WEB 2.0 TECHNIQUES FOR SEARCH ENGINE OPTIMIZATION:
TWO CASE STUDIES
Ross A. Malaga, Montclair State University, Montclair, NJ, USA

ABSTRACT

Search engine optimization (SEO) is a process that seeks to achieve a high ranking in the search engine results for certain search words or phrases. This process typically involves making certain changes to a site, as well as acquiring links from other sites. One aspect of SEO that has begun to receive much attention by practitioners is the use of Web 2.0 sites and technologies. Knowledgeable practitioners are beginning to use Web 2.0 to achieve multiple high search engine rankings for a chosen word or phrase. The two case studies presented show that the use of Web 2.0 techniques can enable sites to rank well in the search engines. In addition, use of these methods may lead to multiple top listings on the search engines. Finally, the speed and flexibility of Web 2.0 sites and methods allows search engine marketers to promote seasonal or “hot” products.

Keywords: Search Engine Marketing, Search Engine Optimization, Electronic Commerce, Internet Marketing

1. INTRODUCTION

The past few years have seen a tremendous growth in the area of search engine marketing (SEM). SEM includes paid search engine advertising and search engine optimization (SEO). Paid search engine advertising usually works on a pay-per-click basis. The advertiser bids on certain search words or phrases. The amount of the bids and other factors (such as how often an ad is clicked) determine where the ad is placed on the search engine results page (SERP). The advertiser is charged every time a user clicks on the ads.

According to SEMPO search engine marketers spend over $12 billion in 2007. In addition, this figure is expected to grow to over $25 billion by 2011. Of the $12 billion spend on SEM, about 10% ($1.2 billion) was spent on search engine optimization (SEMPRO, 2007).

Search engine optimization is a process that seeks to achieve a high ranking in the search engine results for certain search words or phrases. This process typically involves making certain changes to a site, as well as acquiring links from other sites. The main difference between SEO and PPC is that with PPC the merchant pays for every click. With SEO each click is free (but the Web site owner may pay a considerable amount to achieve the high ranking). In addition, recent research has shown that users trust the SEO (called organic) results and are more likely to purchase from them (Sen, 2005).

One aspect of SEO that has begun to receive much attention by practitioners is the use of Web 2.0 sites and technologies. Knowledgeable practitioners are beginning to use Web 2.0 to achieve multiple high search engine rankings for a chosen word or phrase.

The goal of this paper is to determine if Web 2.0 sites and technologies can be used to improve search engine optimization. There are three specific research questions: 1) Can Web 2.0 sites rank well in the search engines? 2) Can using Web 2.0 sites and technologies lead to multiple, top search engine rankings? 3) Can Web 2.0 sites and technologies be used to market “hot” or seasonal items?

According to Benbasat, et. al. (1987) the case study methodology is appropriate when, “research and theory are at their early, formative stages.” As this is the case with both SEO and Web 2.0 individually, and even more so with the combination of the two, the case study methodology was chosen. The paper presents two cases. The first focuses on using SEO and Web 2.0 to promote a seasonal item – a particular Halloween costume. The purpose of the second case is to examine the use of Web 2.0 and
SEO to promote a “hot” item – concert tickets.

This paper begins with information about search engine optimization. It continues with details about Web 2.0. The case studies are presented. Finally, implications, limitations, and conclusions are discussed.

2. BACKGROUND - SEARCH ENGINE OPTIMIZATION

Search engine optimization (SEO) is a set of techniques aimed at having a site appear toward the top of the search engine results page (SERP) for a certain query (Malaga, 2007). While Web owners and consultants have been using SEO for over a decade, the area has only recently received attention in the academic literature.

2.1 How Search Engines Work

A search engine is simply a database of Web pages (called an index), a method for finding Web pages and indexing them, and a way to search the database. Search engines rely on spiders – software that follows hyperlinks – to find new Web pages to index and insure that pages that have already been indexed are kept up to date.

Although more complex searches are possible, most Web users conduct simple searches on a key word or key phrase. Search engines return the results of a search based on a number of factors. All of the major search engines consider the relevance of the search term to sites in its index when returning search results. So a search for the word “car” would return Web pages that have something to do with automobiles. The exact algorithms used to determine relevance are constantly changed and often kept secret. For example, Google’s algorithm considers over 60 factors to determine relevance (Acharya et. al., 2005).

