A MIXED-METHOD STUDY OF USER BEHAVIOR AND USABILITY ON AN ONLINE TRAVEL AGENCY

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ABSTRACT

Online Travel Agencies (OTAs) play a more and more important role in the tourism and hospitality industry by contributing to a large volume of transactions and revenue. Many studies have evaluated tourism websites through different research methods. Website usability in general has improved dramatically but problems remain. Very few studies focus on the user behavior and usability of a single OTA website. This research uses a mixed-methods approach, including eye tracking methodology to study information search strategy and the usability problems of a major OTA site with a pre-defined information search task. The results show that users' information search is mostly utilitarian in nature; the complex interface and advertising messages either confuse or were ignored by most users. The study calls for a simpler and more intuitive interface.
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1. INTRODUCTION

In the first decade of the 21st century, the Internet has become a travel planning tool as well as a transaction medium for travelers. Approximately 90 million American travelers used online travel sites to plan their leisure trips in 2009 (U.S. Travel Association, 2010). In addition, about 52.3% of bookings for major brand hotels in 2010 came from online channels (TravelClick, 2011). Online Travel Agencies (OTAs), such as Expedia, Travelocity, Priceline, Orbitz, and Hotels.com, have become one major transaction channel for travelers due to convenience and cost transparency (Park, Gretzel, & Sirakaya-Turk, 2007). In 2010, approximately half of travelers from the U.S. were identified as shoppers on OTA sites (Godwin, 2011; PhoCusWright, 2011). Though the major OTAs are competitors, a glance at their websites shows that they follow a similar interface. Each of the OTAs displays a list of hotels sorted by price, recommendation, brand, or location. On the results page, each hotel option is accompanied by one or more pictures, hotel rates, a brief introduction, and location information. However, not much research has been conducted on testing the effectiveness of the OTA websites. Web design, including navigation and layout, has a great influence on traffic and sales volume of any commercial websites (Lohse & Spiller, 1998). For the OTAs, good web usability can create smooth search and transaction experiences and convert more visitors into buyers.

Usability, or ease of use, is always one of the most important, if not most important attributes of any website (Kim, Kim, & Han, 2007; Park, et al., 2007). However, the usability of
tourism websites remains a problem. Focusing on city tourism websites, researchers find that usability challenges exist both in terms of content and design, such as poor navigability, lack of useful content, and little cross-cultural consideration (Zhou & DeSantis, 2005). Poor usability on tourism websites can lead to problems for users. As Pan et al. (2007) found out, Americans’ overseas trip planning to China on the Internet is a frustrating experience. Users encounter many usability problems caused by poor website design and lack of mental model congruency. Elements such as the ease of navigation, the degree of functionality, and accessibility can affect usability (Park, et al., 2007). Even just the placement of page features like a booking calendar or reservation confirmation can affect the user experience and their willingness to use a travel site (Usabilla, 2011). As a result, good usability for tourism and travel websites, including OTAs, is elusive to achieve. Up to now, virtually no published articles have addressed the main usability issues of OTAs.

Usability problems occur when there is a discrepancy between users' mental model and the system's information model (Pan & Fesenmaier, 2006). There is always interaction between the online environment and user behavior, since users and decision makers are adaptive to their information environment and can adopt different information search strategies under different conditions (Payne, Bettman, & Johnson, 1993). In this study, we intend to investigate information search strategy and the major usability problems of a leading OTA. Since most of the major OTAs follow similar layout and structure, the results from this study will inform the design for other OTAs. The paper is structured as follows. First, it gives a review of studies on website evaluation and specifically the usability issues of travel and tourism websites; second, the paper outlines the mixed-methods approach, including the eye tracking methodology and the
data analysis methods; then it discusses users’ navigation and visual attention patterns, decision making strategies, and major usability problems, followed by conclusions and discussions.

2. LITERATURE REVIEW

This section reviews current literature on the travel information search strategies and usability of websites, and specifically on the evaluation and usability issues in travel and tourism websites. Usability refers to the degree of ease of use when the system and the user can communicate with each other clearly and without misunderstanding (Benbunan-Fich, 2001). Usability studies exist as a subset of overall website evaluation and are generally more available through books and industrial reports than academic papers.

