

TESTING POSITION EFFECTS AND COPY TO INCREASE WEB PAGE VISITS

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This research uses online experiments and consumer behavior literature to investigate how location and copy on a web page influence the rate of clicks on a link. As in other media, the results support these effects on web page clicking behavior. Two experiments demonstrate how to more than double the number of clicks on a web page as well as the value of web-based experiments. The results also illustrate how tourism managers and academics can combine principles of menu engineering and web page management to improve performance in both media. The article closes with proposals for future research of layouts: offline with restaurant menus and online with web pages.

Key words: Position effects; Copy testing; Web page layout; Online experiments

Introduction

Tourism is an inviting industry for Internet transformation (Doolin, Burgess, & Cooper, 2002; Jeong, Oh, & Gregoire, 2003). Used correctly, Internet technology becomes a strategic weapon to facilitate competitive advantage (Buhalis & Main, 1998; O'Connor & Frew, 2002). Furthermore, travelers that book online are an appealing market (Caroll & Siguaw, 2003; O'Connor, 2003). Wired tourists in Australia, for example, spent double that of their offline colleagues (Bolin, 2002).

Yet an ongoing quest for tourism operators is better returns on their Internet investments. The glitz, glamour, and gloom of the dot.com époque,

as well as common sense, have led to an increased appreciation of website designs that complement corporate goals (Porter, 2001; Stockport, Kunnath, & Sedick, 2001). A basic question facing designers is how to get visitors to click more and stay longer on their website (Hanson, 2000; Nielsen, 2000). Research in other media, including restaurant menus, sheds light on answers to these questions.

The restaurant industry argues that menu design influences what guests order. There is little empirical evidence of these effects (Bowen & Morris, 1995; P. Jones & Mifli, 2001), but menu design is critical to menu management (LeBruto, Quain, & Ashley, 1995; J. E. Miller & Pavesic, 1997). Based on each menu item's sales and con-

tribution margin, management manipulates the item's location, copy, and other mechanical features in order to change sales and subsequently increase overall profitability. Rather than order food from a paper menu, online guests order web pages from a website. Although this analogy fails to carry across media, this article draws upon principles of menu design to investigate web page management and improve performance in both media.

This study also draws upon literature in psychology, marketing, menu management, and website navigation to guide two experiments addressing four broad questions. Firstly, what does research suggest about design influences on web page menus? Secondly, how do copy, copy length, and position effects influence clicks on a web page? Thirdly, what implications can website managers and restaurant managers draw from the results of these experiments? Fourthly, what are fruitful future research avenues for investigating the influence of menu design, online and offline? Finally, the methodology addresses calls for more tourism and hospitality research using experiments (Johns & Pine, 2002; Lynn, 2002; O'Connor & Murphy, 2004).

Literature Review

The Phenomenon of Position Effects

An effective menu design entices guests to select certain items based on gaze motion, or the pattern that the human eye reads a menu. "In theory, every menu has a sweet spot, that place where the eye falls first . . . the place to put high-profit items" (Kochilas, 1991, p. 96). Restaurateurs should place items whose sales they want to boost in this sweet spot (Doerfler, 1978). For example on a one-page menu, the reader's focal point is immediately above an imaginary horizontal line dividing the page in half (J. E. Miller & Pavesic, 1997), reminiscent of newspaper editors deciding what stories to run above the fold.

The sequence of menu items is also important. All things equal, customers should order items near the top of a menu more often (Ditmer & Griffin, 1994; J. E. Miller & Pavesic, 1997). An early mention of sequence is the "Principes d'Omnes,"

four rules of thumb guiding menu pricing and layout developed in the 1960s by Monsieur Jean Toulemonde (Carmin & Norkus, 1990; Kosossey & Majonchi, 1986). One rule was placing the two most profitable dishes first and last on the list, as customers tend to remember items in these locations better. Primacy and recency effects found in other media suggest that this is sound advice.