2.2 SEO History and Current Situation

The concept of optimizing a Web site so that it appears toward the top of the results when somebody searches on a particular word or term has existed since the mid 1990’s. Back then the search engine landscape was dominated by about 6-10 companies, including Alta Vista, Excite, Lycos, and Northern Lights. At that time search engine optimization (SEO) largely consisted of keyword stuffing. That is adding the search term numerous times to the Web site. A typical trick employed was repeating the search term hundreds of times using white letters on a white background. Thus the search engines would “see” the text, but a human user would not.

The search engine market and SEO has changed dramatically over the past few years. The major shift has been the rise and dominance of Google. Google currently handles almost 60% of all Web searches (Burns 2008). The other major search engines used in the United States are Yahoo and MSN. Combined, these three search engines are responsible for over 90% of all searches (Burns, 2008).

In addition, recent research has revealed that 60% of search engine users only click on sites that appear on the first page of the search results – basically the top ten results. Very few users, click beyond the third page of search results (iProspect, 2006).

The dominance of the three major search engines (and Google in particular) combined with the research on user habits means that for any particular search term a site must appear in the top 30 spots on at least one of the search engines or it is effectively invisible. So, for a given term, for example “computer” there are only 90 spots available overall. In addition, 30 of those spots (the top ten in each search engine) are highly coveted and the top ten spots in Google are extremely important. This, along with a growing awareness of SEO, has made obtaining a top spot in the search engines extremely competitive.

3. PRACTICAL ASPECTS OF SEO

Search engine optimization (SEO) consists of three main processes – 1) indexing, 2) on-site optimization,
3) obtaining links.

3.1 Indexing

Indexing is the processes of attracting the search engine spiders to a site, with the goal of getting indexed (and hopefully ranked well) by the search engine quickly. All of the major search engines have a site submit form where users can submit a site for consideration. However, most SEO experts advise against this approach. It appears that the major search engines prefer “discovering” a new site. The search engines “discover” a new site when the spiders find a link to that site from other sites. So the main approach to indexing is getting links to a site from other sites that are often visited by the spiders.

While links from other sites might enable a site to get indexed quickly, it usually takes months for a site to begin ranking well. For example, many people have reported a delayed ranking effect on Google – called the Google sandbox (MacDonald, 2008). This makes it particularly difficult for marketers to use SEO to promote seasonal or “hot” items that require rapid indexing and ranking.

3.2 On-Site Optimization

On-site optimization is the process of making changes to a Web site in order to improve its search engine rankings. Zhang and Dimitroff (2005a,b), Malaga (2007), Raisinghani (2005) and Curran (2004) all point out the importance of on-site optimization. Some of the main on-site factors used by the search engines in order to determine rank include – title tag, meta description tag, H1 tag, bold text, and keyword density.

Meta tags are hypertext markup language (HTML) elements that describe a Web page. They are not visible on the page, but are visible to the search engines. Two meta tags, the title tag and description tag, are used by the search engines in two ways. First, they use the tags as one of many elements that are considered to when determining search engine rankings. Second, many search engines display the title and description tags in the search listings. H1 tags are HTML elements that indicate the text is considered to be a level one header. Many search engines place importance on H1 headers and text that appears in bold on the Web page.

Keyword density is a measure of how often a certain word or phrase appears on a site. There is considerable debate among SEO practitioners as to the optimum level of keyword density. Most agree that if the keyword density is too high the search engines begin to penalize a site. However, since the search engines keep this level a secret, determining the best keyword density often requires a great deal of trial and error.

3.3 Link Building

All of the major search engines consider back links in their ranking algorithms. A back link is a hyperlink from an external site to the target site. All the major search engines consider the relevance of the text used in the back link (called the anchor text). For example, a link to a sports site that says “baseball” would be considered relevant, but one that says “cars” would be irrelevant.

While Yahoo and MSN use the number of back links in their algorithms, Google places particular importance on them. Google does not just consider the number of links, but also the “quality” of those links. Google assigns each page in its index a Page Rank (PR). Page Rank is a logarithmic number scale from 0-10 (with 10 the best). Google places more weight on back links that come from higher Page Rank sites.

