Social Impact of Text Information Systems

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1 Is Relevance Relevant? Market, Science, and War: Discourses of Search Engine Quality

1.1 Citation

Van Couvering, Elizabeth. "Is relevance relevant? Market, science, and war: Discourses of search engine quality." Journal of Computer-Mediated Communication 12.3 (2007): 866-887.

1.2 Summary

The author conducted a study to understand the motivating factors that drive search engine producers (SEP) to make changes to the engine. Between November 2002 and May 2004, the author interviewed eleven SEPs, including senior engineers and technical executives who direct future code development. These interviewees worked at every major and minor search engine on the market: Google, Yahoo!, MSN, Ask Jeeves, AOL, and more. Each individual was interviewed over the phone for 1-2 hours in a semistructured, in-depth format. Questions probed for specific instances of change to the search engine and inquired for the motivation behind that change. The text transcript of each interview was categorized to identify themes, from which the author determined two major schemas that motivate the development of search engine technology:

1) The Market Schema

Throughout these interviews, the most common category of motivator was the market schema, which includes revenues, costs, competition, and other business issues. In explaining this motivation, interviewees regarded their search engine as a commercial service competing for users in the marketplace. Thus, the primary motivator for SEPs is financial profit and that metric is linked to search engine quality via its direct correlation with customer satisfaction. Many of the technical changes were developed to increase profit.

2) The Science/Technology Schema

The second most common category of motivator was the science schema, which includes experimentation, measurement, feasibility, and objectivity. This motivator defined quality as relevance, or the ability to answer a user's question, and was defined by data-driven metrics. Many of the changes were developed to improve search result relevance, recall, or precision.

These interviews also revealed a subjective component of the search engines: blacklists, whitelists, and topic-specific weights. This censoring was often dictated by executives to respond to current events, but it is arbitrary and non-scientific. Still, these practices are accepted by the SEP because they strive to boost relevance.

This paper impacts all modern businesses because it describes the convoluted environment in which they compete for clicks. For many companies, the search engine is the primary portal through which consumers are reached. However, this paper shows that the portal is controlled by employees who seek to maximize profit or relevance for the search engine company, not for the online businesses who depend on the search engine. Thus, an online business must actively monitor and effect their position in the search engine rankings to maintain a steady flow of customers.

2 The Online Advertising Industry: Economics, Evolution, and Privacy

2.1 Citation

Evans, David S. ”The online advertising industry: Economics, evolution, and privacy.” Journal of Economic Perspectives (2009).

2.2 Summary

In 2015, media companies around the globe spent $545 billion dollars on advertisements. Historically, these ads have found a home in newspapers and TV commercials, but this model is under attack by the new era of online advertisements. Although Internet ads were born in the 1994, they have grown at an astonishing rate; ZenithOptimedia expects the Internet to account for more than one-third of U.S. ad spending in 2017, representing 400% growth since 2007. Indeed, many major newspaper businesses have gone out of business. But while this revolution has crippled some businesses, it has created new efficiencies and opportunities for the global economy by significantly reducing the transaction cost for merchants to find consumers.

Advertising is a matching game between merchants and consumers. The old model required merchants to buy a million newspaper ads with the hope that a small fraction of the population is interested. The search engine has changed this game entirely. Merchants are now able to identify individual consumers who are interested in the product by matching their search queries or registered account information. This ability to detect a consumer’s interest and intent to purchase a product has transformed advertising campaigns from mass market tools into focused, personalized ads. The search engines are an intelligent intermediary in this lucrative matching game.

So how do these businesses play the game? Typically, a company will start with an objective (like ”increase sales of product X” or ”make our brand more friendly”) and set a budget to achieve this goal. Advertisers will then divide this budget amongst the various forms of media: online, television, radio, magazines, newspapers, etc. based primarily on the expected rate of return for each medium. In a competitive marketplace, modern businesses have no choice but to take advantage the cost-efficient advertising offered by the online intermediary search engines. These online ads further increase their rate of return by directly linking the consumer to the merchants online portal to purchase goods.

In summary, the Internet’s share of ad spending has grown over the past decade and will continue to grow because search engines provide a more cost-efficient, targeted method of matching consumers with merchants. Modern businesses must adopt this technology or risk becoming obsolete.

3 An Empirical Analysis of Sponsored Search Performance in Search Engine Advertising

3.1 Citation

Ghose, Anindya, and Sha Yang. "An empirical analysis of sponsored search performance in search engine advertising." Proceedings of the 2008 International Conference on Web Search and Data Mining. ACM, 2008.

3.2 Summary

Businesses have many choices when it comes to online advertising. In search engines, the predominant ad form is "sponsored searches" in which the advertiser pays a fee to appear next to organic search results. For example, a consumer who searches for "digital camera" is likely to see artificial advertisements from Kodak or Nikon near the top of their search results because those companies paid for ad space in queries for the "digital camera" keyword. These companies can purchase many different sets of keywords, making the decision of which keywords to purchase and how much to pay for them an important one. The decision will dramatically impact the success of a marketing campaign.

This paper empirically models the relationship between keywords, click-through rates, and conversion rates by analyzing a real world dataset from a large retail company. The data is fit into a hierarchical Bayesian framework and then run through Markov Chain Monte Carlo methods to estimate the results. The goal is to examine how click-through rates and conversion rates are affected by the following three characteristics of a keyword:

1. **Brand:** does the keyword contain a brand name? (i.e. Kodak, Nikon)
2. **Retailer:** does the keyword contain a retailer name? (i.e. Best Buy, Amazon)
3. **Length:** how many words are in this keyword? (i.e. "camera" vs. "black dslr HD camera")

Impact on Click-Through Rates

The first interesting result is that keyword advertisements with retailer-specific terms cause a 28.31% increase in click-through rates. This confirms the belief that users actually enjoy advertisements when they search for a specific retailer. In a surprising contrast, keywords containing a specific brand have no statistically significant effect on click-through rates. Finally, the length of the keyword is inversely related to click-through rates; an increase in length by one word decreases the click-through rates by 6.6%.

Impact on Conversion Rates

Keywords containing a brand-specific term experience an increase in conversion rates by 21.35%. This finding is important to businesses because it confirms that branded keywords are extremely valuable to the advertiser. Conversion rates are also impact by click-through rates. If the click-through rate is increased from the minimum (0.0) to the maximum (1.0), the conversion rate increases by 63.31%. However, this increase is dwarfed by the impact of rank: an ad that moves from the worst rank (bottom of page) to the best rank (top of page) yields an increased conversion rate of 99.97%.

Businesses can use these statistics to choose the optimal budget for keywords based on brand, retailer, and length.