

# How do you read papers?

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Working in science is as much about reading papers as it is about writing papers. There are usually two ways you can come across an interesting scientific paper:

- Active Searching. Literature search on a particular topic
- Passive Browsing. Scanning the literature in regular intervals for papers of interest

The focused active search is typically used when you collect information for a research project or write a paper or grant proposal. This is stuff for another blog post and can be better explained by a science librarian like Oliver Obst or Frank Norman. Now I want to talk about different ways to keep track of the current literature in your field. I would assume that most if not all people involved in science do this in one way or another, and I also think that many people are struggling with the best strategy (see Richard's related post on this topic: Too many fish in the sea).

The basic concept behind browsing is that it is a passive activity where the scientific papers come to you regularly in one way or another. A good strategy should be efficient (not involve too much of your time), cost-effective and should have a good signal to noise ratio (i.e. finds many interesting papers without going through too much uninteresting stuff).

## Journal Subscriptions

The old-fashioned way. You receive a print copy of journals of interest in regular intervals and flip through the journal. This strategy works for a few journals, but is usually too expensive and too unfocused as a general strategy. I currently have three personal journal subscriptions, but the main reasons are that I either can't get them in electronic form or have no institutional subscription. Departmental subscriptions that are circulated around help saving some costs. But I have to confess that I haven't been to a library to flip through a few journals for more than 10 years. I very much like the feeling of a printed journal in my hands, but browsing in electronic form is not only cheaper but also much faster (even more so with articles released early in electronic form). Many journals now exist only in electronic form or publish articles continuously rather than in a weekly or monthly schedule.

### **Journal tables of content (TOC) by email or RSS**

I would guess that this is currently the most popular browsing strategy. I prefer RSS to email because it means less clutter in my email inbox and because every journal article is a separate item that can be saved for later. I currently follow 8 journals. Papers also uses this strategy, but this feature could be refined in future versions of the program. The TOC strategy probably works best for the leading journals in your field of research, but isn't very efficient for journals with only 1-2 interesting articles per issue, e.g. high volume general interest journals such as PNAS. Podcasts (e.g. the Nature Podcast) are basically extended TOCs in audio format.

### **Filtering by experts**

You let someone else do the filtering for you. The traditional approach is the review article. The major drawback is of course the delay between publication of the original research and the publication of the review. A different – and faster – approach is used by Faculty of 1000 Biology (they also have a similar service for medicine). The most interesting papers are highlighted and reviewed by leading researchers in the field. Research Highlights in Nature and similar features in other journals try to do the same on a much smaller scale.

Filtering by experts is a resource-intensive and subjective process, and it is very possible that very exciting research published in an obscure journal might be missed. Most will remember that internet search started out with expert filtering, exemplified by Yahoo. It didn't work.

### **Filtering by author or keyword**

A good browsing strategy should consider the papers you have read already. In the approaches mentioned above this happens in your mind when you flip through the table of contents of a journal. A smarter approach is to regularly receive customized searches (again delivered via email or RSS). This is a popular strategy (explained here for PubMed) and can involve keywords (e.g. the molecule or organism you work on) or authors (your colleagues and competitors).

### **Filtering by papers you read**

A more systematic approach would not just pick a few keywords, but would use the information from all the papers you've read already, particularly those that you liked. Social bookmarking tools such as Connotea or CiteULike have this information, but only if you give type in all those papers. It is more convenient to use that information directly from your reference manager where you have stored references or even fulltext PDFs to your most important papers anyway. Reference managers are usually used for writing papers and unfortunately don't yet use this information to help you find interesting papers. One reason I like Papers and Mendeley is that they both have the potential to fill this gap.

### **Filtering by papers others read**

You probably have guessed that this blog post would somehow suggest a Web 2.0 solution to this problem. The papers stored in the reference manager of other scientists can of course be used to find papers that might also interest you. This process can of course be automated (rather than the personal recommendation from a colleague) and should be anonymous. But neither Connotea nor CiteULike do that, and I don't know of any other online tool currently available.

In 2010 I want to use a tool that scans Pubmed or other databases for papers of interest based on the papers stored in my reference manager. The tool would give me a weekly report that can also be printed out for reading and note taking.