Researchers in several fields have shown the importance of an item's position in an ordered list, or serial position. Cognitive psychologists found that early items in a list enjoy a memory advantage (Crowder, 1976). This "primacy" effect may stem from limited memory capacity and the lack of competition that early items enjoy (Waugh & Norman, 1965). The last few items in a list also tend to enjoy a memory advantage, or "recency" effect, as those items may still be in short-term memory (Haugtvedt & Wegener, 1994). Marketing research has shown that television viewers are more likely to recall advertisements at the end of a commercial break than advertisements towards the beginning (Duncan & Murdock, 2000). This memory advantage for latter advertisements also extends to viewers who change channels or leave the room during commercials (Tse & Lee, 2001).

In addition to memory, researchers have demonstrated position effects on attitude. Customer service research by Maxham and Netemeyer (2002) suggests a recency effect with inconsistent service recovery. "What have you done for me lately" takes precedence (p. 67). Asch (1946) found a primacy effect in impression formation, an important factor for advertisers seeking attitudinal change (Haugtvedt & Wegener, 1994). Early serial position, for example, showed a positive influence on the liking of advertisements (Zhao, 1997), a common indicator of advertising effects (MacKenzie, Lutz, & Belch, 1986). A major shortcoming of attitudinal research, however, is that stated behaviour often fails to represent actual behaviour (Blair & Burton, 1987; Lee, Hu, & Toh, 2000).

Menu Position Effects and Behavior

Despite the overwhelming importance of menu design and gaze-motion theory, "the empirical work on which this theory is based is not sourced"

(Jones & Mifli, 2001, p. 62). Two studies that did investigate positioning effects and menu item sales showed mixed results on actual behavior.

In possibly the first study of menu positioning, Sobol and Berry (1980) altered two items' positions on menu boards at Bonanza International restaurants. Pretests found that customers in restaurants with a right-hand entry tended to focus on the upper right and then gaze to the left, down, back to right, and then back up. This pattern resembles eye movement across a two-page printed menu (Bowen & Morris, 1995). As hypothesized, in 10 restaurants and over 4 weeks, an item located in the upper right position had significantly more sales (16%) than that same item in the lower left menu board position.

The second study tested position effects on a two-page printed menu (Bowen & Morris, 1995). The experiment compared the popularity of a salad presented simply in the top left page versus the same item—with elaborate copy, artwork, and a border—on the top right page. There were no significant differences in salad sales. The redesign failed to support the proposition that increased visibility led to increased sales. Researchers studying position effects in other media have had better results.

Position Effects and Behavior in Other Media

In an eye-tracking study of reading yellow pages, Lohse (1997) found that the subjects viewed, and chose, ads toward the top of the alphabetical list. Krosnick and Alwin (1987) found contrasting position effects with survey techniques. Respondents that read from a printed list tended to pick the first categories and respondents that heard the choices tended to pick the last categories. There was a primacy effect visually and a recency effect aurally.

Involvement, however, may mediate position effects. Sekely and Blakney (1994) found a primacy effect on magazine readership, but only in a "low-involvement" situation. Similarly, in a study of 188 races in Ohio's 1992 elections, Miller and Krosnick (1998) found candidate name-order effects in almost half the races. Races perceived as high involvement though, showed less candidate name-order effect.

These studies showing position effects—across several disciplines and with both stated and actual behavior—support the view that all things equal, visitors would tend to select the first and last items on a list of web page links more often than other link positions. As in other media though, not all things are equal on a web page. The layout and copy length on a web page, for example, should also influence the links chosen.

Layout and Copy Length

Lohse (1997) tracked eye movements on experimental yellow page advertisements to investigate if mechanical features of the layout influenced viewing. As expected, the subjects viewed quarter page ads more often than simple listings, larger ads more often than smaller ads, color ads before ads without color, and bold listings more often than plain listings. These mechanical effects also appeal to menu designers, who use elements such as color, paper, typeface, artwork, outlining, copy, and layout to highlight select menu items (Bowen & Morris, 1995). For example, J. E. Miller and Pavesic (1997) advise against aligning prices down the right side of the menu as "prices stand out from descriptive copy and influence the customer's selection decision" (p. 154).

