

# Behavior of Online Visitors to Hotel ICON: A Weekday-weekend Analysis

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## Abstract

Consumers exhibit different behavioral patterns during weekdays and weekends. Therefore, understanding their online browsing behavior is worthwhile. This study analyzed the access paths of browsers to a hotel website in a one-year period. Based on weblog data from Hotel ICON, an upscale hotel in Hong Kong, findings showed browsers accessed the hotel website with different patterns during weekdays and weekends. More importantly, a high percentage of access errors were found in the study, indicating the potential limitations for the hotel to retain potential customers.

**Keywords:** hotel web log analysis, clickstream analysis, weekday-weekend, search behavior, error

## 1 Introduction

As a popular topic in the past two decades, website evaluation has drawn the attention of many hospitality and tourism researchers to understand the proper way of designing a professional website (Ip, Law, & Lee, 2011). In addition, scholars widely examined consumer behavior through their access paths to specific websites (Rozado, El Shoghri, & Jurdak, 2015). Believing that consumer behavior can be found from their website browsing patterns, scholars have attempted to draw conclusions or make predictions on potential consumers' purchasing behavior. Moreover, consumers behave differently during weekdays and weekends. For instance, Sugiea, Zhang, and Fujiwara (2003) stated that a larger number of shoppers are active during weekends compared with weekdays. Likewise, Darian and Cohen (1995) found that lunches during weekdays are used for work or social activities, whereas weekend meals are for recreation purposes. The difference in consumer behavior thus rendered Schamel (2012) and Scholten, Livingston, and Chen (2009) to propose different pricing models for consumers during weekdays and weekends. Unfortunately, published articles in the existing literature have largely overlooked website users' browsing behaviors during weekdays and weekends. In other words, practitioners and researchers have no knowledge on whether browsers prefer using

special computing devices or special accessing paths during weekdays and weekends. To bridge this research gap, this study analyzes the accessing paths of Hotel ICON. Research findings would be of use to both industry practitioners and researchers to better understand this important, yet largely unknown, consumer behavior.

## **2 Literature Review**

Better understanding of online user behavior and interests has become increasingly crucial for managers (Rozado et al., 2015). In other words, the clickstream data from a log file can provide useful information on the path viewed by users and the sequence of pages during website navigation. Senecal, Kalczynski, and Nantel (2005) as well as Benevenuto, Rodrigues, Cha, and Almeida (2012) further stated that user goals, knowledge, and interests can be found from the access path data, bringing in a new dimension for predicting user behavior. More importantly, access paths reveal the sequence of events ending to online purchase. Web browsers generally leave traces on the server, which represent user interests. Su and Chen (2015) stated that users' browsing paths, time spent on a category, and frequency of page visits were largely unequal. The authors subsequently developed an algorithm and integrated it into the rough set theory to deduce interesting patterns from users. Based on the collected clickstream data from PC users, experimental findings showed that users can be grouped into three patterns. Moe (2003) empirically tested a typology of store visits, and used clickstream data to classify visits as buying, browsing, searching, or knowledge-building visits based on navigation patterns.

Despite the importance of analyzing the access paths of a business website using click data, not much work has been conducted in the existing tourism and hospitality literature. In an earlier study, Leung and Law (2008) analyzed the paths of the official website of a hotel in Hong Kong. Their findings revealed that most online visitors were city residents and they preferred dining information the most. Although the website provided plenty of information, the website structure appeared overcomplicated with many layers.

## **3 Methodology**

Hotel ICON is located in Hong Kong, equipped with 262 guestrooms and 3 restaurants. To understand web users' browsing behavior, this study collected one year's web server log data of the English version of hotel website ([www.hotel-icon.com](http://www.hotel-icon.com)). Specifically, weblog data from August 1, 2013 to July 31, 2014 were collected on August 15, 2014. The weblog was further divided into two groups—weekdays and weekends—to examine the behavioral difference of web visitors. Each group of the weblog files were then imported to weblog analysis tools, Weblog Expert professional version (Weblog Expert, 2015), for analysis. Online browsing behavior reports were generated, including user demographic statistics, top 100 entry pages, top 100 visiting paths, and top 100 popular pages. To cater for different users' browsing patterns, the hotel website created various URLs that redirect users to the same page. Moreover, spelling of each webpage's URL contained two versions, one with all lowercase letters and one with words capitalized (e.g.,

rooms.aspx and Rooms.aspx). To consolidate all statistics that could reach the same page, the weblog reports generated from Weblog Expert were exported to Microsoft Excel for further data analysis by combining duplicated patterns. All statistics were combined to show the actual performance of each page.

## **4 Findings**

### **4.1 Web Visitors' Geographic Analysis**

After extracting and calculating the data from the weblog, empirical results indicated that approximately 1.25 million visitors visited the hotel website with 57 million clicks. On average, 3,300 users visited the website per day with 2.91 page views per visitor. The majority of the web visitors were from Asia (71%), whereas visitors from Europe and North America only accounted for 10% and 8%, respectively. Among those 71% Asian visitors, 37% were local residents, 14% were from Singapore, and 8% were from China.