Travel Information Search Strategy

Viewed from an information processing perspective, decision makers will go through a set of steps in making a decision, including need recognition, information search, alternative evaluation, making decision, and post-purchase evaluation (Engel, Blackwell, & Miniard, 2001). Decision makers are adaptive when facing complex tasks and a different number of alternatives (Payne, et al., 1993). They will use various heuristics to simplify the task if the given alternatives are too many, for example, eliminating those alternatives which cannot reach a certain threshold on one aspect (Payne, 1976).

For travel decisions, the process is even more intensive and dynamic, given the many sub-decisions to be made and the complex inter-connections between them (Jeng & Fesenmaier, 2002). Many situational and environmental factors, such as trip stages and the nature of the travel product, will determine the type of information search (Vogt, 1993). Travelers' information needs and wants are different depending on different trip stages, and the actual trip experiences will influence travel information search and product purchase (Jun, Vogt, &
MacKay, 2007). Especially, the travelers not only search for functional information in order to make a decision, they also look for fun, excitement, and novel information and enjoy the information search process itself (Vogt & Fesenmaier, 1998). In the tourism research field, information search strategies mainly refer to the combination of information sources used (Snepenger, Meged, Snelling, & Worrall, 1990). Early studies before the Internet era identified different information source usage in which travel agents played a central role (Snepenger, Meged, Snelling, & Worrall, 1990). In terms of information search strategies, Fodness and Murray (1999) explored travel information search strategies using clustering analysis and distinguished seven search strategies: prepurchase mix, tourist bureau, personal experience, ongoing, on-site, automobile club, and travel agency. These strategies can be arranged along three dimensions: temporal (ongoing search versus prepurchase search), spatial (internal search versus external search), and operational (contributory information source versus decisive source). However, how travelers use different heuristics to process information in the terms of traditional decision making process has not been investigated. The benefit of an OTA site is the huge amount of information available, and the users are more likely to adopt cognitive cost-saving strategies. Those strategies interact with the unique hypertext environment of OTAs which may create new issues and challenges. The first goal of this study is to investigate the information search and decision making strategies the visitors adopt when using an online OTA website.

**Usability Studies on Websites**

Many books, journal articles, and industry reports have addressed usability issues of websites. By analyzing homepages of 50 websites, Nielsen and Tahir (2001) summarized the usability guidelines for homepage designs in the book *Homepage Usability: 50 Websites*
Among all the guidelines, Nielsen and Tahir (2001) recommend that the most critical page elements should be visible “above the fold” – that is, the most information should be in the first screen of content without scrolling. A more recent book by Nielsen and his colleague reported that many usability problems have been alleviated by designers in recent years, but several usability problems are still prevalent (Nielsen & Loranger, 2006). For example, search and information architecture are main factors contributing to task completion failure on e-commerce websites. Besides the work done by Nielsen and his colleagues, many web design principles have been developed, largely based on professional experience (Keeker, 1997; Krug, 2005; Tidwell, 2011). Academic studies have been conducted using various methodologies such as content analysis (Jones & DeGrow, 2011), protocol analysis (Benbunan-Fich, 2001), surveys (Venkatesh & Ramesh, 2006), expert judgments (Tan, Tung, & Xu, 2009), eye tracking methods (Ehmke & Wilson, 2007), and software agents (Palmer, 2002). These studies find that slow download speed, crowded content, poor navigation, excessive graphics and animations, and lack of information categorization often cause usability problems (Benbunan-Fich, 2001; Palmer, 2002; Tan, Tung, & Xu, 2009). An examination of homepages of Fortune 500 companies indicates that many usability guidelines are not followed (Jones & DeGrow, 2011).

Researchers in the tourism field have studied web assessment extensively, in which usability is a major part. Reviewing 25 tourism website evaluation studies, Hashim, Murphy and Law (2007) developed a 5-dimension framework to assist with determining the quality of a hotel website based off structured conceptualism techniques. Usability is one dimension, along with information and process, value added, relationship, and trust. In a review of past studies, Law, Qi et al. (2010) conclude that tourism website evaluation is still limited, echoing the findings of
Hashim, Murphy and Law (2007). They argue that while website evaluation research has grown from primarily qualitative studies in its nascent stages with questionable generalizability to studies involving rigorous quantitative methods, tourism researchers still do not have any defined standards of what comprises “website evaluation”.