Lohse (1997) also found that the amount of copy was important. Subjects viewed ads with high information content before ads with low information content, but too much information decreased viewing time. Similarly, Percy's (1983) review of advertising copy identified sentence length as a key issue. Later, Percy and Rossiter (1992) highlighted the importance of linguistic complexity, and evidence exists that sentence complexity improves readership (Chamblee, Gilmore, Thomas, & Sollow, 1993). Restaurants illustrate this verbosity with rambling descriptions such as "Vine-ripened Roma tomatoes hand-picked at dawn and then slowly dried during the early afternoon hours by a gentle summer sun on the western slopes of California's Napa Valley."

Web designers, however, suggest short copy over long copy as reading from a computer monitor is more demanding on the eye than reading in print (Nielsen, 2000; Veen, 2000). Online and off-

line designers agree about the voice though; the active voice increases readership (Motes, Hilton, & Fielden, 1992; Nielsen, 2000; Veen, 2000).

Website Design and Reported Effects

Although trade publications abound (Nielsen, 2000; Veen, 2000), empirical studies of web page design are less abundant (Sears, 2000). The computer science field has a rich history of usability research (e.g., hypertext, adaptive hypermedia, and human-computer interaction) investigating how layout helps the visitors find specific information quicker and easier (Hornoff, 2001; Olston & Chi, 2003; Tung, Debreceeny, Chan, Chan, & Le, 2003). The dependent variable in this research stream, however, tends to be reaction speed or task complexity rather than clicks on a link.

In a synthesis of 59 studies on the properties of effective commercial websites, Scheffelmaier and Vinsonhaler (2002–2003) found just eight empirical studies, all based on user ratings of websites. Across the anecdotal and empirical studies, five properties stood out: cohesiveness, consistency, ease of navigation, interactivity, and download time. These properties mirror the advice found in academic (Hanson, 2000; Hofacker, 2001) and industry (Nielsen, 2000; Veen, 2000) textbooks.

These same texts use a similar metric for success, clicks on web pages' links. The more links that visitors click, the more chances to sell banner advertising, the longer the visitors stay, the greater the customer involvement, and the greater the chance that visitors will eventually click the buy link. Revenue is directly proportional to the number of visitors that click the "Buy" link (Berthon, Pitt, & Watson, 1996).

Research of the effects of layout and copy on the visitor's propensity to click is emerging. Studies have shown that shorter copy on advertising banners (Hofacker & Murphy, 1998), celebrity endorsements (Drèze & Zufryden, 1997) and non-personalized e-mail copy (Marinova, Murphy, & Massey, 2002) increase clicks. More advertising banners on a web page (Hofacker & Murphy, 2000), manipulating the size and location of images to increase the number of visible links on a page (Murphy, Hofacker, & Bennett, 2001), and using pull-down menus (Brown, 2002) also in-

crease clicks. Animation, though, may have a negative influence on clicks (Zhang, 2000) as well as large embedded images and Java scripts (Drèze & Zufryden, 1997).

With regard to position effects, Hoque and Lohse (1999) found that subjects chose items near the beginning of an electronic telephone directory more often than the same items in a paper directory. Frick, Bächtiger, and Reips (2001) found that fewer participants dropped out of an online survey when asked for personal information at the beginning of the survey rather than at the end of the survey. This contravenes the conventional wisdom of asking demographic questions at the end of surveys (Babbie, 1997, p. 158). Furthermore, participants asked for personal information at the beginning provided this information more often than did respondents asked for personal information at the end of the survey.

Methodology

Experiments are excellent for controlled testing of causal processes (Babbie, 1997), such as the effects of website layout on clicking behavior. While survey respondents may inaccurately report past, present, or intended behavior (Blair & Burton, 1987; Lee et al., 2000), measuring clicks on a link captures actual behaviour (Drèze & Zufryden, 1997; Hofacker & Murphy, 2000). This research used the website of a popular Florida restaurant to measure online visitor's actual clicks (Murphy et al., 2001).

