

Real Users, Real Trips, and Real Queries: An Analysis of Destination Search on a Search Engine

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Abstract

With the tremendous amount of online travel information, search engines have become the premier way for finding relevant travel product and for planning trips. Through search engine marketing, tourism marketers can reach potential travelers by positioning themselves on the top of search engine results or buying keywords for top advertising positions. This paper analyzed keywords used in destination searches on Excite search engine searches conducted by potential travelers in 2002. The research results showed that on average, travelers used three terms in one query on average; they performed three queries per session; and that they viewed two pages for each query. These statistics are significantly higher than average searches, indicating a cognitively intensive activity. City is the most searched destination level; almost half of all searches involved a search based upon a city name. It was also noted that the city was most often linked in the search with hotel, attraction, and activities. Searchers often switch their queries on locations on different levels. For example, they often switch their searches from “Charleston” to “South Carolina”. The application of this research affects online search engine

marketing and destination cross-marketing strategies. Destination marketers need to conduct online marketing not only through the specific geographical location, but they need to cross-marketing with higher and lower levels of geographical areas. For example, tourist cities could purchase keywords on states or tourist districts. Also more collaborative marketing is needed between destination marketers, hoteliers, attractions, and other tourism businesses.

Introduction

With the advancement of Internet technology, more and more travelers log on the web for travel-related information and tourism products (Bai, Hu, & Countryman, 2004; Card, Chen, & Cole, 2003; Pan & Fesenmaier, In Press). In fact, the tourism industry, along with pornography, has become inarguably today's leading application of the Internet in a business-to-consumer context (Werthner & Ricci, 2004).

The breadth and depth of travel related information online affords the potential traveler enormous choices as to potential destinations, as well as places to stay, eat, and recreate when traveling. There seems little doubt that the Internet will continue to influence and shape the tourism industry, most likely more so than any other sector of the economy. As noted, the numbers are significant. Recently, the Travel Industry Association of America (TIA, 2005) analyzed the search and booking activities of US on-line travelers and noted that: 67% of travelers had researched the Web for information on destinations, to check prices, and/or to schedule trip components via the Internet. Perhaps of even greater importance, TIA also noted that 41% of these travelers have moved to the next level of involvement with the technology, actually having booked aspects of their trips electronically.

Understanding the importance of the Internet as a search and sale vehicle, it becomes critically important for tourism marketers to understand how the medium is being used by consumers. Clearly, one of the key tools consumers relied upon is the search engine (Jansen, Spink, & Saracevic, 2000). The three major tasks users conduct through search engines are transactional, informational, and navigational (Broder, 2002). Informational tasks relate to the user's desire to find a particular fact within the web-universe; navigational tasks involve searching for a particular web page; transactional tasks relate to the consumer's desire to make a purchase. Within the context of commerce, each of these search types can increase consumer awareness and ultimately lead to purchase decisions, and thus increased revenues for tourism providers. Understanding this, search engine marketing has been pointed to as a critically important aspect of a company's overall marketing strategy (Plosker, 2004).

Search engine companies understand the importance of terms within the consumer's search process, and market the placement of these terms to those companies wishing to increase their search engine 'clickthroughs'. Google's AdWords, for example, is the major source of revenue for the company (Beckwith, 2003). How does a tourism marketer know what terms, or combination of terms, to pay for? Beckwith (2003) has noted that finding the right combination of terms has generally entailed significant trial and error, much tweaking and guesswork. For tourism marketers it is important that we continue to seek greater understanding as to how travelers perform their travel searches within the search engine environment, including the types of terms they are likely to use, so as better inform their online marketing campaigns. The purpose of the current research is to expand upon our knowledge in this area, and hopefully

inform the tourism marketers on information needs of their targets and the types of terms they need to focus on.

Research Method

The current study focused on the use of Excite (<http://www.excite.com>), one of the early entrants into the public search arena (Gandal, 2001), and a search tool which remains today as a Google competitor. The current study used as the source of data an extensive Excite 2001 transaction log data, originally provided by the company to Drs. Spink, Wolfram, Saracevic, and Jansen of the University of Pittsburgh, for what proved to be a series of studies that investigated how users navigated the web through the use of a search engine (Jansen, 2006).

The dataset we were provided comprised 1,025,910 Excite query records from the year 2001, representing 594,940 unique queries -- users may go through one result page more than once during the course of their search. To reduce these to a testable size, 3% of the unique queries were extracted from the database through random sampling. From these 17,804 unique queries, through a keyword search we eliminated all that contained obviously pornographic keywords, netting a dataset of 16,700 unique search queries. These were then manually reviewed, selecting those that represented travel destination searches. Any query containing within its keyword search a travel destination, be it a city, state, or country, was classified as a travel query. This culling resulted in total of 539 unique user sessions related to travel search, and collectively comprising 1,788 unique queries.