Although there are many tourism research studies on web assessment, studies focusing on usability are still lacking. As one exception, a study examines the usability issues of 55 city tourism websites (Zhou & DeSantis, 2005). The study finds that many city tourism websites do not offer interactive maps, have insufficient local information such as weather and time, and do not have sitemaps or A-to-Z index. Using mixed methods, which are comprised of process tracing, think aloud protocol, and clickstream analysis, another study identifies a total of 117 usability problems and barriers when American college students planned a trip to China (Pan, Li, Zhang, & Smith, 2007). Another study focusing on user experiences on 18 different hotel, airline, and travel comparison websites revealed that users prefer travel websites that are clean and easily navigable. However, many of the leading travel websites are cluttered with promotional content and social media buttons, e.g., a Facebook ‘Like’ button, which detracts from the overall user experience (Usabilla, 2011).

Recently, a new methodology has been used in usability studies. The use of eye tracking technology has become more popular as the technology becomes more sophisticated and affordable. Eye tracking methodology provides direct capture of eye movement in stimulus-based settings (Rayner 1998). The use of eye tracking techniques in usability research is based on the assumption that the eye movement can indicate where a person’s attention is being directed to (Just & Carpenter, 1976). Eye movements are composed of fixations, which are relative stable eye gazes lasting for about 200-300 milliseconds, and saccades, which are rapid
eye movements of 3-5 degrees of visual angle. Eye tracking equipment is able to collect data to
determine both fixations and saccades. A scan path can show the sequence of fixations, while a
heat map can show how long each part of a screen has been looked at and which area of visual
stimuli the subjects paid attention to (Ehmke & Wilson, 2007). These metrics can provide an
objective evaluation for detailed analysis of users' attention.

When evaluating users’ first impressions of a website, eye movement data can
supplement what users verbally reported about their interactions with a site. By dividing a
webpage into different areas, eye tracking data is able to reveal which areas of a website receive
the most attention and the order in which they are viewed (Russell, 2005). Researchers have
tried to correlate eye tracking patterns with specific usability problems. Comparing users’
performance measures against different eye movement metrics, Cowen et al. (2002) found only
total fixation duration and average fixation duration is significantly correlated with usability.
Longer scan path length and longer scan path duration is an indication of less efficient searching
(Goldberg & Kotval, 1999). Ehmke and Willson (2007) analyzed eye movement data on a
website from 19 users and proposed a correlation scheme by relating eye movement patterns
with usability problems. For example, a lot of fixations on single areas followed by longer
saccades indicate that users find the page too crowded and not easy to read. In general, eye
tracking indices can reveal detailed cognitive processes of users on a website, such as the areas
of attentions, difficulties, cognitive efforts, and usability problems.

Though OTAs are probably the biggest players in online tourism industry and usability
problems remain an issue for most websites, no study has specifically investigated the usability
problems of a single OTA site. Different from previous studies, this research attempts to
investigate information search strategies and the usability problems of one single OTA site from
an information search perspective. Focusing specifically on usability with specific decision making tasks, the study adopted a mixed-methodology approach in order to understand detailed information search process and usability problems (Backlund, Skånér, Montgomery, Bring, & Strender, 2003). Since most OTAs follow similar interface and information architecture, the results of this study could inform the practice of improving other OTAs' web usability.

3. Methodology

With a mixed-methodology approach, this study combined eye tracking methodology with think aloud protocol, observations, and surveys. The researchers conducted the information search and travel planning exercise in an eye tracking lab on a Southeast public university campus. GazeTracker, a software that records the eye responses to still images, videos, and web and software interfaces, was used to generate a sequential list of fixations for each subject on each web page (Lankford, 2000). An aggregation of fixations generates heat maps showing the areas on a page which attract the most attention (Bojko, 2009).

In addition to eye tracking, think aloud protocol was adopted. Subjects were asked to verbalize his or her thoughts, opinions, or feelings while carrying out a task. Since language mediates thoughts, one can decipher the cognitive process during decision-making through the verbalization of the subjects (Ericsson & Simon, 1993). Camtasia Studio, a screen capturing software, was used to capture the subjects' online activity along with their verbalization and record it into a movie file (Cox, 2005). Further, pre- and post-experiment surveys asked about the subjects’ demographic information and travel and Internet use experience.