When a visitor requested the experimental page, the server randomly chose an experimental page to send the visitor. The links followed a Latin square rotation (Holland & Cravens, 1973), so that each link appeared in each serial position (see Fig. 1). This methodology empirically tests the influence of design changes on clicks to each link under rigorous, randomized experimental conditions. The results generalize to the population of visitors to the page containing the links.

Results

Experiment 1: List Versus Sentence

Print research suggests using longer copy (Chamblee et al., 1993; Percy & Rossiter, 1992),

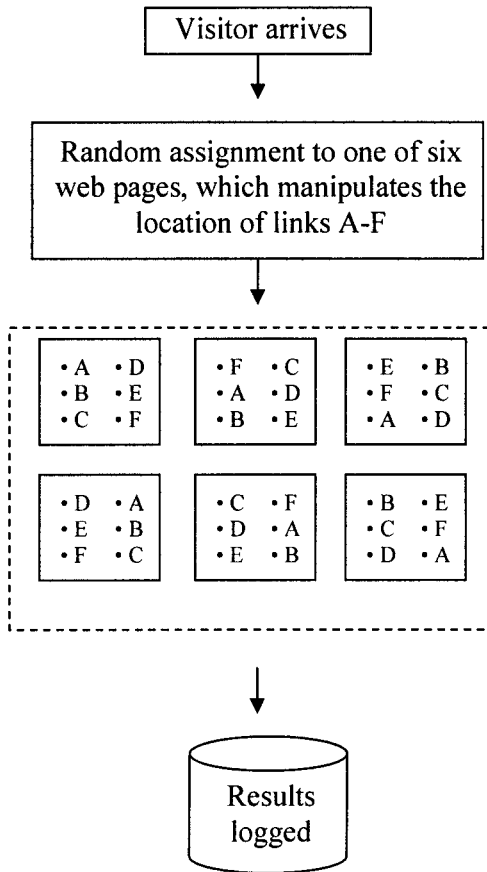


Figure 1. Experimental method.

while web designers call for shorter copy and lists, as people scan rather than read web pages (Nielsen, 2000; Veen, 2000). Hofacker and Murphy (1998), for example, found that short copy garnered more clicks on an ad banner than long copy. Given the online medium, short copy in lists should outperform long copy in sentences. Given the widespread position effects found in other situations, links near the top and bottom of a list should harvest more clicks than links in other serial positions.

The first experiment tested short copy of 15 words to describe six links in a list (see Fig. 2) versus verbose copy in sentences with over double the number of words describing the same six links (see Fig. 3). The page design for this and the second experiment ensured that all six links appeared

on the visitor's opening screen across a range of monitor sizes and screen resolutions.

The first experiment had six web pages in each condition, short copy and verbose copy, or 12 web pages in total. The links appeared in two columns of three links each (see Fig. 1). Over the 2-week experimental period, there were 4131 requests for the experimental page. Sample sizes for the 12 web page versions ranged from 292 to 397. Using one-way ANOVA to test for significant differences revealed three effects: the link itself, copy presentation, and serial position.

Across the 12 experimental pages, there was a significant difference [$F(5, 50) = 147.18, p < 0.001$] in clicks on a particular link, ranging from less than 1% to almost 20%. Secondly, the short copy in lists had a 23.5% clickthrough rate, about 50% more clicks than the verbose copy in sentences at 14.8%, with $F(1, 50) = 31.47, p < 0.001$. Figures 4 and 5 illustrate this result; the short text copy curves in Figure 4 are higher than the verbose copy curves in Figure 5.

These figures also show a position effect. The worst performing position was the middle link in the right column. That the bottom link did better in the right column than in the left column suggests a recency effect. To summarize these position effects, the upper left and the lower right links captured the most clicks. These data revealed preferences for the first (primacy effect) and last items (recency effect) in the sequence. This visual impression is confirmed by the statistically marginal presence of the row \times column interaction with $F(2, 50) = 7.23, p = 0.0697$.