4. BACKGROUND - WEB 2.0

The term Web 2.0 seems to have been coined by Tim O'Reilly whose O'Reilly Media sponsored a Web 2.0 conference in 2004 (O'Reilly, 2005). There does not appear to be any standard definition of Web 2.0 as the concept is continually evolving. However, Web 2.0 incorporates concepts such as weblogs (blogs), wikis, social book marking, podcasting, really simple syndication (RSS), and video sharing sites (like YouTube).

For the purposes of this paper, we can break down Web 2.0 into three main components - sites that allow
users to create and post their own content online (i.e., blogs, wikis, lenses, hubs, etc.), social bookmarking, and RSS.

4.1 Content Sites
Web 2.0 content sites enable users to quickly and easily publish written, audio, and/or video content online. Many content sites employ a simple user interface for text input that in many ways mimics traditional word processing software. Most of these sites allow users to upload pictures and embed multimedia content (audio and video). Among the most widely used Web 2.0 content sites are blogs and wikis from multiple providers, and sites that allow users to create simple Web sites (e.g., Squidoo and Hubpages).

A blog (short for weblog) is simply a Web site where a user can post comments and the comments are typically displayed in reverse chronological order. The comments can range broadly from political commentary to product reviews to simple online diaries. Modern blog software can also handle pictures, audio files, and video files. The blog tracking site Technorati had recorded over 112 million blogs in its system as of November 2007 (Technorati, 2008).

A wiki is a type of software that allows users to create a Web site in a collaborative manner. Wikis use a simple markup language for page creation. One of the main features of wikis is their ability to track all changes and easily revert to previous versions. The most well known wiki site is Wikipedia (www.wikipedia.org) - an online encyclopedia to which anyone can contribute. In fact, the site has over 9 million articles and more than 75,000 contributors. Personal wikis are easy to create on a user's own domain or on free wiki sites, such as Wetpaint.com.

4.2 Social Bookmarking
According to Wikipedia, "social bookmarking is a way for Internet users to store, organize, share and search bookmarks of web pages" (Wikipedia, 2008). These bookmarks are typically public, meaning anyone can see them. Bookmarks are usually categorized and also tagged. Tagging allows the user to associate a bookmark with any chosen words or phrases. Tags are completely created by the user, not the social bookmarking site. Some of the more popular social bookmarking sites include Del.icio.us, Digg, and StumbleUpon.

4.3 Really Simple Syndication
Really Simple Syndication (RSS) is a set of standards for formatting Web feeds. A feed contains a summary of content from a Web site, along with a link back to the original content. Users can subscribe to feeds in order to automatically see the latest updates on a particular site. RSS formats feeds using the extensible markup language (XML).

5. USING WEB 2.0 FOR SEARCH ENGINE MARKETING

One of the major drawbacks to using SEO for marketing purposes is that the process usually takes a considerable amount of time. All of the major search engines, and Google in particular, consider the age of a Web site in their algorithms. Thus, older sites have a built-in advantage. This makes it difficult to use traditional SEO techniques to market seasonal or "hot" items. However, practitioners are beginning to use Web 2.0 technologies to quickly get sites ranked high in the SERPs. In addition, by using Web 2.0, practitioners are able to obtain multiple top search engine rankings.

The Web 2.0 SEO process includes four main steps - 1) keyword research, 2) Web 2.0 content site creation, 3) linking Web 2.0 content sites via RSS, 4) social bookmarking.

We conducted three case studies to see how Web 2.0 technologies can be used for SEO.

5.1 Case Study One - Seasonal Items (Halloween Costumes)
The goal of the first case study was to determine how Web 2.0 SEO techniques could be used to market seasonal items. At the beginning of October 2007 we noticed a strong interest in Elizabeth Swann
Halloween costumes. Elizabeth Swann is a character from the “Pirates of the Caribbean” movie series. Instead of selling costumes directly, we chose to affiliate with a number of costume Web sites. These sites pay a commission to those who send it visitors who make a purchase.

In the first phase of the project we conducted keyword research. We used a commercial service called WordTracker (www.wordtracker.com) for all keyword research. WordTracker maintains a database of how often words and phrases are searched across multiple popular search engines.

