

The Role of Search Engines in Advancement of Education

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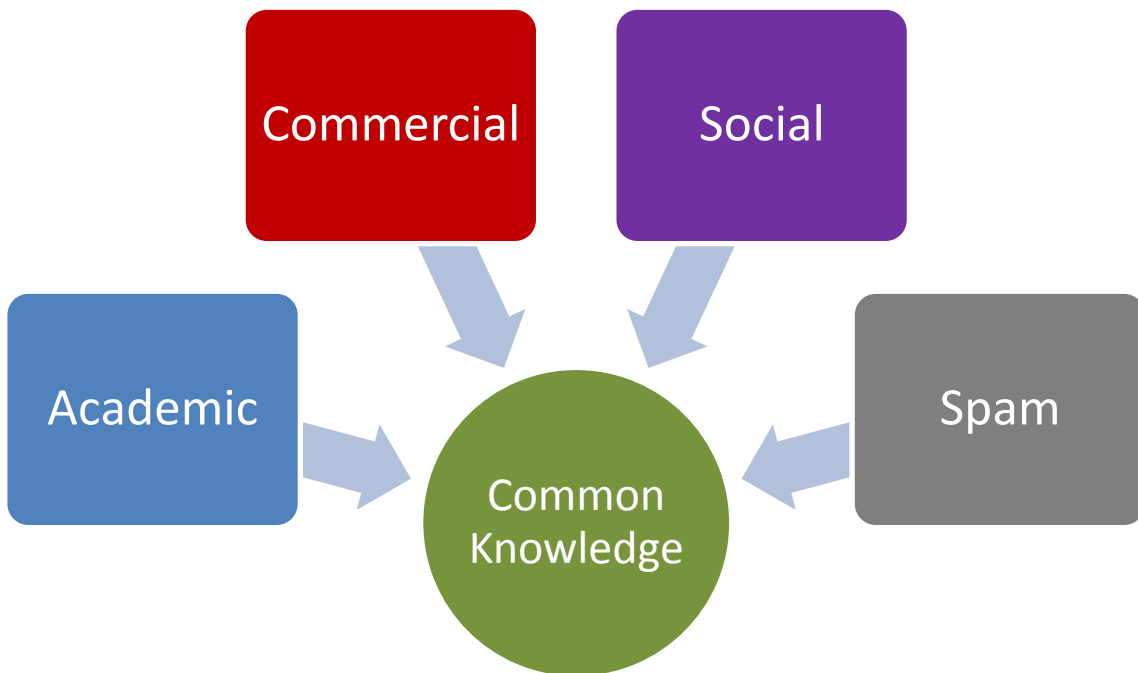
Read any science fiction story written between 1950 and 1980 and find flying cars, interstellar vehicles equipped with near the speed of light engines, ability to fold space and of course robots. A contemporary reader may be entertained at first but will soon bump into some disappointingly short-sighted concepts such as printed newspapers and books, huge inter-galactic libraries, information being stored on microfilm and tape recorders and even paper mail delivery. One thing all these stories have in common is that they all fail to match their vision of our engineering skills to how we will communicate, learn, store and transmit information in the future. In fact nobody anticipated the end of the space exploration era and the start of the information revolution.

Main driving forces in the advancement of learning and education of the future

Search Skills & Real Time Knowledge

- Retrieval
- Validation
- Updating

Modern technology has changed the way we communicate and exchange information and the biggest shift is currently taking place in the publishing end of information exchange. Today anyone who has something to say can easily publish their thoughts online using a variety of different platforms. This has led to the new type of online personality - The Prosumer, a blend of producer and a consumer. Micro-publishers are numerous and the number of online resources is growing rapidly. Information is quickly digested by many individuals, interpreted, re-interpreted and even distorted. Search engines, in response, are trying to keep up with algorithmic changes and attempting to understand how trustworthy a resource is in order to sort their search results.



Academic world has developed series of devices and procedures for keeping order in the mix of different sources of information including research, journals, publications and the way academics reference and utilise each other's knowledge. This process has been relatively slow in comparison to today's standards where information is literally flowing in real-time and in high bandwidth (Related: <http://dejanseo.com.au/the-future-of-real-time-information/>). One of the most essential skills of a future student is to be able to search efficiently and validate the information in order to distinguish facts from fiction and spam.

What Search Tools are Currently Available

Google Scholar

<http://scholar.google.com/>

Most students and lecturers are familiar with Google Scholar, however it's little known that due to the fact that this is an algorithm driven search engine it is possible for invalid resources to infiltrate their results. Using references and citations is one way to validate, however discriminating non-referenced resources could exclude valid fresh knowledge.

Google Advanced Search

http://www.google.com/advanced_search

Though designed for a common user, Google is packed with powerful search tools and use of advanced search features could be highly beneficial in the learning and research process. One such feature is searching by Reading Level. For example if we search for "Global Warming" in Google we

will find a mix of variety of resources out of which some may not be relevant to our research. By setting the search parameters to "Advanced" reading level we may start to see the quality of results greatly improved for our purpose.

Here is an example: <http://www.google.com/search?q=global+warming&tbs=rl%3A1%2CrIs%3A2>

Following is the list of adjustable parameters in Google Advanced:

- Keyword Inclusion (global warming)
- Phrase Inclusion ("global warming")
- Keyword Exclusion (global warming -Europe)
- OR operator (global warming Europe OR Australia OR "new zealand")
- Number of Results
- Language
- File Type (global warming filetype:pdf)
- Site / Domain Search (site:qut.edu.au global warming)

Additional search parameters may apply for:

- Document publishing/discovery time (anytime, past 24 hours/week/month/year or specific range)
- Licensing / Usage rights
- Keyword Location
- Geographic Region
- Numeric Range
- Safe Search
- Page Similarity
- Linking Resources

An example of an advance search query may be as follows:

global warming "research paper" -business filetype:pdf site:.edu.au

Custom & Specialised Search Engines

<http://sedu.com.au/> | <http://www.wolframalpha.com/>

There are custom search engines such as SEDU (Search Education) which are modified versions of Google search which produce only trusted results (in this case from .edu.au resources only). An example of a specialised search engine is Wolfram Alpha which is a computational search engine.

Universal Search

Universal search is the concept of search engines displaying everything in the main results as seen

necessary, however universal search can be used to slice the results vertically by search type even real time and social media:

- Everything
- Images
- Videos
- News
- Shopping
- Realtime
- Books
- Places
- Blogs
- Discussions
- Recipes

Search Suggestions

Search engines today collect an immense amount of data and can easily co-relate relevant searches. Research process can be greatly aided by following search engine's own suggestions as it can often lead to a relevant learning path.

Example Search: global warming

Relevant Searches:

- effects of global warming
- global warming hoax
- facts about global warming
- global warming causes
- global warming article
- global warming definition
- global warming pictures
- global warming solutions

Search Timeline

Google offers a search result timeline which can offer insight into references of a particular term or phrase online and even in offline literature.

Example:

http://www.google.com/webhp?hl=en&tab=sw#q=global+warming&hl=en&site=&prmd=ivnsub&source=Int&tbs=tl:1&sa=X&ei=xmiJTb_ZBoe6vwO-uZxEDg&sqi=2&ved=0CB8QpwUoAw&fp=ea0f52220ef4677e

Similar to this Google Labs currently features their Books Ngram Viewer:

<http://ngrams.googlelabs.com/> which can produce interesting results.

Example: <http://dejanseo.com.au/money-vs-love/>

Wondering about the future? Take a look at Google Labs

<http://www.googlelabs.com/>

And finally if you are curious to find out what search engines are getting up to, take a peek at their labs section and you will discover some of the potential release candidates which may change the way we search today.