Experiment 2: Short Copy Versus Medium Copy

Experiment 1 showed that although short copy outperformed verbose copy overall, at the link level this difference was significant on just two of the six links. These differences in clicking may have resulted from lists being easier to read than sentences; longer copy may improve clicks in a list. The second experiment followed the direct marketing procedure of testing against the best performing design, in this case short copy in a list. The second experiment used just lists rather than sentences to test the same two effects, position and copy.

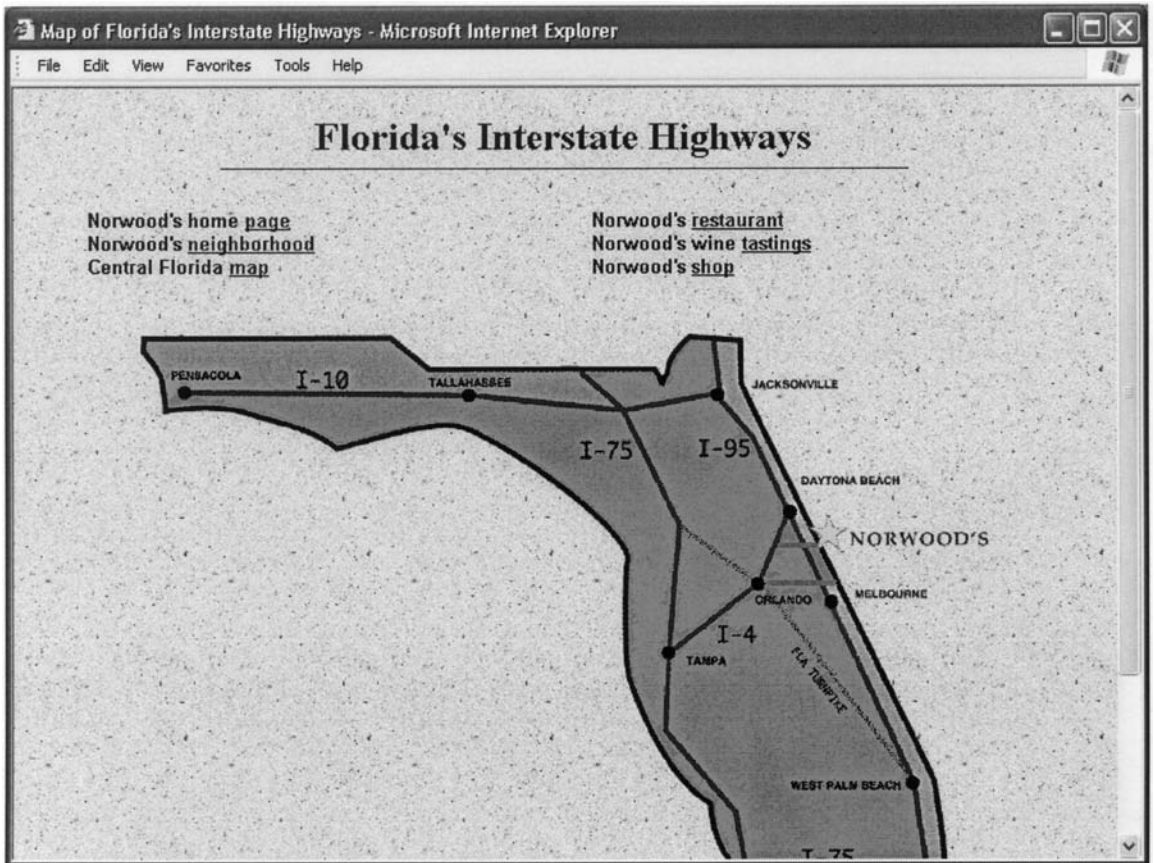


Figure 2. Screen shot of experiment one, short copy/list condition.