Findings

We analyzed these 1,788 extracted travel-related user search sessions to determine booking trends, and compared these to the general findings of (Spink, Jansen, Wolfram, & Saracevic, 2002).

1. On average, 'travel searchers' averaged approximately 3.0 terms-per-query when searching destination information. This was significantly higher (One-sample T-Test, $t=9.83$, $p < 0.01$) than the 2.6 terms-per-query found in the general search (Spink, Jansen, Wolfram, & Saracevic, 2002). (A term is defined as a string of characters with no space in between when a user enters his keywords in a search engine box (Spink, Jansen, Wolfram, and Saracevic, 2002)).
2. On average, each travel search session comprised 3.0 queries, in contrast with the 2.3 queries Spink, Jansen, Wolfram, and Saracevic (2002) reported for a general user search session ($t=3.96$, $p < 0.01$).
3. The number of result pages a user viewed during the travel search was 2.1 pages-per-query (i.e. a measure of 'clickthroughs'), statistically higher than the 1.7 pages-per-query reported by Spink, Jansen, Wolfram, and Saracevic's (2002) general searches ($t=3.23$, $p < 0.01$)

The above three findings support earlier research by Jeng (1999) that indicated that the travel information online search, as compared with other searches, is both an information-intensive and cognitively-active process.

In addition to the above activity-related results, the combination of keywords used by the travel searchers was analyzed. This was accomplished through content analysis of the keywords

entered into their searches. From this, data were segmented based upon two criteria. The first of these segmented searches into six aspects of trip planning: destinations; hotels; restaurants; transportation; attractions; and activities. The second segmentation is related to their generalization levels. For example: ‘Miami’ was classified at the city level, while ‘Florida’ at the state level; ‘Restaurant’ was classified as a general term, ‘Hard Rock Café’ as a chain. Besides these aspects of travel planning, users also sought information on culture, pictures, price, map, and hygiene information. The last one (hygiene information) represents information regarding visa, rules and regulation on travel, etiquette, and weather information the users needed to make their trip successful. Figure 1 detailed the types of keywords and their frequencies used in the 1,788 queries. The name of a city is the most commonly searched term, noted in 46.4% of searches. In other words, just short of one in two travel queries contains a city’s name. Travelers also search for state (26.0%) and country (15.3%) as destination-specific information. For other aspects of trip planning, specific attraction is the most searched information (10.7%), followed by specific activity, map, and hotel brand.

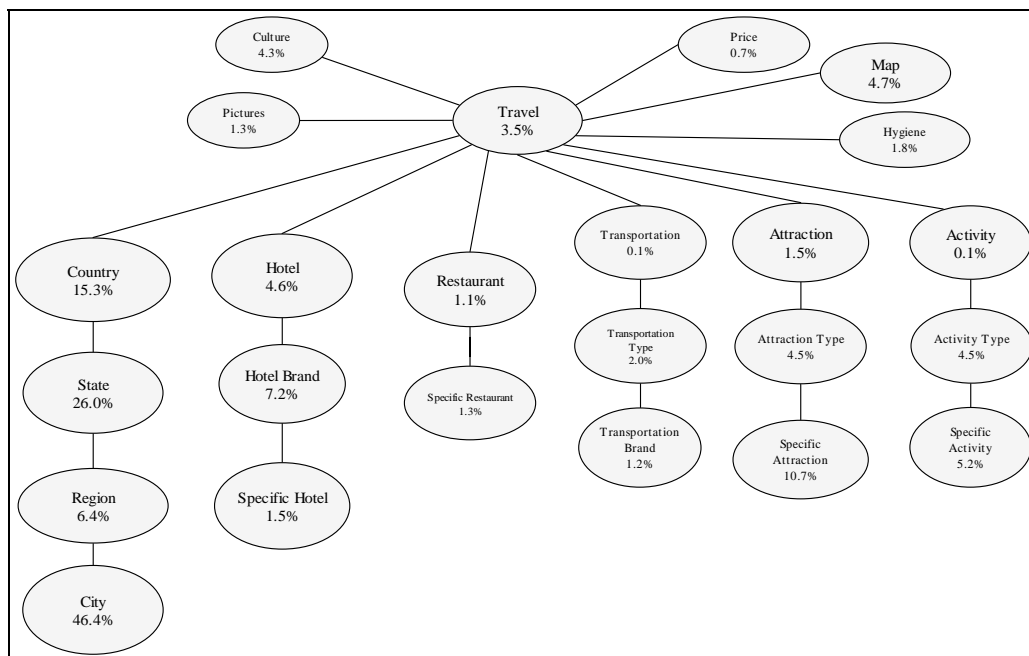


Figure 1. Types and Frequencies of Travel Search Keywords

Secondly, the types of whole queries were researched through the combination of term types (Table 1). The searches for a specific city (or a city combined with the state name) are the most frequently used query type (a combination of 18.1%). Searching for a specific attraction (for example, “Yellowstone Park”) has a percentage of 5.5%, and searching for a hotel brand (for example, Hilton) was noted in 3.2% of searches.

