Internet Search Tactics

Alastair G. Smith
School of Information Management
Victoria University of Wellington
alastair.smith@vuw.ac.nz

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Abstract

Purpose

Bates' Information Search Tactics have been influential in the practice and teaching of online searching since they were published in 1979. This article is about using information search tactics to search the Internet, and presents a set of tactics useful in the practice and teaching of Internet searching.

Design/methodology/approach

Tactics used on the Internet were gathered from the literature, websites, and the author's experience of Internet searching. These were compared with the Information Search Tactics, and refined into a set of Internet Search Tactics.

Findings

The article presents 34 Internet Search Tactics: 18 of the original Bates tactics, interpreted in the context of the Internet, and 16 new tactics. While many of the information search tactics are relevant, effective Internet searching requires recognition of the role of relevancy ranking and full text searching in search engines. The uncontrolled nature of the Internet means that evaluation of information resources is an integral part of Internet searching, so a group of evaluation tactics have been proposed.

Practical implications

The tactics provide a framework for teaching effective Internet searching.

Originality/value

Bates' information search tactics do not appear to have been applied as a whole to searching the Internet. The proposed tactics will be useful for librarians and researchers who need to carry out effective searching on the Internet, and for information literacy education. Research into information seeking and search interfaces will be informed by the tactics.

Keywords

Internet Searching; Search Tactics; Search Engines; Internet Directories; Evaluation of Internet Information

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Introduction

In the database search era Marcia Bates developed the concept of *Information Search Tactics*: moves that furthered a search in an online database (Bates 1979b). Information Search Tactics have been influential in the teaching of database searching for three decades and have been widely cited in studies of online user interfaces and information seeking behaviour. Google Scholar records approximately 400 citations to Bates' article in *JASIS*.

The current article reprises Bates information search tactics, discusses how they apply to Internet searching, and presents *Internet Search Tactics*. Internet search tactics are moves that aid users to effectively pursue a search on the Internet. Internet Search Tactics provide information professionals with a toolkit of techniques that can be used in user education and information literacy. Internet search tactics also provide researchers with models for the investigation of information seeking behaviour on the Internet, although this is not their primary purpose.

The proposed tactics have been developed from: considering the applicability of Bates Information Search Tactics to the Internet; a literature search for Internet search tactics mentioned in articles, websites, etc; and drawing on the author's own experience of teaching and practicing Internet searching.

Bates Information Search Tactics

Bates distinguished between search *tactics*, moves to further a search, and search *strategy*, a plan for the whole search. While acknowledging the importance of strategy, she concentrated on tactics, as does the current article. She gave the tactics brief names, capitalised for prominence. Bates Information Search Tactics fall into four types:

- Monitoring tactics: keeping aware of the overall progress of the search, e.g. CHECK: review the original request and compare it to the current search.
- File structure tactics: using the structure of the database to find information, e.g. BIBBLE: to look for a bibliography or review article on the topic to save the effort of carrying out a full search.
- Search formulation tactics: which aid the formulation of specific search commands, e.g. EXHAUST: to include most or all elements of the query in the search formulation.
- Term tactics: which aid in the selection and revision of specific terms within the search formulation, e.g. TRACE: to examine information already found in the search in order to find additional terms to use in the search.

Bates' tactics were originally conceived as being relevant to both manual and database searching - a later article (Bates 1987)discussed the tactics specifically in the context of online searching.

She saw them as being useful for both facilitation (used by searchers in the practice of searching) and teaching of searching (providing a structure that enabled searching skills to be passed on). In the 1987 article, Bates acknowledged that in database searching field restrictions and full text searching were important tactics, but did not discuss them further. While there are limited implementations of field restrictions on the Internet, full text searching is of course the basis of Internet search engines such as Google.

Bates also proposed *Idea Tactics* (Bates 1979a): these are at a higher level, describing psychological approaches to the search process, for example BRAINSTORM is to "generate many ideas and suspend critical reactions until the ideas are well formed and can be fully evaluated"; and are less dependent on the technology or the structure of the information resources; although technology has changed the means by which some of the idea tactics are pursued; for example CONSULT "to ask a colleague for information or suggestions in dealing with a search" may well be done via email or a blog. While idea tactics provide some valuable hints for Internet searching, they are generally not Internet specific, and will not be discussed further here.