As a 5-year analysis of the site's log files showed that visitors to the experimental page sought Florida information, not restaurant information, the second design added copy—more Florida information—on four links. For the two other links, similar to a restaurateur substituting chicken for beef and leaving a popular dish alone, the second experiment substituted a new link about local Florida history for the worst performing old link and left the best performing link unchanged. The literature review and visitor motivations support the second design with additional copy about Florida garnering more clicks. The position effects found in the first experiment should also be present in this experiment.

Over a 4-week experimental period in October 2002, there were 8431 requests for the experimental page. Sample sizes for the 12 web page versions

ranged from 669 to 770. Using one-way ANOVA to test for significant differences revealed three effects: the specific link, copy length, and serial position. As in Experiment 1, there was a big effect of the specific link, with an F value of 252.78 on 10 and 40 degrees of freedom, with a probability < 0.001 .

The revised text outperformed the old text on four of the five links. This led to a significant main effect of copy condition with $F(1, 40) = 30.75$, $p < 0.0001$. Overall, the click-through percentage with the revised copy rose by almost one third, from 24.2% to 31.3%. The biggest improvement on a link was a sixfold increase resulting from adding copy about Florida to that link. In addition to these effects, as before, the link's serial position mattered (see Figs. 6 and 7). The main effects of row [$F(2, 40) = 10.01$, $p = 0.0063$], col-