Table 1. Most Common Query Types

Query Type	Frequency	Percent	Query Type	Frequency	Percent
city	188	10.5	country + city	22	1.2
city + state	135	7.6	attraction type + city	22	1.2
specific attraction	99	5.5	culture + state	21	1.2
hotel brand	57	3.2	transportation brand	21	1.2
country	49	2.7	activity type + state	18	1.0
state	49	2.7	state + travel	17	1.0
city + hotel brand	42	2.3	city + travel	15	0.8
region	36	2.0	specific attraction + state	15	0.8
activity type	34	1.9	country + travel	14	0.8
city + hotel	31	1.7	city + specific attraction	14	0.8
activity type + city	31	1.7	specific hotel	14	0.8
specific activity	27	1.5	specific attraction + city	14	0.8
specific activity +					
city	25	1.4	country + activity type	14	0.8
city + hotel type	23	1.3	attraction type + state	14	0.8

Table 2. Switch Behavior of Travel Queries

Travel Aspect	Switch Behavior	Cases	Percent
Location	Zoom Out	951	20.8
	Stay	2761	60.5
	Zoom In	852	18.7
Accommodation	Zoom Out	99	11.1
	Stay	719	81.0
	Zoom In	70	7.9
Dining	Stay	11	100.0
Transportation	Stay	8	100.0
Attraction	Zoom Out	14	5.9
	Stay	223	93.7
	Zoom In	1	0.4
Activity	Zoom Out	2	1.7
	Stay	113	95.8
	Zoom In	3	2.5

Lastly, the sequence of search queries was analyzed to explore the decision making processes. From initial analysis, it was noted that users frequently change the scope of their destinations as their search progresses, refining their search from broad to narrow or from narrow to broad. For example, a ‘travel search’ that began with the term ‘Arizona’, may be followed by a search based upon the term ‘Phoenix, AZ’, followed by an additional search for ‘Scottsdale, AZ’ (a resort city in the Phoenix metropolitan area). Table 2 details various changes on their searches. Users frequently switched their locations, both from a smaller area to larger area and vice versa (a combination of 39.5% among all destination searches). Alternately, searchers don’t usually switch on attractions, activities, transportation, or dining. For the small percentage of switches on attractions, users tended to “zoom out” (for example, from Yellowstone Park, a

specific park, to National parks, which is an attraction type). This search approach paralleled an earlier travel-oriented study by (Pan & Fesenmaier, 2001) that tracked calls received by an 1-800 call center that found travelers sought information following a general to specific pattern of inquiry.

Application of Results

The results of the study demonstrate that users likely search in different stages of the travel planning process and that they frequently switch searches among different geographical levels, for example, moving from country, to state, and to city level enquiries, or vice versa. Also noted was that they generally search for city level information; sometimes in combination with hotels, restaurants and attractions. In designing the online presence of a tourism enterprise, be it a convention and visitor's bureau, a hotel, or a restaurant, understanding the contextual context of the on-line information search must be considered. Marketers need to understand the process their potential visitors will follow so as to ensure that they place the appropriate contextual terms in the text and metatags of their web pages. Further, convention and visitor's bureau and various tourism enterprises need to understand what key words will likely be used by their potential visitors when the organization bids on different combinations of terms, for example, what amenities and attractions are best combined with various destination names (e.g. tag 'Arizona' with 'attractions', but 'Phoenix' with the term 'restaurant'.) The results also call for cross-marketing campaigns between local tourism marketing organizations, restaurants, hotels, and attractions. Also it calls for the cross-marketing between different levels of destinations, for example, promoting Charleston in search results for "South Carolina" or "Lowcountry, South Carolina".

Conclusions and Future Research

This preliminary research demonstrates that travel information search is a cognitively intensive task (Jeng, 1999) and that 'travel searchers' are likely to use more terms and more queries in their search session than has been reported for those conducting general searches. Search engine transaction logs have revealed that travelers search destination pages in combination with hotels, attractions, and restaurants, and that they frequently switch their search to seek information about multiple levels of geographical areas.

In addition, looking further ahead, there is no question that as both users and search engines have become more sophisticated with each passing year, that future research with more current data, ideally on a more popular search engine such as Google, is called for. Finally, research that focuses upon specific sectors of the industry, be they destinations, restaurants or hotels, etc. will provide meaningful and valuable Internet marketing direction for the tourism industry.

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