How do Information Search Tactics translate to the Internet?

Many of the Information Search Tactics are directly relevant to the Internet. The **monitoring** tactics (CHECK, WEIGH, PATTERN, CORRECT, and RECORD) are largely technology independent, and are useful to emphasise in Internet searching, for example to counteract the temptation to plunge straight into a Google search when PATTERN might indicate that another search approach is appropriate, or to be diverted by interesting sites that a CHECK might reveal are unconnected with the original search. Some aspects are automated - for example RECORD is facilitated by the browser history which retains a record of links followed and pages visited.

Bates discussed **file structure** in a broad sense - the overall structure of organisation of an information facility: not just database files, but also catalogue files, book indexes etc. In the Internet environment, file structure tactics are those that utilise the structure of different information resources on the Internet. This is particularly important as many users do not fully appreciate the range of sources on the Internet, simply saying that they "found it on Google". However file structure poses some problems in the Internet environment, since there is a lack of the ordered structure, such as fields and authority control, that existed in the library based databases that Bates was concerned with. File structure on the Internet is a rapidly changing area, with new forms of social media such as blogs and Twitter becoming significant information sources.

Search formulation tactics are significant in using Internet search engines. However Bates tactics are based in the boolean search model, fine tuning the retrieval set by tactics such as PARALLEL: using the OR operator to include synonyms, making the search broader. While the Bates search formulation tactics are important in using Internet search engines, they were designed for use with indexing and abstracting databases, rather than full text, and do not recognise or utilise the sophisticated relevancy ranking of Internet search engines.

Bates' **Term Tactics** were influenced by thesaurus structures: SUPER to move to broader terms,

SUB to move to narrower terms, etc. While these are still useful concepts on the Internet, search engines are effectively full text databases and searches can be made on very specific terminology: the key to successful searches is anticipating the terms that might appear in a relevant page. However when searching meta-sources such as directories, the use of related and broader terms may be valuable.

There is a major difference between the controlled, library-based databases that information search tactics were designed for, and the uncontrolled resources available on the Internet. A user of library resources can assume that information found has passed some basic quality control tests: peer review in a journal, the editing process of a publisher in the case of a book. In Internet searching, evaluating information is a key stage in the search process, so the proposed Internet search tactics include tactics for the evaluation of information.

Internet Search Tactics

Table 1 summarises the proposed Internet search tactics. As with Bates' Information search tactics, they are grouped into monitoring, file structure, search formulation, and term tactics; and a group of evaluation tactics have been added. Although 18 have been inherited from Bates information search tactics, there are new tactics that are appropriate for Internet searching. This list comprises 34 tactics (from over 100 identified in the literature search), which is somewhat more than Bates' original 29 tactics. It could be that the more complex world of the Internet, a greater variety of tactics are required; on the other hand it could be that with use of the tactics in practice and teaching some will be found to be more useful than others and the list can be further rationalised. The tactics selected are those considered to be the most useful and significant. In some cases several closely related tactics have been combined, and some tactics mentioned in the literature are trivial (for example using the Google “feeling lucky” search) or not good practice (for example phrasing a search as a question).

In this section the tactics will be discussed in detail, referring where appropriate to the research that the tactics are based on.

Table 1 Summary of Internet Search Tactics

Tactics in italics are also Bates information search tactics; where the tactic is unchanged, Bates wording for the definition has been followed.

Type of tactic	TACTIC	Definition
Monitor	*CHECK*	To review the original request and compare it to the current search topic to see that it is the same.
	WEIGH	To make a cost-benefit assessment, at one or more points of the search, of current or anticipated actions.
	PATTERN	To be aware of a search pattern, examine it, and redesign it if not maximally efficient or if out of date
	CORRECT	To watch for and correct spelling and factual errors in one's search topic.