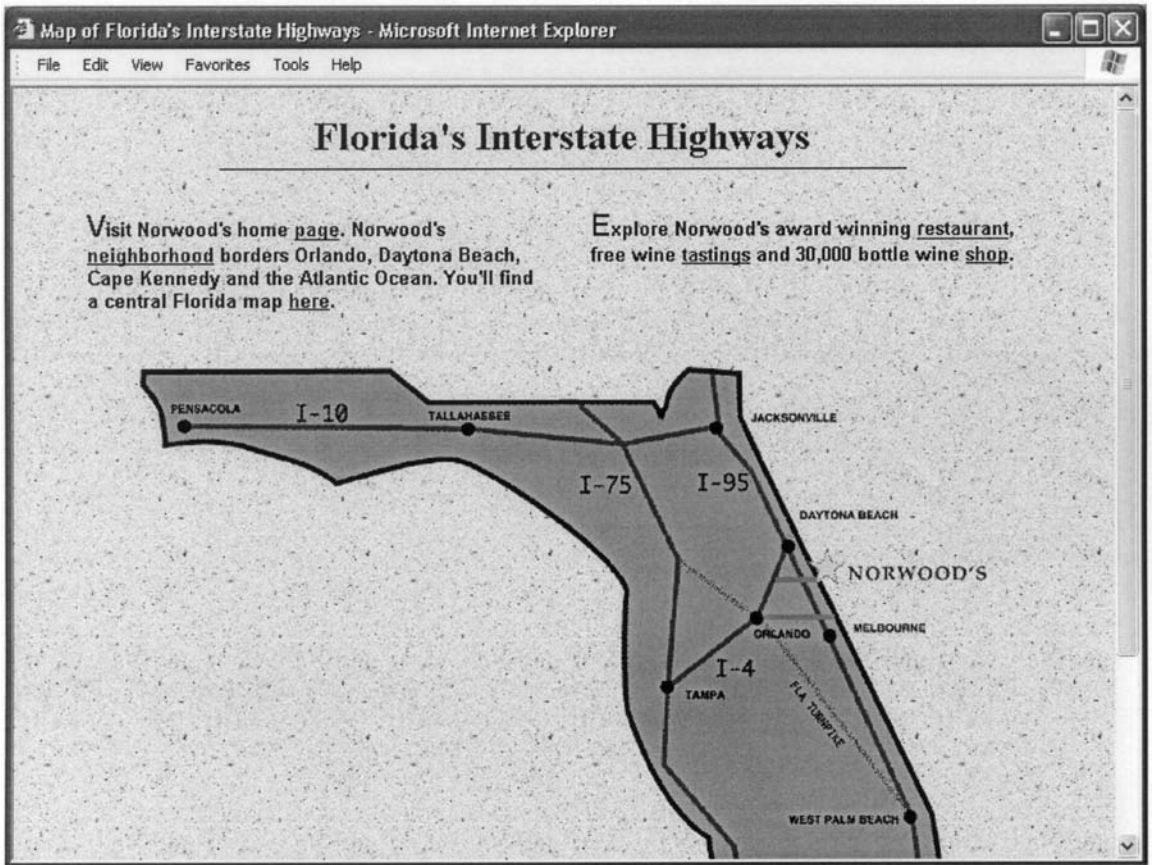


Figure 3. Screen shot of experiment one, long copy/sentence condition.

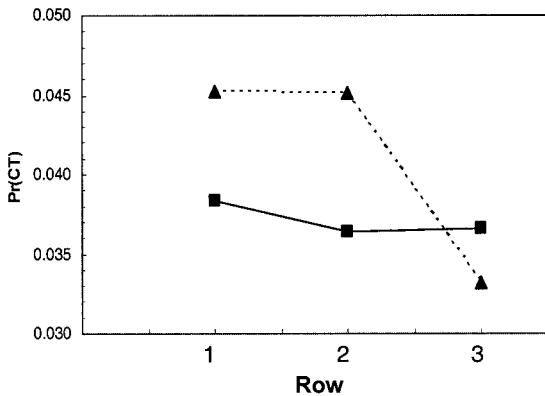


Figure 4. Experiment 1 serial position click-through percentages, short copy/list condition (triangles represent the left column; squares represent the right column).

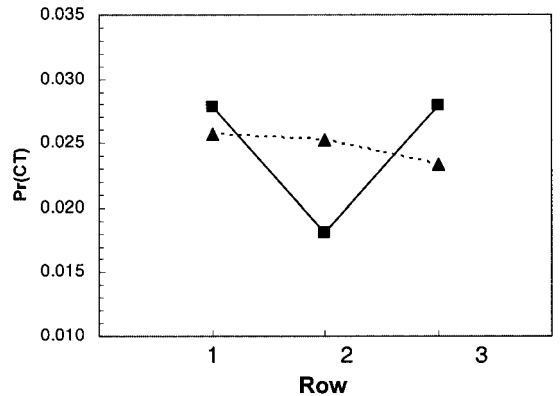


Figure 5. Experiment 1 serial position click-through percentages, long copy/sentence condition (triangles represent the left column; squares represent the right column).

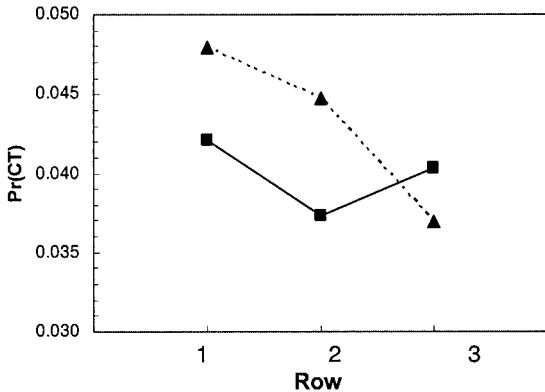


Figure 6. Experiment 2 serial position click-through percentages, short copy/list condition (triangles represent the left column; squares represent the right column).

umn [$F(1, 40) = 4.83, p = 0.0339$], and the interaction of row and column [$F(2, 40) = 3.60, p = 0.0366$] were all significant.

Conclusions and Future Research

These two experiments demonstrated how to increase the click-through rate on individual links by up to six times and more than double the clicks on the test web page. Similar to research across other media and situations, the experiments illustrate primacy and recency effects. The results also confirm copy effects such as the importance of catering to visitor interests. Unlike offline media however, shorter copy worked better online.

Managerial Implications

Management should strive for short copy and bulleted lists on their web pages—the same advice found in web design textbooks (Nielsen, 2000; Veen, 2000), as well as leveraging primacy and recency effects whereby the top and bottom positions in a list should yield more clicks. The experimental methodology of actual visitors to a web page has high external validity (Drèze & Zufryden, 1997; Hofacker & Murphy, 2000) and demonstrates how managers and researchers benefit from applying experimental methodologies—online with web pages and offline with menus. Management should explore in-house procedures and external consultants for conducting ongoing experi-

ments with their paper-based menus and web pages.

These two experiments showed wide-ranging click-through rates on the experimental pages, from almost 12% to over 26% in the first experiment and from 22% to 36% in the second experiment. These wide ranges underscore the necessity for management to crystallize the site's goal and draw upon traditional menu engineering principles (LeBruto et al., 1995; J. E. Miller & Pavesic, 1997)—promoting dishes with the highest contribution margin. If the site's priority is providing content, then management should use the page design that yields the most clicks. If the site's goal is drawing visitors to a certain section, management should forego overall clicks and position that section's link in the top left position.

Academic Implications and Future Research

This study scratches the surface of using online experiments to manage websites and the need for employing an offline version of this methodology to manage menus. The results of these experiments provide a palette of future research opportunities. Replicating these experiments, online and offline, would help generalize to other websites and other media, such as restaurant menus.

Psycholinguistic approaches (Percy & Rossiter, 1992) would help explore the effects of different copy and appeals. It would also be interesting to compare different semantic menu structures. For example, how do visitors choose links when con-

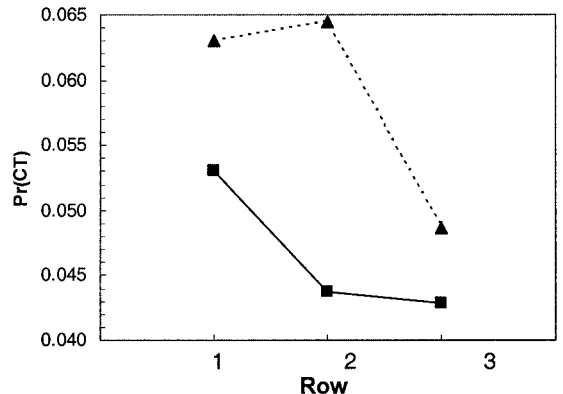


Figure 7. Experiment 2 serial position click through percentages, medium copy/list condition (triangles represent the left column; squares represent the right column).

fronted with menus organized by topic (Hornoff, 2001) compared to menus with themes randomly interspersed? What is the effect of including or not including semantically relevant column headings?

Other format issues worth investigating include modifying the words that serve as the anchor for the link, testing the physical spacing of bulleted lists, comparing one-, two-, or three-column menu structures, list lengths, and short deep menus versus long shallow menus. Position effects also extend from one dimension, or a single list, to two dimensions as in left- and right-hand columns. Specific information values apply to a document's visual space (Scharl, 2000). The left represents common knowledge, the right represents innovative content, the top represents abstract and ideal concepts, and the bottom represents factual data and real concepts. Future research should investigate visitor involvement and clicks on links in these positions.

Biographical Notes

Jamie Murphy's hospitality background and MBA led to an international marketing career and a Ph.D. studying the Internet. His industry and academic career spans five continents and includes publications in both academic journals and leading newspapers such as the *New York Times* and *Wall Street Journal*. His research focus is effective use of the Internet for citizens, businesses, and governments.

Charles Hofacker is a Professor of Marketing at Florida State University with an interest in many aspects of electronic marketing and electronic commerce, especially consumer behavior online. His work has appeared in the *Journal of Marketing Research*, *Management Science*, *Journal of Interactive Marketing*, *Journal of the Academy of Marketing Science*, and other outlets. He speaks English and Italian, and does bicycle racing as a hobby.

Yves Racine, a graduate of the Ecole Hôtelière de Lausanne has almost two decades of experience in the hospitality industry in Europe and Africa and for the last 10 years has been a professor at the Ecole Hôtelière de Lausanne.

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