### **4.2 Visitor Click Behavior Comparison on Weekday and Weekend**

**Device use** More accessing activities originated from desktop devices during weekdays (70%) than weekends (60%). This finding indicated that many hotel website visitors accessed hotel information at home or in the office using desktop computers, and used mobile devices during weekends to obtain required information while they were out.

**Clickstream** After consolidating all duplicated clickstream patterns from the top 100 clickstream paths, 82 path patterns remained. Out of the 82 paths, only 16 had single-page visits. This finding implies that visitors only browsed the information on that page and left without clicking any links on the same page. Table 1 shows the top 20 clickstream results of the hotel web pages. By comparing the major behavioral differences between weekdays and weekends, mobile pages were apparently more popular during weekends. The *Location & Contacts* page during weekdays, for example, was mainly accessed by desktop computers via the home page (1.08%), whereas only 0.74% of visitors accessed this page via mobile devices. However, during weekends, this page was accessed directly from more mobile devices (1.08%) than from desktop computers (0.81%). The access rates of other mobile pages during weekends were all higher than weekdays.

### **4.3 Error Analysis**

To further examine the response of the visitors when they hit the error page, this study extracted the clickstream paths with error page included. Among the top 100 paths, 27 clickstreams hit the error page. The clickstream pattern showed that the error page could appear after any pages. Approximately 2.8% of the web visitors reached the error page when they first accessed the web server. Approximately, 18,000 visitors hit the error page right after visiting the home page, the dining page, or after the special offer page. In the clickstream, three paths showing the visitors hit the error page and attempted to visit other pages. However, the website visitors hit the error page again in the next click. After the visitors reached the error page, only 17,273 visitors (24%) clicked on the menu item to

visit other hotel pages; the remaining 76% simply left the website after seeing the error message. This finding indicated that visitors' confidence level on this website decreased, and preferred to leave and search for alternatives.

**Table 1** Top 20 Clickstream Comparisons during Weekdays and Weekends

Weekdays		Weekends	
Path	% of Total Visitors	Path	% of Total Visitors
1 Home	34.88%	Home	37.52%
2 Dining	3.48%	Dining	3.19%
3 Home -> Dining	2.64%	Home -> Dining	2.02%
4 Page Not Found	2.94%	Special Offer	2.12%
5 Home -> Page Not Found	2.65%	Rooms	2.38%
6 Special Offer	2.31%	Page Not Found	2.32%
7 Rooms	2.18%	Home -> Rooms	2.01%
8 Home -> Rooms	2.14%	Home -> Page Not Found	1.86%
9 Home -> Special Offer	1.33%	Home -> Special Offer	1.31%
10 About Hotel	1.29%	About Hotel	1.29%
11 Home -> Location & Contacts	1.08%	Location & Contacts (Mobile)	1.08%
12 Facilities	0.66%	Facilities	0.77%
13 Location & Contacts	0.90%	Home -> Room (Mobile version)	0.88%
14 Events	0.77%	Home -> Location & Contacts	0.81%
15 Home -> Page Not Found -> Dining	0.77%	Location & Contacts	0.81%
16 Location & Contacts (Mobile)	0.74%	Events	0.69%
17 Home -> Room (Mobile version)	0.64%	Room (Mobile version)	0.75%
18 Room (Mobile version)	0.57%	Home -> Location & Contacts (Mobile)	0.74%
19 Home -> Facilities	0.34%	Home -> Page Not Found -> Dining	0.55%
20 Dining -> Page Not Found	0.42%	Home -> Dining -> Home	0.45%
Total	62.73%	Total	63.55%

*Note: grey color for mobile version*

## 5 Discussions and Conclusion

This study attempted to compare website visitors' behavior differences during weekdays and weekends. Results indicated that certain hit ratios on mobile pages were higher than those on the desktop version. However, the average daily page visit on weekends was only 60% that of weekdays. Therefore, the hotel should attract web users to visit its website during weekends to increase its business. The home page was the most popular page, with more than 60% web traffic. This finding might indicate that a majority of visitors started searching hotel information from the home page, but without using keywords to locate pieces of information such as dining or accommodation details. Furthermore, the website only used a single page to display the information of all three restaurants. From the perspective of search engine optimization, the heading of the web page might not truly reflect the content of the page. The title of this webpage was the name of the Chinese restaurant. As such, the two remaining restaurant names were not displayed in search engine results. Such a situation will affect web visitors; they will choose from the resulting list. Thus, we recommend that independent web pages are

provided for each restaurant. Page error was the most serious problem found on this website. The error ratio was more than 11% of the total web traffic. The hotel web master should monitor and identify the reasons behind such a high error percentage. The problem could originate from: 1) dated promotion emails that linked to webpages that no longer exist, 2) spelling errors in internal links, and/or 3) wrong link referral from business partners. As a business website, frequent downtime will affect customers' purchase intention and trust (Kuo & Wu, 2012). Therefore, the hotel should seriously monitor their website system failure rate to maintain the trust level of consumers.

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