The researchers selected one of the top four OTAs as the testing site. In total, 41 subjects were recruited through an online classified email list in the same university. The majority of
subjects were faculty or staff members. They are relatively highly educated with online travel planning experience and considered an appropriate sample for the purpose of this study. Subjects voluntarily signed up for a 90 minute time slot. Testing took place in an eye tracking lab on the university campus. Upon arrival, each participant was greeted and given a brief overview of the goals and the procedure of the study. The individual was then instructed to read the consent form and indicate their approval by providing his or her signature. The participant was then asked to complete an online pre-survey that asked about his or her knowledge of existing travel web sites, travel behavior and experience, and flight and hotel preferences. Following the pre-survey, respondents began the two-part study. In the first part of the study, the subjects were asked to pick a hotel room from four mockup web pages. The results will be reported in a separate paper and this paper focuses on the second part of the study. In the second part, the subjects were asked to plan a weekend trip to Orlando and Las Vegas for the respondent and his or her significant other by finding their hotels and air tickets on the OTA’s web site. During the experiment, one of the researchers sat behind the subjects to answer any possible questions. The researchers did not instruct the participants on how to book their reservations; instead, they were told to budget within their actual financial situation. After the completion of the study, they completed an online post-survey. The post-survey probed to find out more about their awareness of features on the OTA, suggestions for the OTA, and demographic information. Then the participants were debriefed and allowed to ask any remaining questions about the experiment. Lastly, they were thanked and compensated $30 USD for their participation in the study.

4. Data Analysis

Four types of analysis were conducted in this research. First, data from the survey were analyzed in order to understand the participants’ demographic characteristics, travel experience,
Internet use experience, and experience with using the Internet as a travel planning and transaction tool; second, from the captured video data, the researchers generated the subjects' navigational paths (Pan & Fesenmaier, 2006). The paths indicate users' most and least common paths on the website to reach their goals; third, heat maps were generated from the most commonly viewed web pages to indicate users' main interests based on the eye tracking data; fourth, the researchers viewed the movies with embedded eye movement data, then combined with subjects’ verbal protocols, observational notes, and recorded online activity movies. The researchers took note during the viewing and identified the usability problems the subjects encountered during the process. Specifically, the researchers looked at the data and tried to discover the critical incident where the usability problems happened (Koenemann-Bellliveau, Carroll, Rosson, & Singley, 1994; Pan, et al., 2007).

5. Results

Demographic Information

Pre-survey results indicated that all participants have used the Internet for at least six years; the majority of the participants noted that they had used the Internet for ten or more years. The majority also indicated that they use the Internet for at least three hours each day. Regarding respondents’ traveling experience, most took 0-2 business trips and 1-3 pleasure trips in the last 12 months. About 83% of participants identify themselves as an experienced traveler, while 93% of participants identify themselves as an experienced Internet user. In general, the participants were mostly young professionals in an educational institution; they are savvy Internet users and travelers, who fall into the target market of the OTA. The majority of participants indicated that they used the OTA to check hotel and airline information, but not to
secure rental car reservations for their travel. The post-survey indicated that 17 participants reported having booked a flight and hotel as a package, while 25 participants reported having never done so. Of the respondents who had booked the flight and hotel as package, the perceived advantages appeared to be cost (12 of 17) and convenience (5 of 17).

Participants were asked to rate the OTA and three other major OTAs on several attributes. The results show that all major OTAs have higher values on ease of use, positive past experience, and brand familiarity, but they scored lower on best price, best reward program, great customer service, and most trustworthy. When asked whether a subject would use the same web site he or she used last time, the responses showed that the subjects have no problem switching OTA sites given the right value, indicating low brand loyalty.

Navigation Patterns and Visual Attention Patterns

The most revealing results came in the form of a modified user route map as well as the heat maps, both of which clearly outline the typical browsing and eye movement patterns of the participants. The homepage of the OTA has distinct sections: the main section on the upper-left side contains search boxes and main function of the website; the deal section on the upper-right side presents "My Account" information along with deals, specials, and featured destinations; the bottom deal section lists additional deals (Figure 1). First, researchers compiled the clickstreams into a navigational graph (Figure 2) (Pan & Fesenmaier, 2006). The result shows that the subjects have very distinct browsing patterns for the various page types: they always start with homepage, type in search terms, go to search results page, and view details pages. The other tabs were not interacted with nearly the same frequency as these pages. In fact, 91% of the participants only interacted with the default search form on the home page. The package search function was used much more frequently than individual hotel or air search. After being
presented with package results, respondents were more likely to go to package details and then switch to flight information if needed.

