Tutorial

How to Use Search Engine Optimization Techniques to Increase Website Visibility

—Feature by
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Abstract—**Research questions:** *This tutorial aims to answer two general questions: (1) What contributes to search engine rankings? and (2) What can web content creators and webmasters do to make their content and sites easier to find by audiences using search engines?* **Key concepts:** *Search engines' rankings are shaped by three classes of participants: search engine companies and programmers, search engine optimization practitioners, and search engine users.* **Key lessons:** *By applying three key lessons, professional communicators can make it easier for audiences to find their web content through search engines: (1) consider their web content's audiences and website's competitors when analyzing keywords; (2) insert keywords into web text that will appear on search engine results pages, and (3) involve their web content and websites with other web content creators.* **Implications:** *Because successful search engine optimization requires considerable time, professional communicators should progressively apply these lessons in the sequence presented in this tutorial and should keep up to date with frequently changing ranking algorithms and with the associated changing practices of search optimization professionals.*

Index Terms—*Hyperlinks, keywords, organic search, search engine optimization, search-ranking algorithms, social media, websites.*

Most professional communication practitioners and researchers can point to some content on the web that they themselves have authored, such as on their employers' or clients' websites, or on sites they maintain for professional, personal, or community interests. As a simple experiment, they might try to find that content using only a general web search engine. If, as is likely, they can compose a carefully worded search query by recalling very specific features of the content, such as its title, a distinctive key phrase, the name of the website or of the organization that owns it, and so forth, they stand a reasonable chance of success, with their content appearing on the first page of the search results. On the other hand, if they ask someone else to find the content, someone who does not already know it very well—and that, after all, is typically the condition under which we seek out web content—the chances of success likely diminish. The content may well be found, eventually, perhaps after attempting various search queries and scrolling through many pages of search results.

Regardless of the intrinsic merits of professional communicators' web content, its visibility to prospective audiences often depends on how well the webpage or site ranks in a search engine's results pages, a seemingly enigmatic arbiter of popularity. As a consequence, professional communicators, long accustomed to crafting the information architecture, content, design, and usability of websites and pages for their human audiences, should also orient their web work to the enigmatic intermediate audience of search engines. To help them do this, this tutorial aims to answer two general questions: (1) What contributes to search engine rankings? and (2) What can web content creators and webmasters do on their pages, sites, and the web in general to make their content and sites easier to find by audiences using search engines?

To answer these questions, this tutorial focuses only on general web search engines and delivers lessons that professional communicators can readily implement without specialized technical know-how and without a web marketing budget.

The Key Concepts section introduces a theoretical framework for the tutorial's approach to search engine optimization, describes how the tutorial's literature was selected, defines search-related terminology, and explains how three classes of participants shape search engine rankings. In the heart of the tutorial, professional communicators will learn three key lessons they can apply to make it easier for audiences to find their web content and websites through search engines:

(1) Consider the web content's audiences and website's competitors when analyzing keywords.
(2) Insert keywords into web text that will appear on search engine results pages.
(3) Involve their web content and websites with other web content creators.

Two additional lessons are available in the appendices, shown in downloadable documents at http://ieeexplore.ieee.org: Appendix A: Optimize website content and structure for both human and search engine audiences, and Appendix B: Emphasize keywords in key spots on webpages.

To manage these lessons and their sublessons over the time required for successful search engine optimization, the closing Implications for Practice section recommends that professional communicators progressively apply these lessons in the sequence presented in this tutorial and keep up to date with frequently changing ranking algorithms and with the associated changing practices of search optimization professionals.

KEY CONCEPTS

Search engines dominate among America's and the world's most visited websites [1], [2] and, hence, provide a common intersection for the otherwise distinct interests of web users, search marketing practitioners, researchers, and of course the search engine companies themselves. These classes of search stakeholders contribute in distinct ways to search engine rankings and/or to our research and insight into how to optimize sites to boost those rankings. Their contributions will become evident throughout this section, starting with this tutorial's theoretical framework, which incorporates three classes of these stakeholders, and continuing with a description of how its literature was selected from a slightly different set of three classes of these stakeholders. Then, after introducing basic search-related terminology, this section explains how, from these stakeholders, three classes of participants shape search engine rankings.

Theoretical Framework In principle, the web, hosting a seemingly endless population of content creators and their web content, would appear to have overcome the kinds of hypercompetitive conditions that have restricted aspiring content creators contending for an audience in the traditional mass media. In practice, however, prospective audiences of web users can

meaningfully visit only a tiny fraction of the web's sites, a condition that has led sociologist Alex Havalais to characterize the web's ecosystem as an "attention economy" driven by competition for the scarce commodity of users' attention [3, pp. 57, 68–71].

In such an economy, the key logistic role of channeling users' attention is played by search engines [3, p. 71], which set the competition's rules and judge its winners from among the contending websites. Nevertheless, two other classes of stakeholders indirectly contribute to the competition's rules and results: contending web content creators themselves, and search engine users [3, p. 83].

Search rankings enable web content creators to continually monitor the exact measure of their competitive fitness, or lack thereof: for any given search query, precisely one site ranks in the coveted top spot, and one other in the less coveted second spot, and so on down the steep slope of increasing obscurity. For the vast masses of the web's sites ranking beyond the first page of search results, a search engine like Google, according to Havalais, operates as "a technology as much of ignoring as it is of presenting" [3, p. 57]. Accordingly, some content creators orient their sites not just to directly attracting and maintaining the attention of their prospective human audiences but to accommodating and even taking advantage of search engines and their ranking rules, to the extent that orienting a site to search engines has become a professional specialty: search engine optimization (SEO). In response, search engines conceal the competition's rules and frequently redefine them in order to prevent agonistic content creators and their SEO specialists from gaming the system and thereby undermining search engines' exclusive logistic roles.

Search engine users of course hold the attention economy's key commodity, their own attention, and confer it not only among the sites of contending web content creators but also among search engines themselves, thereby compelling search engines to try to better accommodate users' interests. Since the end of the search is usually more interesting than the search itself, it is in users' interests that search engines serve up among their top results only those sites that best meet their perceived needs, which entails that search engines must rank sites with increasing accuracy on such criteria as their authenticity, topicality, and quality, but especially popularity.

This tutorial explores in concrete detail how each of these three classes of stakeholders contributes to influence search engine rankings in the Three Classes of Participants Shaping Search Rankings section. More generally, it is this perspective of search rankings as an outcome of the symbiotic relationship among various stakeholders that guided how this tutorial's literature was selected and that frames its search optimization lessons.

How Literature was Selected Because a thorough training manual in SEO strategies and tactics would encompass several volumes, this short tutorial limits itself to SEO advice that would seem to be the most broadly relevant to, and readily applicable by, professional communication practitioners. Accordingly, it focuses its lessons on the subset of SEO strategies and tactics that are:

- applicable to popular, general-purpose search engines, such as Google and Bing, as opposed to those specializing just in news, shopping, or scholarship, and so forth;
- applicable to a broad range of websites, as opposed to sites requiring specialized search functionality, such as libraries and e-commerce sites;
- free, as opposed to paid search options such as Google AdWords;
- ethical, as opposed to the deceptive tactics used by spammers; and
- nontechnical, applicable by practitioners with expertise in professional communication, not necessarily in website coding.

SEO strategies and tactics meeting these criteria are of interest not only to professional communication practitioners but also to three classes of stakeholders—overlapping with those introduced in the Theoretical Framework—whose long-standing involvement with web search outcomes has led them to share their SEO insight. Accordingly, this tutorial draws its SEO lessons from the literature disseminated by these three classes:

(1) published advice from search engine companies;
(2) empirical studies from the research community;
(3) much experience-based collective wisdom and occasional empirical studies from SEO practitioners.

Search Engine Companies: The ranking algorithms of search engines companies like Google are their most valuable pieces of intellectual property and,

hence, withheld from public scrutiny. However, some search engine companies publish SEO advice to webmasters, in part in a self-interested attempt to promote "**white hat**" (authentic, audience-directed) SEO practices that would ease their efforts to accurately read websites and to discourage webmasters and web marketers from resorting to "**black hat**" (deceptive) SEO tactics that seek to game the ranking system. Though such advice typically re-states what has long been known by experienced SEO practitioners, this tutorial frequently cites advice from the top two search providers in the market—Google and Microsoft (which serves both Bing and Yahoo searches)—because these two would have to be judged the most authoritative sources on their own search engines and because their advice is so fundamental. Google, in particular, publishes extensive advice for webmasters not only on its own site but also on YouTube, and these sources as well as Microsoft's more limited offerings were combed for insights into the search engines' algorithms and advice on how webmasters could improve their sites' rankings with such algorithms.

Research Community: Whereas much research has explored issues related to search principles and functionality, research conducted primarily for the purpose of re-discovering what Google and other search engine companies already know has understandably remained peripheral to fields like computer science. Hence, this tutorial draws as well on research from fields inquiring not so much into what goes into search engines' algorithms but what comes out, in particular the fields of marketing, library and information science, and internet studies. Searches were conducted on the keywords "search engine optimization" and, to a lesser extent, just "search engine(s)," in such academic databases as Business Source Premier and SciVerse/ScienceDirect, in Google Scholar, and in specific scholarly journals known to focus on web-related issues. Works found through such means were examined for their citations and, using academic databases and especially Google Scholar, for later research that, in turn, cited them, a process that led to other works. Works found through Google Scholar—an especially bountiful resource for web-related research—were carefully examined for their scholarly provenance and were selected only if they exhibited a credible research foundation, such as through their authorship credentials, prior presentation in a scholarly venue, or research methods.