	RECORD	To keep track of trails one has followed and of desirable trails not followed up or not completed.
File structure	*BIBBLE*	To look for a bibliography already prepared, before launching oneself into the effort of preparing one; more generally, to check to see if the search work one plans has already been done in a usable form by someone else.
	PROVIDER	Go to websites that are likely to provide the information; use such a website as a facet in the search.
	URL	Enter a URL to find a site; use a URL or domain name as a term in a search; modify the URL of a relevant page to get further information.
	HUBSPOKE	Follow links from a landmark web page in a hub and spoke pattern, perhaps using separate windows/tabs, or the browser back button.
	FIND	Use the find feature of the browser to search for text in a page
	BACKLINK	Search for pages that link to a "pearl" page; also useful to identify the new site for a page that has a changed URL
	VALUEADD	Searching for subscription and other value-added databases that contain material that may not be indexed by search engines. This can include sub-tactics: using a hedge of terms such as "searchable database"; searching database descriptions on a library website, etc.
	SOCIALMEDIATE	Search for information in social media.
	TIMETRAVEL	Use cached pages or the Internet Archive to find a site that is no longer available.
Formulation	TELEPORT	Use keywords in a search engine to go directly to target.
	EXHAUST	To include most or all facets of the query in the initial search formulation; to add one or more of the query facets to an already prepared search formulation.
	REDUCE	To minimize the number of facets in the query in the initial search formulation; to sub-tract one or more of the query facets from an already-prepared search formulation.
	PARALLEL	To make the search formulation broad (or broader) by including synonyms or otherwise conceptually parallel terms.
	PINPOINT	To make the search formulation precise by minimizing (or reducing) the number of parallel terms, retaining the more perfectly descriptive terms.
	BLOCK	To reject, in the search formulation, items containing or indexed by certain term(s), even if it means losing some documents that have sections of relevance.
	MINOVERLAP	Search on facets that have minimal overlap, in order to narrow the search as much as possible.
Term	*SUB*	To move downward hierarchically to a more specific (subordinate) term.
	SUPER	To move upward hierarchically to a broader (superordinate) term.
	RELATE	To move sideways hierarchically to a coordinate term.
	CONTRARY	To search for the term logically opposite from that describing the desired information.

	TRACE	To examine information already found in the search in order to find additional terms to be used in furthering the search.
	RESPACE	To try spacing or punctuation variants.
	RESPELL	To search under a different spelling.
	PHRASE	To use a phrase search to maximise the ranking of terms comprised of several words.
	ANTICITERM	To anticipate the kinds of terms that will appear in relevant pages.
Evaluate	CONTEXT	Look at other pages on the site, establish what kind of site the page is on, authority of site, etc
	CROSSCHECK	Check the information against other sources.
	CACHET	Use search tools, such as directories, that pre-evaluate information, or look for evidence of certification of the website.
	AUDITION	Use the appearance of the page - graphics, design, writing quality, etc as an indicator of credibility

Monitoring tactics

As mentioned above, the monitoring tactics are largely technology independent, but are useful for keeping any search on track. Bergson-Michelson (Bergson-Michelson 2010) encourages students to "predict before they click" i.e. consciously assess a search engine results display for a site, for example by looking at the URL and for relevant keywords, before following the link. This is an example of the WEIGH tactic applied to the Internet. RECORD is automatically implemented in the browser history, and is part of the HUBSPOKE file structure tactic mentioned below. Monitoring tactics could usefully be emphasised in Internet searching: Xie and Joo (2010) noted that many participants in a study of search behaviour did not actively monitor their search process.

File structure tactics

File structure tactics use the structure of the Internet, for example domain names and URLs, to determine the choice of search tool to use, etc.

BIBBLE, to use previously created bibliographies or reviews to save the effort of an original search, can be implemented in a number of forms on the Internet. Ramer (Ramer 2005) mentions using links found in the webliographies of relevant pages. Lists of external links in Wikipedia articles are valuable "mini-bibliographies". Internet directories such as BUBL Link constitute ready made bibliographies, and are recommended for getting an overview of a topic by the Berkeley Internet Search Guidelines (UC Berkeley 2009). Another implementation of BIBBLE is to look for sites that are likely to contain further links or webliographies when scanning results lists.