In addition to navigation route maps, heat maps were generated utilizing the numbers of eye fixations captured by the eyetracker. The most gazed-upon areas were depicted on the maps below as red, yellow, green, and blue, according to highest to lowest fixation density in that order (Figure 3). These maps indicate the locations of the subjects’ visual attention on those pages. Across all the heat maps, it is important to note that items that lay within the outer perimeters of the screen, those smaller options, advertisements, etc. were mostly not noticed. For example, on the home page, 94% of the users did not interact with the graphics on the right side of the screen located on the home page. From this and other recorded instances, we can conclude that the users have a tendency to remain focused on exactly what they are looking for without fully taking in the complete content of any given page. On the OTA’s website, the subjects were mainly engaged in functional information search, e.g., finding out hotels and airlines to book, as opposed to the multimedia content of the page.

Information Search Strategies

From the detailed eye movement data along with recorded videos, researchers also studied and coded the behavioral patterns on all the pages. We found that users mainly utilize three strategies in their information search process. First, price is the most critical factor in
determining users’ eye movement. The results indicated that users typically followed an initial left-to-right, top-to-bottom visual pattern; however, they quickly sorted out the items bearing the lowest price and remained focused on sorting out the details of the items with the lowest price. Users tended to focus on a limited number of results most often in the lowest price bracket. While a majority of users simply reviewed the list based on the default search results, the most common alternative was choosing the ‘Lowest Price’ sorting option. When it comes to price, users are incredibly focused on the best price and as a result, they become relentless in seeking out the best bargain and filter out everything else in their field of vision. After they saw the lowest price, they either go with the lowest price offered or give, slightly, to higher prices based on other factors such as time of departure, number of stops, or photos (for hotel properties and packages).

Second, despite the very clear importance of price, photos have a considerable influence over user preference and buying behavior. Users were particularly engaged with available photos of hotel properties. Users would often choose the hotel and look through the selection of images, which seemingly influenced their interest in booking the property. Users would typically move up slightly in price in order to identify a hotel that they are visually attracted to, as long as it was not in the upper bracket of expensive properties. Users’ comments and general observations alluded to the assumption that users are willing to pay more for an attractive hotel property judged by its photos. Hotel aesthetics are very important to the user and the users often browsed through the entire collection of photos for a given property. Interestingly, for hotels with poorly shot photos, plain or ‘cookie-cutter’ appearance, and/or dated aesthetics, users would quickly dismiss them to find a property with photos that had a more unique, professional, and modern
appearance. In Las Vegas, for instance, the orange glow of the volcano in front of a lit Mirage against the night sky seemed to attract users’ attention.

Third, scanning is used mainly to process information. Users often scanned the text as opposed to reading it in full. Scanning is one of the strategies users use to process information on the Internet, more often than on the traditional prints (Astleitner & Leutner, 1995). Based on personal criteria such as interest and personal importance, users are often engaged in selective scanning (Eveland & Dunwoody, 2002). For example, in Figure 2, analysis on the Hotel detail page indicated that 47% of participants used a combination of scanning and reading on text, 33% only scanned, 13% scanned but mostly ignored the text, and finally, only 7% of users fully read the text.

**Main Usability Problems**

Almost all subjects fulfilled their tasks successfully within the required time frame except one. However, we also found two main usability problems of the OTA website. The OTA offers complicated matrices on the package web page. The matrix has different hotels in rows and the different airlines across the columns. Each cell lists the price for a different combination of a specific hotel and airline (see Package page in Figure 3). The matrices were confusing to some participants. Several respondents expressed their confusion and commented on the overwhelming amount of information presented to them through matrices (see Figure 2). The intensity of information on the matrix makes it difficult for users to effectively digest the information to make a final booking decision. Furthermore, in order to judge the overall value of the package, they want to know the individual prices for the hotel and the airline ticket if booked separately; however, that information was not readily available on that page. It should be noted
that one subject noticed the difference in price on the matrix results page versus the price on the package detail page after she clicked the link. She quickly abandoned her trip planning on the OTA and mentioned that she would switch to a different OTA site right away. This indicated the importance of information accuracy during even one booking session for purposes of retaining the OTA’s customers.

