, the importance of library-provided journal articles has grown.
Readings from library-provided articles vary from 34 to 48% in the surveys conducted at the University of Tennessee, University of Pittsburgh, and Drexel University and actually are probably much higher as faculty are often not aware of the origins of something they get on their desktop (see Figure 3). The University of Tennessee libraries, for example, did not do much branding of their electronic journal collections at the time of this survey, so faculty did not realize the role the library played in their journal access.

![Figure 3. Source of Readings by Faculty: 2000-2003.](image)

The number of sources for articles has increased for most scientists, so that most now rely on a variety of sources for journal articles. Most readings come from library-provided print and electronic subscriptions, from aggregator databases provided by the library, or from personal print subscriptions, but anywhere from 12 to 22% of faculty readings come from separate copy sources. Separate copies are articles divorced from a journal or from a fee-based aggregated database, including e-prints, pre-prints, reprints, articles sent by colleagues, and articles found at author Web sites or other free Web aggregators.

Personal subscription readings are still almost all in print journals; at the University of Pittsburgh and Drexel University the library readings are mostly electronic. The policy of the library can have a big impact: Drexel University implemented a policy several years ago to almost totally rely on electronic journals. Pittsburgh and Tennessee have extensive print and electronic collections, but Tennessee was in transition at the time their survey was conducted in 2000–2001.

There is an even bigger variation by subject discipline, however. As can be seen in Figure 4, scientists and social scientists read much more in electronic sources for journal articles. Humanists (nonscientists) still rely on print for three-quarters of their readings. It is difficult to say whether this reflects merely availability of electronic resources or preferences.
About one-quarter to one-third of readings is of articles older than a year old, and these are reported to be of high value for the purpose of reading. Over time, we have found these proportions to hold true: The same percentage of older materials is read as was true in the 1970s through 1990s. As shown in Figure 5, for older articles, scientists rely heavily on the library-provided sources.

In summary, recent research reports show many things that faculty are telling us about their use of journals and e-journal alternatives. We can say with confidence from the results of many research reports that:
Faculty adopt e-resources if they are convenient, relevant, and time-saving.

There is no one right solution for every subject discipline.

Print is still used at times in every discipline.

Print is still most popular for books.

Two-thirds of readings are in the first year of publication.

Most e-journal users print out relevant articles.

Browsing in core journals is important, especially for current awareness.

Searching is important for new topics, research, and writing.

E-journal readers read in more titles than print readers, but an 80-20 rule applies.

Reading from library-provided electronic materials is increasing (although readers may not be aware of where their electronic resources are coming from).

Notes


4. King et al., "Patterns of Journal Use by Faculty at Three Diverse Universities."


6. King et al., "Patterns of Journal Use by Faculty at Three Diverse Universities."

7. Tenopir and King, Towards Electronic Journals; Tenopir et al., "Patterns of Journal Use by Scientists Through Three Evolutionary Phases."

8. Carol Tenopir, Donald W. King, and Amy Bush, "Medical Faculty’s Use of Print and Electronic Journals: Changes Over Time and Comparison with Other Scientists," Journal of the Medical Library Association (April 2004).


10. Tenopir et al., "Patterns of Journal Use by Scientists Through Three Evolutionary Phases."

11. Tenopir, "Use and Users of Electronic Library Resources."