Keyword searches of the Internet are widely used, but may produce information that is either not relevant or that has a commercial orientation. The PROVIDER tactic is to go to websites that are likely to provide the desired information - for example to search for medical information by going to the National Institutes of Health website. PROVIDER can be implemented by searches that have the provider as a facet, or by going to the target website and using its internal search

tools. PROVIDER has been mentioned in various forms in the literature. Muller (Muller 2004) suggests thinking about who might publish the information you are looking for; Stacey and Stacey identify the *information provider* approach to searching: based on guessing the type of organisation or website that will have the information (Stacey and Stacey 2004). Notess suggests "going to the source" (Notess 2006) where information will be pre-evaluated. Kendrick (Kendrick 2007) lists examples of information useful for competitive intelligence and where it might be found: information that might be on a government website as part of a country's planning process, or information that might be significant to a lobby group and appear on their website.

URL is a tactic used by many searchers in its simplest form: typing in the URL of a desired site. This can be ineffective- a mis-typed URL can lead to either an error message or worse still a deliberately misleading site masquerading as a popular site (for example http://www.whitehouse.org, a website satirising the official Whitehouse page at http://www.whitehouse.gov). However the URL tactic appears in the literature in various forms: Nachmias & Gilad (Nachmias, Gilad 2002) found that "direct typing" of a URL was used by students looking for specific pieces of information; Thatcher (Thatcher 2006) in a study of the cognitive strategies of Internet searchers, identified *Known address search domain*, going to a specific website from which the searcher hoped to find the information. Barnett (Barnett 1999) identified "Web address searches" as one of the main tactics in the search engine Magellen. Ramer (Ramer 2005) mentions a variation of the URL tactic: deleting portions of the URL of a relevant page to find related pages on the same site. The URL tactic also includes using the URL as a term in a search: a number of writers such as Watkins and Elder (Watkins and Elder 2006) and Gunn (Gunn 2005) mention using the site: operator to restrict the search to authoritative domains such as .edu and .gov. Ojala (Ojala 2010) suggests including twitter.com and facebook.com as domain restrictions in a search for business information in Web2.0 tools (this is also an implementation of the SOCIALMEDIATE tactic, discussed below).

HUBSPOKE, following links from a landmark site such as a directory or a search result, then returning to it to follow other paths, is a tactic specific to the Internet, and facilitated by browser features such as history and tabs. The tactic has been mentioned widely in the literature, by Thatcher (Thatcher 2006) who refers to "“Parallel hub-and-spoke” searching, Fidel *et al* (Fidel et al. 1999), and Notess (Notess 2006).

FIND, using the browser's find feature to locate specific text in a large web page, is technically trivial, but can be a revelation to novice Internet searchers, particularly those who are wondering why an apparently irrelevant page has been found by their search. It is mentioned by Thatcher (Thatcher 2006) among others.

Interestingly, Bates did not mention citation searching in her 1979 article, but the equivalent of link searching in Internet search engines is a useful Internet strategy. BACKLINK, searching for pages that link to a relevant page using, for example, the Google link: operator, is mentioned by Ramer (Ramer 2005) who calls it "Siteation pearl growing". BACKLINK is also mentioned by Hock (Hock 2008), and Notess (Notess 2006). BACKLINK is more formalised in Google Scholar and CiteSeer. BACKLINK is also useful to identify a the new location for a site for which the URL has changed, since linking pages may have been updated.

A number of writers discuss searching the "invisible web", information that for a variety of reasons is not indexed by search engines, for example Price and Sherman (Price and Sherman 2001). The term "invisible web" implies greater inaccessibility than is in fact the case, but nonetheless searchers need to be aware of the significant value added resources in subscription and other databases which are not covered by search engines. The VALUEADD tactic involves searching for relevant databases through library website lists of subscription databases, using a hedge of terms such as "searchable database", etc.