Second, although the various functions and options of the web pages were understood and reasonably well navigated by the users, the virtual tour function, however, was mostly ignored or was abandoned due to technical difficulties when trying to operate this function. Although virtual tours are provided on the assumption that they can help users form vivid and clear destination images, thus making it easier for them to choose a destination (Cho & Fesenmaier, 2000), the technology demands higher bandwidth and sometimes additional software. In our study, multiple users encountered issues with the virtual tour component of the individual hotel page or simply ignored it. This problem should be reevaluated because many users do not have the necessary programs/speed on their computers to utilize this functionality and the frustration that may result from this experience could be damaging to the site as a whole.

6. Conclusions and Discussion

From the results of the pre- and post-surveys, it was found that the majority of the participants have heard of and used the OTA. An overall positive feeling towards the web site was conveyed as most users found that the web site was easy to use and/or had a good experience with the OTA. Many users, however, felt that the web site was just average in terms of customer service, trustworthiness, and best price. Additionally, most subjects had lower brand
loyalty; they were very price sensitive and had no problem switching to other travel web sites if a better price could be found.

In general, subjects' information search task was successful. Their behavior on the OTA was completely functional and utilitarian in nature rather than hedonic searches (Vogt & Fesenmaier, 1998; Vogt, Fesenmaier, & MacKay, 1993). This may reflect the nature of the Internet: it offers vast amount of information in a hypertext environment which can help decision makers to find their ideal choice. The amount of information and the nature of the task determine the utilitarian use of the OTA site. In this study, the majority of the users let the criteria of price guide their decision making choices. They usually evaluate the hotel, airline, or package choices and pick one from the list very quickly. The options with low prices are viewed first. The ads, marketing messages, and irrelevant information were largely ignored. Photos of the hotels also influence users’ choices of the hotel. High quality photos can entice users to choose more expensive prices. When making decisions, users usually scan the website rather than engage in careful elaboration.

Two major usability problems are discovered on the website. First, the matrix listing package options stood out as one of the major sources of confusion and frustration. The intensity of the information provided in the matrix makes it difficult for users to quickly and effectively digest. Second, the virtual tour function is rarely used by users. Virtual tours can increase the spatial understandings of the hotels, but it usually requires additional software and demands higher bandwidths. Viewed in combination with users’ utilitarian searches, this demonstrated that the OTA is overloaded with too much information and additional functionalities which either confuse or frustrate the web visitors. This study calls for a simpler and more intuitive
interface. In other words, "Keep it Simple and Stupid" (the KISS principle) (Zerfass & Hartmann, 2005).

7. Implications

Since the bulk of information and options on the pages seemed to remain the same from the OTA home page to deep level individual web pages, most of the information and options are ignored or just scanned by the users. Users tended to follow very similar patterns when searching. They have become increasingly savvy in terms of navigation and filtering of information. If important information is bypassed or ignored by the users, then the web site has lost an opportunity to engage and persuade the user. A simple, clean beginning with streamline aesthetics could intrigue and influence users in a positive manner and potentially prevent user errors. For particular destinations, photos can be tailored to ‘enhance’ their specific appeal. This is a method to create an ‘experience’ with a user at a very early stage in the decision-making process, thereby significantly influencing their purchasing decisions. In an era of immense competition, the aforementioned method is particularly effective. In general, the OTA may benefit from employing a scaffolding technique to the web site. Scaffolding was defined as the process by which assistance is provided to learners to tackle difficult problems by providing strategic guidance, setting reasonable goals or performing parts of a task (Wood, Bruner, & Ross, 1976). Website designers should consider scaffolding for the tasks users perform and for the interface with which users interact. The important information such as the prices of hotels, airlines, and packages should be provided first to the users. More choices can be offered in subsequent pages to encourage users to stay on the site longer and ultimately make a purchasing decision through the site. When a structure is provided for a complex task such as choosing one
vacation package from an overwhelming choice set, information overload can be possibly avoided.

8. Limitations of the Study

The first limitation of this study lies in its lab exercise nature. The subjects were planning an imagined trip in the future, rather than one of their real trips. They did not need to finish the final purchase, but rather searched for information and decided on the hotel and airline only. This may lower the involvement level of the task and increase the artificiality of the study. Second, though all the OTAs follow similar information architecture and interface layout, the subjects had different brand images regarding different OTAs. Thus, they may present different search and decision making strategies due to that. Readers should be cautious when generalizing the results of this study to other OTAs.
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FIGURES AND TABLES

Figure 1. Layout of the Homepage
Figure 2. Subjects' Navigation Patterns
* Note: the white box is to cover the brand of the website due to confidentiality concerns.

Figure 3: Heat map of Major Pages of the OTA