We considered a number of phrases, such as "Elizabeth Swann Halloween Costume" and "Elizabeth Swan Costume" (a deliberate misspelling). The result of keyword research was that the phrase "Elizabeth Swann Costume" was chosen. This phrase had a search volume of about 50 visitors per day and had only about 32,000 competitor sites listed on Google. The relatively low level of competition is important since we wanted to control multiple positions in the search engine results.

For the second phase, we created Web 2.0 content sites. We built four Web 2.0 content sites - a Squidoo lens, a Hubpage, a Wetpaint wiki, and a blog on Yahoo360. All of these site were essentially the same - background on the Elizabeth Swann character, information about Elizabeth Swann costumes, pictures, and video clips (where supported). In addition, we included banners directing visitors to our affiliate sites to make a purchase. The banners were used to track the number of visitors, not necessarily to make money. In total it took about 3 hours to create these sites.

Phase three involved linking our Web 2.0 content sites together using RSS. Only Squidoo and Yahoo360 generate automatic RSS feeds. We exchanged feeds between those sites. We also subscribed to the feeds from our WetPaint wiki and Hubpage. This procedure allowed us to make changed only to the Squidoo lens and Yahoo360 blog and have those changes appear on all the other sites. Since the search engines tend to prefer sites that have fresh content, the use of RSS feeds is an easy way to update multiple sites at once.

Finally, we used social bookmarking sites to bookmark all of the Web 2.0 content sites. The following social bookmarking sites were used: StumbleUpon, Del.icio.us, Propeller, NewsVine, Digg, Reddit, and Clipmarks. Where possible, we also bookmarked our social bookmarks. For example, we used Del.icio.us to bookmark our StumbleUpon bookmark.

5.1.1 Case Study One - Results
The Elizabeth Swann costume campaign produced almost instant results. A number of the sites began ranking in all the major search engines within 24 hours.

During the time of the study the search engine results changed often. However, in the two weeks leading up to Halloween 2007 (the most intensive marketing time for costumes), this project was able to achieve the following results:

<table>
<thead>
<tr>
<th></th>
<th>Google</th>
<th>Yahoo</th>
<th>MSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Ranking</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Number in Top 10</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Number in Top 30</td>
<td>5</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Over the period of time of the project, all of the sites combined to produce 1,406 visitors and 1 sale. Some of the Web 2.0 sites do not provide detailed visitor statistics, so only aggregate statistics can be reported.

For this campaign, certain Web 2.0 properties appeared to perform better than others. For example, our Squidoo lens ranked in top 10 on all the major search engines. The Hubpage performed well in Google and
Yahoo (top 10), but did not rank in the top 30 on MSN. Yahoo and MSN ranked the Wetpaint wiki in the top 10 (number 1 in Yahoo), but Google did not rank it in the top 30.

A number of our social bookmarks appeared in the search engine results. All of the major search engines ranked our bookmarks from Propeller in the top 30. In addition, Google quickly (within hours) ranked our Clipmarks in the top 10. However, rankings for Clipmarks appear to be short lived, lasting only a few days before quickly deteriorating.

5.2 Case Study Two - "Hot" Item (Concert Tickets)
The goal of the second case study was to explore how Web 2.0 SEO techniques can be used to market "hot" items. A "hot" items is one for which there is more demand than current supply. Since these situations often cannot be predicted, Web 2.0 SEO could be a useful technique. The "hot" item we chose was concert tickets for Miley Cyrus. Miley Cyrus plays Hannah Montana on the Disney channel show of the same name. During the Fall 2007 her concert tour was sold out and people were paying thousands of dollars for tickets.

The keyword research phase for this project was a bit more detailed, since some people searched for tickets under Miley Cyrus and some under Hannah Montana. The term "Hannah Montana tickets" resulted in over 1 million sites in Google, while the term "Miley Cyrus tickets" had only about 65,000 competitors.

We followed the same procedure described for the first case study above. We created Web 2.0 content sites on Squidoo, Hubpages, Wetpaint, and Yahoo360. The sites were linked using RSS and we social bookmarked all of the sites.