SOCIALMEDIATE is another approach to the "invisible web", to locate useful information that may appear in Web 2.0 social media such as blogs and tweets. Price & Sherman (Price and Sherman 2001) mentions using the Net's "Baker street irregulars" e.g. mailing lists (or today, blogs and tweets) where invisible web materials may be referred to. A study (Evans et al 2010) of the use of social media in Internet searching identified three types of tactic: *targeted asking*, where specific people were asked; *networked asking*, where a question was posed to a group or a website; and *searching*, where a search was carried out over a social media site or a repository of social media interactions. The study found that social media were cognitive aids to search and sensemaking.

TIMETRAVEL is a new tactic that addresses a specific issue with Internet information. Internet information resources are notoriously unstable, for example Parker (Parker 2007) found that 30% of online references became inaccessible over three years. The TIMETRAVEL tactic addresses this issue of "link rot" by finding pages that are no longer available, for example by using the cache feature of a search engine, or by using the Internet archive (http://www.archive.org/).

Search formulation tactics

Search formulation relates to the way in which terms are put together in a search. In the Internet environment this relates primarily to search engines. The Bates search formulation tactics are relevant, although as mentioned these are based on boolean searching, and Internet search engines have the added dimension of relevancy ranking, and full text searching.

Traditional online searching has emphasised the use of boolean operators and other tools to narrow a search to a small, high precision, result set. However with a relevancy ranked search engine, narrowing queries can result in "precision anomalies", i.e. the same or lower precision (Eastman 2002). The search engine's ranking algorithm is performing the narrowing function, so there is little gain in the searcher attempting to create a smaller set. This of course does not mean the searcher should use fewer terms. The aim should be to add terms that can be used by the relevancy ranking algorithm to bring relevant terms to the top of the hist list. Notess (Notess 2006) concludes that at least for basic searching, boolean searching skills are not useful, but that they are an important background concept to understand how search engines work.

TELEPORT is the most common Internet search tactic - to enter keywords into a search engine that the searcher expects will take them directly to a relevant web page. The term was coined by Teevan *et al* (Teevan et al. 2004) but the tactic has been noted by others under names such as *Shot in the dark* or *Bingo!* (Drabenstott 2001).

EXHAUST, to include all facets of the search in the formulation, is a useful approach on Internet search engines, not so much because of the need to reduce the result set, but because including as many facets as possible maximises the chance that the ranking algorithms will bring the most relevant material to the top of the list. Drabenstott refers to this tactic as "Everything but the Kitchen Sink" (Drabenstott 2001), or *Big Bite* where a search is executed for the main facet of the topic, and then extra facets added to narrow the results down. The Big Bite tactic is essentially the traditional successive fractions approach (Hawkins, Wagers 1982).

REDUCE, to minimise the number of facets included in the search formulation, can be a useful tactic on the Internet, particularly if the searcher suspects that one of the facets is not in fact relevant, or is introducing irrelevant items.

PARALLEL, to broaden the search by including synonyms for the facets, is a logical approach on the Internet, since the additional synonyms give more terms for the relevancy ranking to work with. A particular issue is whether PARALLEL should be used to include several subsets of a topic in the formulation, for example in a search for "Australasia" to include the facets "New Zealand" and "Australia". Stacey & Stacey (Stacey, Stacey 2004) point out that the number of pages on the Internet means that broadening a search is rarely necessary; the challenge is narrowing. They argue that the best approach, when it is necessary to search on several alternative facets, is to have separate search formulations. For example, in a search for the geographic area of the Australasia, a PARALLEL tactic would be to search for "New Zealand OR Australia"; however this may lead to pages relating to Australia dominating the ranking, with the alternate facet New Zealand being lower ranked. In an Internet search engine it may be better to carry out separate searches for New Zealand and Australia in relation to the topic. PINPOINT is the opposite of PARALLEL, to narrow the search by only including the most specific terms for each facet, and is likely to be the default tactic for search engines.

The BLOCK tactic is often recommended for eliminating commercial sites, for example in Google using the forumulation "-site:.com" (Muller 2004; Gunn 2005). BLOCK can also be useful to remove pages that mention a synonym of the required topic. For example a search for the New Zealand reptile, the tuatara, can sometimes retrieve material relating to a music group of the same name, so BLOCKing terms such as "music" and "gig" can refine the search. However the searcher has to be aware of the risks: BLOCKing the term "band" may remove pages mentioning the banding of tuatara for identification purposes.

MINOVERLAP, to choose facets that have little conceptual overlap, is suggested by Stacey and Stacey (Stacey and Stacey 2004). They point out that using terms that frequently occur together is less useful than using terms that are only likely to occur together in a relevant page. So "monet haystacks" will find pages relating to the French artist's famous painting; but "monet art" will not be a useful search, since a page mentioning Monet will almost certainly mention art.

Term Tactics

As mentioned earlier, Bates' tactics SUPER, SUB, and RELATE are based on a thesaurus and descriptor model of database searching. They are useful in Internet searching to help searchers

think about how to choose terms to broaden or narrow the search, particularly in directory tools where categories may have a hierarchical structure. CONTRARY is also useful for many concepts: for example pages discussing the concept of *employment* may use the term *unemployment* with greater frequency.

SUB, to search on specific terms, is a key tactic in Internet searching. As Stacey and Stacey (Stacey and Stacey 2004) point out, search engines are executing a full text search of a huge document store, so the aim is to search for exactly what is wanted. This is in contrast to a bibliographic database, where the searcher is attempting to identify documents which may contain information on the specific topic, but are likely be indexed under a broader topic. So for a search for information about the dorsal fins in whales, in a bibliographic database it would be worth searching for documents about whales, and checking them to see if dorsal fins are mentioned; in an Internet search engine a relevant page is going to mention dorsal fins, so the broader search is not useful. The advice to use specific terms in Internet searches frequently appears in the literature (Muller 2004; Thatcher 2006).

To TRACE, to extract additional search terms from a relevant search result, is an important tactic both in online databases and on the Internet. TRACE has been mentioned in the literature as *citation pearl growing* (Drabenstott 2001), or an *onion search* (Calishain 2004). Search engines have to some extent automated TRACE through features such as *related pages* and *clustering*.

Although search engines have become sophisticated at guessing alternate spellings and punctuation, RESPACE and RESPELL are still important tactics. British and North American spellings, and alternate punctuations can produce different results. For example, *aluminum* and *aluminium* produce differently ranked lists on Google, and the terms *Māori* and *Maori* produce different results depending on whether the macron, representing the long vowel, is used.

PHRASE, to use a phrase search for multiple word terms that are likely to occur as a phrase, is frequently recommended as a term tactic (Sieverts 2000; Notess 2006; Watkins and Elder 2006; Gunn 2005). Although relevancy ranking is likely to bring pages that include the desired phrase to the top of the result list, specifying a phrase is useful, particularly if the combination of words is likely to occur in other contexts, for example "just in time management". Google offers a wildcard search where an asterisk stands for any word, making it possible to search for phrases where not all words are known precisely.

The ANTICITERM tactic helps searchers to anticipate the kinds of terms that will appear in relevant pages. A frequent error by novice searchers is to use question terms in their search, rather than thinking of the terms that are likely to appear in the answer. Notess (Notess 2006) recommends that searchers "think like an author" and use the terms that would be used by an author of a relevant document. Milstein, Biersdorfer and MacDonald (Milstein et al 2006) point out that the Google wildcard can help to search for an answer phrase with * in the place of the information desired, for example "population of vancouver is *". To ANTICITERM is also to use the kind of terminology that would be used by the type of provider required (Stacey and Stacey 2004). For example, *tuatara* finds general pages on the reptile; *Sphenodon* (the species name) finds scientific material. ANTICITERM also means using terminology appropriate to the

desired audience (Laverty et al 2008). For example pages appropriate for school students will use different terminology than pages appropriate for university students.

Evaluation tactics

Evaluation of Internet information resources has been a concern for some time (Smith 1997, Meola 2004, Metzger 2007). As already mentioned, Bates' tactics were intended for use with information resources that, in general, had been through some form of pre-evaluation. Evaluation of Internet information is so critical to the Internet search process that it is worth including evaluation in the overall model of Internet search tactics.

To CONTEXT is to evaluate the context of a web page, for example to look at other pages on the site in order to establish what kind of site the page is on, whether the site is has a bias on the topic, whether there are indications of the authority and expertise of the authors whether there are indications of the source of the information, etc (Laverty 2008). CONTEXT also includes checking the URL to see if it is credible. For example, if it purports to be a government website, is the URL in a .gov or .govt domain? CONTEXT also includes looking at the registration details of the domain. For example a search on the domain martinlutherking.org shows that this site, purporting to provide information on the US civil rights leader, is owned by a white supremacist organisation. Metzger (2008) and Meola (2004) see context as sufficiently important to be an alternative to checklists as an approach to web site evaluation.

To CROSSCHECK is to check the information against other sources, to get independent confirmation. This is referred to by Kim as "verification" (Kim 2010). This can also mean checking known facts on the website to gauge the reliability of the site, and to check whether the information is the most current available. In the case of Wikipedia, CROSSCHECK includes checking if the information has been changed recently, if there is discussion relating to the information, and checking the sources given in the article for the information.

To CACHET is to search using pre-evaluated information, for example subscription databases or directories (Notess 2006), or to look for a certification on the website (Childs 2005), for example the Health on the Net label (http://www.hon.ch/) that indicates reliable medical information.

To AUDITION is to evaluate the appearance of the page - graphics, design, writing quality, etc - as an indicator of credibility (Fidel et al 1999). In the early days of the Web a high quality appearance was not necessarily a guarantee of credibility, and there are many spoof websites that attempt to prove the point. In the past these sites (for example the Dihydrogen Monoxide Research Division http://dhmo.org/) appeared reasonably credible, although now they seem somewhat amateurish. The increased sophistication of web design means that a website that is clearly based on more than simple HTML and standard templates probably does have significant resources behind it, and this sophistication can be an indication of credibility. But the AUDITION tactic should not be a substitute for the other evaluation tactics.

Conclusion

This article presents a set of tactics for Internet searching based on Bates information search tactics. Although the information search tactics were developed two decades before the widespread adoption of the Internet as an information medium, many of the Bates tactics apply in Internet searching. However there are new dimensions to the tactics to be considered, and additional tactics that are useful.

In particular, the uncontrolled environment of the Internet means that evaluation is an integral part of the search, and a set of evaluation tactics have been proposed. Evaluation was not part of the Bates information search tactics, although librarians have developed and used evaluation checklists for reference sources in the print and digital environment. The proposed Internet evaluation tactics include: discovering the context of information that has been found, checking information against other sources, using pre-evaluated sources, and considering the overall appearance of the information source.

The importance of relevancy ranking and full text searching in Internet search engines changes the emphasis in search formulation and term selection, and gives rise to new tactics, perhaps downgrading the importance of traditional Boolean tactics.

The proposed tactics will be useful for librarians and researchers who need to carry out effective searches on the Internet. They will also be useful for educators and information literacy specialists, to incorporate into their teaching. While the number of tactics may be daunting, teachers can pick appropriate tactics to concentrate on, or concatenate tactics, depending on the environment and the needs of students. The tactics may also be useful to information behaviour researchers wishing to categorise the different moves made by searchers, and to search interface designers.

Use of the tactics in practice, teaching and research will lead to refinement of the tactics, and the addition of new tactics, for example in searching for information content in the Web 2.0 social media. It will be useful to test the tactics, for example by comparing the effectiveness of searchers before and after instruction in the tactics.

It is tempting to assume that in the age of Google, users do not need the search sophistication that was required of database searchers in the days when Dialog ruled the information roost. However information literate individuals should be able to carry out effective searches on the Internet that do more than “satisfice” – produce results that are satisfy an information need, but not may not be comprehensive, or the best available. Internet Search Tactics will help address this issue.

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