5.2.1 Case Study Two - Results
This campaign produced only one result in the top 30 on any of the major search engines - it reached number 7 on Yahoo. The campaign resulted in 148 visitors and 1 sale. We believe that the main reason for the poor results is that the level of competing Web sites was much greater than for the first case study. First, we were competing with a large number of ticket sales (e.g., Ticketmaster) and ticket broker (e.g., Razorgator) sites. In addition, the high ticket prices had attracted a great deal of media attention, so we were also competing with newspaper and television sites (e.g., MSNBC).

6. CONCLUSIONS AND DISCUSSION
Clearly, Web 2.0 techniques can be used to successfully achieve multiple high rankings in the search engines. However, the techniques may not work in all cases. Practitioners need to consider the quality and quantity of the competition for particular key words or phrases.

6.1 Limitations
This study is clearly limited by the small selection of Web 2.0 content and social bookmarking sites chosen. The site http://www.go2web20.net/ tracks dozens (if not hundreds) of Web 2.0 sites. The content and social book marking sites were selected for their popularity, but they might not be the best sites for SEO purposes. A good example of this is Propeller. Statistics from Alexa.com show that Propeller is not nearly as popular as Del.icio.us, Digg, or Reddit. However, Propeller performed better that these more popular sites in terms of its impact on SEO.

6.2 Managerial Implications
The first case study shows that Web 2.0 SEO can be used to successfully market items that require a more flexible approach. The Web 2.0 SEO strategy provides Internet marketers with the following advantages: 1) low cost, 2) ability to dominate the search engine results, and, 3) the ability to become more flexible in the items that are marketed using search engine optimization.

One of the main advantages of this approach for Internet marketers is that there is little to no cost involved. The techniques detailed above make use of free content and social bookmarking sites. The only requirement is a little investment of time. This is opposed to the more traditional approach of registering a
Clearly, the ability to have multiple sites listed in the top of the search engine results is a major advantage to the Web 2.0 SEO approach. The more traditional SEO strategy is to focus getting one site to the top spot in the search engines. The problem with the traditional approach is that the search engines can be fickle. As they change their algorithms a site that was previously ranked at the top might find itself out of the top thirty entirely. For the Internet marketer who relies on search engine traffic this situation can be disastrous. Having multiple sites in the search engine results provides some insurance.

Finally, the main goal of this research was to examine whether Web 2.0 techniques could be used to quickly attain top search engine rankings. In addition to multiple top results, speed is important to many Internet marketers. It allows them increased flexibility in their marketing efforts. In all cases the Web 2.0 sites began ranking very quickly - as few as four hours in one case.

Internet marketers must clearly understand when this approach is likely to produce positive results and when it may not. Although the results reported herein only contain two cases, we can make the following recommendations. First, marketers must focus not only on the amount of competition in the search engines, but also on the quality of the competition. Second, the major search engines seem to favor different Web 2.0 sites. However, it should be noted that Squidoo lenses achieved some of the best rankings in all three search engines. In addition, all of the search engines ranked the social bookmarks from Propeller very well. Finally, Clipmarks was extremely successful in achieving very rapid rankings in Google (within hours), but those rankings faded quickly (within a few days).

6.3 Research Implications
To date there has been no academic research on search engine optimization and Web 2.0. This is to be expected since both are new phenomenon. Clearly there are numerous research opportunities in this area. First, a more detailed study should be undertaken to determine the relative importance of Web 2.0 content versus social bookmarking in terms of search engine optimization.

Second, do specific Web 2.0 sites have certain properties that make them more (or less) useful for SEO? This appears to be the case - particularly with ClipMarks and Propeller. However, we cannot draw definitive conclusions on this question from such a small sample.

Third, Web 2.0 also increasingly includes multimedia content - pictures, music, and movies. For example, YouTube.com is a Web 2.0 site that allows users to post videos. According to Alexa.com it is now the second most popular site on the Web (Alexa, 2008). How can we leverage Web 2.0 sites with multimedia content for search engine optimization?

Finally, the quality of traffic from Web 2.0 sites requires study. As was pointed out above, Sen (2005) found that traffic from organic search results is more likely to lead to a purchase than traffic from paid search. Will this result hold true for Web 2.0 sites that appear in the SERPs?

REFERENCES:


