Consumers' Optimal Experience on Commercial Web Sites:
A Congruency Effect of Web Atmospheric Design and Consumers' Surfing Goal

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Introduction

Major brands in the fashion and cosmetic industry have started to have a very dynamic Web presence (e.g., www.loreal.net; www.bcbg.com). Unlike Web sites with a traditional navigation design (which is typically written in html language), these Web sites are empowered with dynamic Web atmospherics (a term adopted by Dailey 2004) such as animation, rich colors, hidden navigation bars and rich media features. On these sites, product information is neither just laid out there, nor organized by a simple navigation or site map. Instead, consumers will have to surf and "play" around in order to have a sense of site structure and to locate product information. Clearly, companies have to invest dearly to design and maintain such a dynamic Web presence. One might wonder, however, if consumers enjoy a dynamic Web interface or do they find it annoying? If a dynamic web interface results in an enjoyable Web experience, is this positive experience transferred to an increase in brand equity and sales volume from both online and offline channels?

Previous research (Dholakia & Bagozzi, 1999; Hoffman & Novak, 1996) suggests that a compelling online environment for Web consumers will have numerous positive consequences for commercial Web providers. On average, a good online experience can increase customer satisfaction by 40% (Bias & Mayhew, 1994) and account for 42% of most recent online purchase by US consumers (Forrester, 2001). Meanwhile, poor customer experiences can have a devastating effect on e-retailer revenues. As much as 82% of online consumers gave up their shopping attempts as a result of poor experience in e-commerce websites (UsabilityNet, 2006). Moreover, online experience has pervasive impacts on brand image and revenue of large corporations. According to

Forrester research (2001), 10% of Fortune 1000 sites should be torn down because the poor online experience they provide are hurting the company's brand. Even the technology leading firm, IBM had once been impaired by their sub-optimal web design. A massive web redesign effort by IBM increased the traffic to their online store by 120% and boosted the sales by 400% (Battey, 1999). Similarly, a prominent e-commerce site, move.com experienced a 150% increase in real estate sales and significant improvement in advertising space sales after optimizing the online experience offered by their website (Vividence, 2001). All the real world evidence indicates that research about how to leverage the new dynamic design features to enhance consumers' online experience has important relevance to e-commerce as well as traditional companies with web presence. Such relevance has been recognized by online executives and Internet marketing academics. As Jeff Bezos, founder and CEO of Amazon.com, pointed out, creating a compelling online experience for cyber customers is the key to a competitive advantage on the Internet (Weber, 1999).

The objective of this chapter is to examine how web navigation design and consumers' online tasks interact to create a compelling online experience. We seek to achieve this objective by 1) reviewing related research on online consumer experience and discussing important constructs, 2) reporting an experiment on optimal consumer experience and 3) providing insights for future research.

Background

As companies are fighting the battle of customer acquisition via both their online and offline channels, they have invested heavily on their Websites to retain the attention of Web surfers who just visit their company Web site, and transform them into potential

customers who would purchase either from their Web site or from their physical store (Hoffman & Novak, 2000). Though marketers are aware that online marketing strategies are crucial to attract visitors to Websites and make the website sticky (Hoffman et al., 1995; Morr, 1997; Schwartz, 1996; Tchong, 1998), little is known about the factors that can bring out such a compelling online experience. This chapter examines how specific Web atmospheric features such as dynamic navigation design, together with Web users' surfing goals, can lead to an optimal online experience. In addition, the chapter also examines the consequences of an optimal surfing experience on consumers' attitudes toward commercial websites/brands (promoted on these sites) and purchase intentions.

Optimal Online Experience: Flow

Research has been conducted to identify efficient on-line marketing strategies (e.g., Morr, 1997; Schwartz, 1996; Tchong, 1998). This online marketing research has identified Web surfers' experiences to be an important factor that influences their attitudes and behaviors toward e-commerce sites. In general, a customer's online experience was identified as one of the most important factors that influence his/her attitude and behavior toward e-commerce sites (Dholakia & Bagozzi, 1999; Hoffman & Novak, 1996). For example, Schlosser and Kanfer (2001) reported that a positive experience with a Web site led to more frequent site visits, more focused attention to the product promoted by the site and stronger purchase intentions.

Hoffman and Novak (1996) argued that a commercially successful Website should facilitate a state of flow for its consumers, and suggested that an important objective for online marketers is to provide for these "flow opportunities" (Hoffman & Novak, 1996). In their framework, "flow," is an optimal experience in a computer-mediated environment. It is defined as a state occurring during network navigation, characterized by a

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seamless sequence of responses (facilitated by machine interactivity) that the consumer finds

intrinsically enjoyable, self-reinforcing, and is accompanied by a loss of self-consciousness

(Hoffman & Novak, 1996). In the context of a Web site experience, flow is the desirable

consequence of the exchanges between a Web user and the Web site. Csikszentmihalyi

(1982) found that a match between a task challenge and person's coping skills could

facilitate the emergence of an optimal experience. However, little is known about how

and why a match or the congruency between a task challenge and coping skills would

yield an optimal experience.

Congruency Effect of Navigation Design and Surfing Goal on Optimal Online Experience

Navigation design is recognized as one of the most important elements that

determine the success of a Web site (Whitaker, 1998). Navigation design (also referred to

as navigation cues or devices (e.g., a list of links)) allows users to move to a desired

section and view pages of interest (Rajani & Rosenberg, 1999). Whitaker (1998) argued

that different cognitive skills are required for different navigation purposes. When these

navigation devices are salient and clear enough to help users' cognitive processing of

their movement in cyberspace, users are more likely to achieve an optimal experience.

On the other hand, if these navigation devices are ambiguous and not user-friendly, the

users are more likely to get lost in the cyberspace and, as a consequence, experience

anxiety while navigating the Web.

Similarly, Steuer (1992) argued that interactions with certain web site features can

result in a more human, real-world experience, rather than just be interactions with

technology. Such an online experience that mimics a real-world experience is defined as

virtual reality (Steuer, 1992). He emphasized two aspects of web features that could

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enhance the creation of virtual reality -- vividness and interactivity (Steuer, 1992). Vividness refers to the richness of a mediated environment as defined by its formal features (e.g., animation, color); and interactivity refers to the extent to which users can participate in modifying the form and content of a mediated environment (e.g., chat rooms and video games). Both Whitaker's (1998) and Steuer's (1992) works seem to suggest that navigation design of a Web site alone cannot bring out a positive experience for a Web site user. As noted earlier, an online optimal experience is a result of both user surfing goals and web features.

Researchers have identified two major surfing motives for Web users--achieving an end goal (e.g., finding useful information about commercial products and services) and exploring for the sake of exploration (e.g., browsing for entertainment) (Gupta, 1995; Whitaker, 1998). Goal-oriented web surfing has been labeled "searching" or "information seeking." When a web user is engaged in searching, he/she looks for particular information while expending minimal time and energy. Such instrumental, goal-directed orientations have been argued to reflect purposive, task-specific behavior which leads to a directed search in order to complete such goals as pre-purchase deliberation (Hoffman & Novak, 1996). Thus, searchers may surf a Web site with the deliberate goal of efficiently and effectively processing or evaluating information (Schlosser & Kanfer, 2001; Murphy, 1999).

As Whitaker (1998) pointed out, different surfing motives require different navigational and cognitive skills. For example, Wickens (1992) found that when users navigate the Web with an end goal such as information seeking, they generally use navigation devices such as frames, table of contents, navigation bars, hierarchical maps,

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and site maps or search engines to move toward their surfing goals (Wickens, 1992). Therefore, a static, brochure-like navigation design will serve the needs of an information seeker by presenting a clear structure of information. Achieving his/her goals should ultimately result in an optimal online experience.

On the other hand, browsing or surfing with a "fun-seeking" purpose is less task-oriented and more entertainment-oriented than information seeking. The experiential, hedonic orientations of this type of browsing reflect recreational behavior and a nonlinear search (Hoffman & Novak, 1996). Thus, whereas searchers may be motivated to find relevant information and digest it quickly without having their attention diverted, browsers may be motivated to be delighted and entertained by the Web site experience (Schlosser & Kanfer, 2001). In this case, with a purpose of enjoying the process of exploration itself, browsers are expecting sites of interests via unintended paths and unexpected hidden links. In a browsing situation, web surfers may prefer unobtrusive and ambiguous visual cues over salient and clear ones. Therefore, a dynamic navigation design is more likely to generate an optimal experience because it serves the experiential and hedonic orientation of browsing. Therefore, dynamic web sites with animation and hidden links are congruent with the goal of browsers.

Research across a wide variety of topics, including advertising and consumer psychology, reported congruency effects and concluded that attitudes toward advertising messages, or product evaluations are enhanced if there is a congruency between 1) advertising strategies and viewer characteristics, 2) product features and consumer characteristics, and 3) sources of the message and product features (Graeff, 1996;

Kamins, 1990; Leigh, 1992; Nevite, 1999; Stafford, 1998; Solomon et al., 1992).

Therefore, in our research context, we would expect that:

> *H1a: Web surfers with a fun seeking goal who visit a dynamic Web site (congruence) are more likely to achieve a positive Web experience and evaluate the brand positively than surfers with a fun seeking goal who visit a static Web site; or surfers with an information seeking goal who visit a dynamic Web site (incongruence).*

> *H1b: Web surfers with an information seeking goal who explore static Web site (congruence) are more likely to achieve a positive Web experience and evaluate the brand positively than surfers with an information seeking goal who visit a dynamic Web site or surfers with a fun seeking goal who visit a static web site (incongruence).*

An Empirical Study:

Method:

A 2 (navigation design: static versus dynamic) by 2 (surfer's motive: information seeking versus browsing) on-line experiment was designed for this study. Two hundred and seventeen participants were recruited from a Midwestern university in the United States. Among the 217 participants, 91 were male and 126 were female. The ages ranged from 18 to 40, with both mean and median of 20.

Web sites of an existing personal care brand were selected as the commercial Web site in the study (e.g., John, Loken and Jointer (1998) adopted a real world brand in their experiments). On average, participants used this brand at least once in the past six months. The actual Web site of this brand can be characterized as a *dynamic navigation Web site*, where animation, swap images, audio clips, hidden hyperlinks are the major features of the Web site. This Web site was selected based on two criteria: (1) the site was totally made by using Macromedia Flash, which is the typical software for animated navigation design; and (2) animation, rollover images, swap menu and audio signals are the major features of its navigation design. With graphic design and Web site design

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software, we programmed another version of the Web site, *the static navigation website*, where all the animation, swap images, audio clips (music) and hidden hyperlinks were transformed into static image and text. These two websites have the same amount of product-related information. Detailed differences between the two web sites can be found in Appendix 1a and 1b.

Upon arriving at the experiment site, participants were told they would take part in a Web site evaluation study. They were told that the Web site was newly designed for a person care brand L. They were then given a short questionnaire which asked questions regarding their attitudes toward this brand and their frequency of usage of this brand. Then, they were given an URL address on paper and asked to type this URL on a web browser. When they accessed the URL, the CGI program on the server would randomly assign them to one of the four experimental conditions and display the corresponding on-line experiment Web page in the Internet browser. In these experimental conditions, participants were randomly given one of the following two instructions to surf the website: 1) "This is a newly developed Web site. When you browse this Web site, please pay attention to product information on the Web site and you will be given a quiz on product information after you visit the Web site" (information seeking); or 2) "This is a newly developed Web site. Please try to explore this Web site and have some fun with it" (fun seeking). In addition, participants were also randomly assigned to one of the two versions of the web site: dynamic navigation or static navigation site.

To ensure that participants spent sufficient time surfing the Web site, and to tease out amount of time spent online as a potential confounding variable, we instructed participants to spend at least five minutes on the web site. We also implemented a built-in

clock so that participants could not close the browser window until they spent five minute

on the Web site. In our pretest on 20 participants (drawn from the same student

population), we asked them to browse the same Web sites at their own pace. The

minimum time spent was 4.2 minutes. Therefore, we set 5 minutes as the minimum time

limit for Web surfing in our main experiment.

Once participants were finished surfing the Web site, they closed the browsing

window. A new window popped up, with an online questionnaire which was composed

of questions measuring participants' attitudes toward the brand, their evaluations of their

Web experience and their behavioral intentions such as revisiting the Web site,

recommending the Web site to friends and purchasing from the Web site. When the

participants completed the questionnaire, they were told to click the "submit" button

located at the bottom of the screen. Then, their responses were sent back to the Web

server. The CGI program on the server received the data and transformed them into a text

file. Later, the data in the text file were directly imported into the Statistical Package for

the Social Sciences (SPSS) for statistical analysis.

Measures

Manipulation checks:

Dynamic vs. static Web site. After surfing the Web site, participants were asked

to rate the Web site with a five-point scale with 5= "Dynamic" and 1= "Static." Analysis

of Variance (ANOVA) indicated a significant main effect of web site on this scale.

Participants surfing dynamic Web site (with animation and hidden links) reported a

higher mean score on the scale than those surfing the static site (4.21 versus 2.12; $F_{(1, 221)}$

$= 11.86, p < .01$).

Surfing motive. Participants were asked to indicate their agreement with the following two questions: "When I was surfing the Web site, I was paying attention to product information," "When I was surfing the Web site, I was just browsing around and having some fun." A 5-point scale was used anchored with 1 = "strongly disagree" and 5 = "strongly agree." ANOVA analysis yielded a significant main effect of surfing motive on these two items. Participants in the information seeking condition were more likely to agree with the first item (4.16 vs. 2.31, $F_{(1, 221)} = 9.86$, $p < .01$) and less likely to agree with second item compared to participants in fun seeking conditions (2.35 vs. 4.31, $F_{(1, 221)} = 10.16$, $p < .01$).

Dependent Measures:

Attitude change. Both before and after surfing the Web site, participants were asked to indicate their attitude toward the brand by using 5-point bipolar scales anchored by 1 = "bad," "negative," "unfavorable" and 5 = "good", "positive" and "favorable." Two indices of attitude toward the brand were created by taking the average of three items for pre- and post-test respectively (pretest attitude, alpha = .89; posttest attitude, alpha = .90). We created an attitude change variable by subtracting the post-test attitude scores from pre-test attitude scores. The resulting variable ranged from -3, indicating a negative attitude change resulting from the exposure to the Web site, to +3, indicating a positive attitude change. This variable was used as a dependent variable in the Multivariate Analysis of Variance (MANVOA) analysis below (see Results section).

Web experience related measures. The focus of this paper is to explore the congruence effect on Web experience. To date, there has not been a measure that captures this construct. Therefore, we reviewed related measures from research on flow, Web

navigation, Web personality and Web site evaluation (i.e., Chen & Wells, 1999; 2002; Chen & Rodgers, 2006; Steuer, 1992; Novak et al., 2000; Hoffman & Novak, 1996; Rodgers & Thorson, 2000) and adopted 23 items measuring attitude toward the Web site, surfing experience, emotional reactions after the surfing experience and behavioral intentions. The items consisted of a number of adjectives, or statements. Participants were asked to indicate their response to these items with a five-point scale anchored by 1 = "The adjective (or statement) does not describe my reaction toward the Web site (or my experience of surfing the site) at all" and 5 = "The adjective (or statement) very much describes my reaction toward the Web site (or my experience of surfing the site)."

A total number of 23 items were subjected to exploratory factor analysis with principal component extraction and a varimax rotation method. Factor analysis yielded three factors with factor loadings higher than .67, explaining 68.29% of the total variance. The first factor, labeled as *flow* (Novak et al., 2000) consists of items measuring participants' excitement and positive experience when surfing the Web site (refer to Appendix 2 for specific items), with an Eigen value of 10.34, explaining 44.97% of the total variance . The second factor, *Web structure*, includes items measuring how organized and easy-to-use the Web site was (Appendix 2), with an Eigen value of 3.70, explaining 16.07% of the total variance. The third factor, labeled as *Web stickiness (behavioral),* indicates participants' intentions to visit the Web site in the future and future purchase intentions after visiting the Web site (Hoffman & Novak, 2000). This factor has an Eigen value of 1.67 and explains 7.25% of the total variance (refer to Appendix 2 for factor loadings). Three variables were created by averaging their

constituent items respectively (with alphas ranging from .89 to .95) and entered as dependent variables in the MANOVA analysis.

Results:

A MANOVA analysis was conducted with navigation design and surfing goal as between-subject factors and attitude change and Web experience variables as dependent variables. Means of the dependent variable by conditions are included in Appendix 3 and results of the MANOVA are described below.

Attitude change. The MANOVA analysis yielded a significant interaction effect of navigation design and surfing goal on attitude change ($F_{(1,213)} = 4.43$, $p < .05$) and non-significant main effects ($F < 1$).

(Insert Figure 1 here)

A planned contrast yielded a significant main effect of navigation design when participants were engaged in fun seeking goal ($F_{(1,213)} = 6.69$, $p < .01$), indicating that when the goal was congruent with navigation design (fun seeking goal and dynamic Web site), participants reported a positive brand attitude change compared to when the goal was incongruent with navigation design (fun seeking goal and static Web site) (mean = .26 vs. -.10). A planned contrast also yielded a significant main effect of surfing goal in the dynamic Web site condition ($F_{(1,213)} = 3.81$, $p < .05$), providing additional evidence that congruence (dynamic Web site and fun seeking goal) led to more positive post-test brand attitude, resulting in a positive attitude change (mean = .26 vs. -.01) compared to incongruence (dynamic Web site and information seeking goal). Therefore, these findings are more in line with predictions of H1a. However, H1b is not supported.

Flow. The MANOVA analysis yielded a significant main effect of navigation design ($F_{(1,213)} = 38.87$, $p < .001$) qualified by a significant two-way interaction effect of navigation and surfing goal on flow (optimal online experience) ($F_{(1,213)} = 4.79$, $p < .05$).

(Insert Figure 2 here)

A planned contrast analysis indicated a significant main effect of navigation design on flow in fun seeking conditions ($F_{(1,213} = 36.69$, $p < .001$) and a significant main effect of surfing goal in dynamic Web site conditions ($F_{(1,213)} = 5.8$, $p < .05$). These findings suggest that when the surfing goal and navigation design are congruent (i.e., in the dynamic Web site and fun seeking condition), participants were more likely to experience flow (mean = 3.54) compared to when the surfing goal and navigation design are incongruent such as the fun seeking goal paired with static Web site (mean = 2.64) or information seeking goal paired with dynamic Web site (mean = 3.15). Therefore, H1a is supported. In addition, a planned contrast also revealed a significant main effect of navigation design when information seeking is the surfing goal ($F_{(1,213\,)} = 4.66$, $p < .05$), indicating that when the goal was congruent with navigation design (information seeking and static Web site), participants were more likely to experience flow (mean = 3.15 vs. 2.77) compared to when surfing goal was incongruent with navigation design (i.e., fun-seeking goal and static Web site). Therefore, H1b is partly supported.

Web structure. The MANOVA analysis revealed a significant interaction effect of navigation and surfing goal on perceived Web structure ($F_{(1,213)} = 4.82$, $p < .05$).

(Insert Figure 3 here)

A planned contrast analysis yielded a significant main effect of goal on Web structure when navigation design is dynamic ($F_{(1,213)} = 10.05$, $p < .01$), suggesting that

participants with fun seeking goal who surfed the dynamic Web site were more likely to provide a positive evaluation of the structure/organization of the Web site than participants with information seeking goal who surfed the dynamic Web site (mean = 3.25 vs. 2.77). However, evaluation of Web structure did not differ between participants in the fun seeking goal and dynamic Web site condition and those in fun seeking goal and static Web site condition ($F < 1$). Therefore, H1a is partly supported. A planned contrast also yielded another incidence of congruence effect—a significant main effect of navigation design on perceived Web structure when the surfing goal is information seeking $F_{(1,213)} = 4.0$, $p > 05$). This suggests that when the surfing goal is information seeking, which is congruent with a static Web site design, participants were more likely to provide a positive evaluation of the Web structure compared to when the same surfing goal is paired with a dynamic Web site design (mean = 3.11 vs. 2.77). Similarly, a planned contrast did not yield a significant main effect of navigation design when the surfing goal is fun seeking ($F > 1$). Therefore, H1b is partly supported.

Web stickiness (behavioral). The MANOVA analysis yielded a significant interaction effect of navigation design and surfing goal on Web stickiness ($F_{(1, 213)} = 3.86$, $p < .05$) with no significant main effect ($F < 1$).

(Insert Figure 4 here)

A planned contrast yielded a significant main effect of navigation design in the fun seeking condition ($F_{(1,213)} = 6.09$, $p < .05$), suggesting that congruence (dynamic Web site and fun seeking goal) led to a stronger likelihood of Web stickiness (i.e., revisit the site, recommend the site and purchase from the site) compared to incongruence (static Web site and fun seeking goal) (mean = 2.27 vs. 1.85). An additional planned contrast

also led to a significant main effect of surfing goal in the dynamic Web site condition

($F_{(1,213)}$ = 4.25, p < .05), revealing a positive effect of congruence (dynamic Web site and

fun seeking goal) versus incongruence (dynamic Web site and information seeking goal)

on Web stickiness (mean = 2.27 vs. 1.89). Again, H1a is supported. However, H1b is not

supported.

Conclusions and Future Trends

The major objective of this study was to examine whether an optimal online

experience can be induced by the congruence between Web design features or

atmospherics (Dailey, 2006) (such as navigation design) and web user's surfing goals.

Congruence effects have been documented in the advertising and consumer psychology

literature (e.g., Nevite, 1999; Stafford, 1998; Graeff, 1996; Leigh, 1992; Solomon,

Ashmore & Longo, 1992; Kamins, 1990). This past research has generally found that

matching the advertising message characteristics with the audience characteristics, results

in effective brand communications. However, to date, no study has been conducted to

examine whether this well-documented congruence effect can be induced by matching

design features of the Web site with online consumers' surfing goal. This match should

facilitate an optimal online experience. The present study focused on the interaction of

one specific Web feature (i.e., navigation design) with consumers' surfing goals to

influence consumers' online Web experience as well as their attitude toward the brand.

We hypothesized that the pairing of an information-seeking goal and a static

navigation design, or of a fun-seeking goal and a dynamic navigation design would result

in an optimal online experience (i.e., positive brand attitude, more enjoyable surfing

experience (flow), more positive evaluation of the Web structure and more Web

stickiness by revisiting, recommending the site, and purchasing from it). Our experiment findings largely supported the congruence effect. The pairing of a dynamic navigation design with a fun-seeking goal was found to produce a more optimal online experience than the incongruent pairings such as a dynamic navigation design with an information-seeking goal, or a static navigation design with a fun-seeking goal. However, our findings indicated this congruency effect was asymmetrical. That is, the matching of a static navigation design with an information seeking goal did not result in a more optimal Web experience compared to the incongruent matching (the only exception is the evaluation of the Web structure). One plausible explanation could be that the dynamic Web site in this study, with its rolling images, hidden links, playful navigation menu, was more capable of inducing a fun and enjoyable Web experience than the static Web site regardless of the surfing motive. Therefore, our dynamic Web site may have been far more appealing to the participants. Another alternative explanation could be that participants' involvement in both the information seeking condition and fun seeking condition was low. That is, participants with an information seeking goal, who were supposed to be more involved in product information search, may have been diverted from the task by the dynamic web features. This could explain why a pairing of an information seeking goal with a dynamic Web site did not result in an inferior online experience compared to the congruent pairing of an information seeking goal with a static Web site. Future research should be conducted to explore these alternative explanations.

At the same time, our research revealed a consistent, robust and positive effect of the dynamic navigation design and a fun-seeking surfing goal on consumers' online experience and brand attitudes. These findings send an important message to marketers:

in addition to offline brand communication channels such traditional advertising, the Web can be a powerful and a complementary medium for consumers to experience a brand. Our research only touched the tip of the iceberg by exploring how the navigation design and consumers' surfing goal can positively affect consumers' brand experience. However, other than the Web design features, marketers have explored alternative tools on the Web to energize or build a brand. For example, BMW launched an interactive Web site to promote Z3 roaster, where consumers can customize the car, download images, and most importantly watch short films made by BMW. The Web site drew thousands of consumers to the BMW site and created an instant hype and buzz for the new product (Fournier & Dolan, 1997). Another example is the success of Youtube. This online brand is built on new, innovative content that is constantly refreshed and updated by a virtual community. Yet, given the proliferation of online brand building tools employed by marketers, little research has been carried out to systematically examine the effectiveness of these tools on brand equity. Future research needs to address these research questions so that our knowledge of the Web, as an increasingly important brand building tool, will be more sophisticated.

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Table 1 Means of Flow, Web Structure, Web Stickiness and Attitude Change by navigation design and search motive

	Dynamic web site		Static web site	
	Fun-seeking	Information-seeking	Fun-seeking	Information-seeking
Flow	3.54 (.76)	3.15 (.90)	2.64 (.87)	2.77 (.71)
Web structure	3.25 (.82)	2.77 (.94)	3.10 (.66)	3.11 (.75)
Web Stickiness (behavioral)	2.27 (1.15)	1.89 (.89)	1.85 (.89)	1.95 (.79)
Brand Attitude Change	.26 (.76)	-.01 (.91)	-.10 (.79)	.11 (.62)

Note: Numbers in parentheses represents standard deviation.

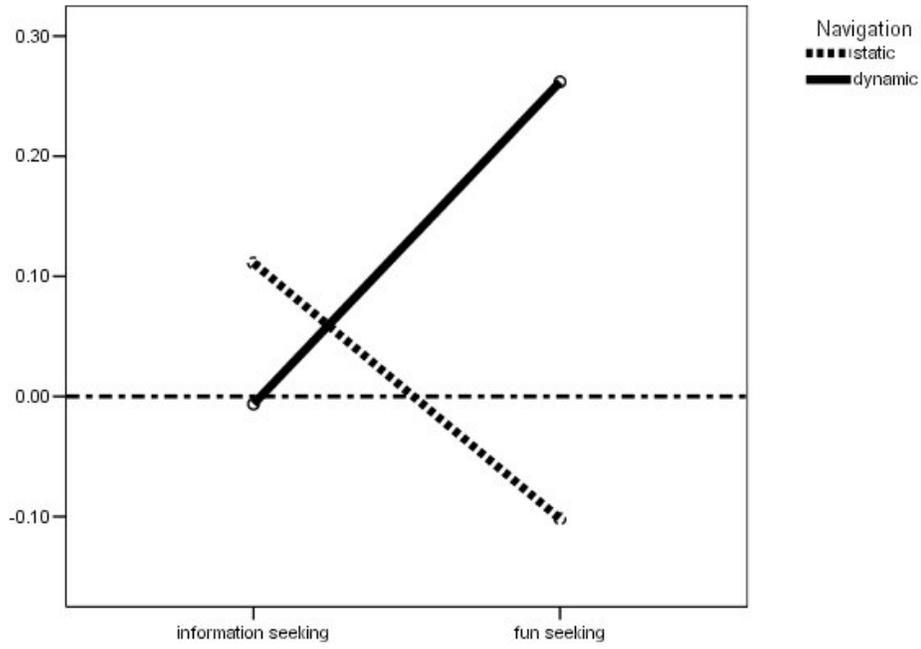**Figure 1: Brand Attitude Change: Post-Pre**
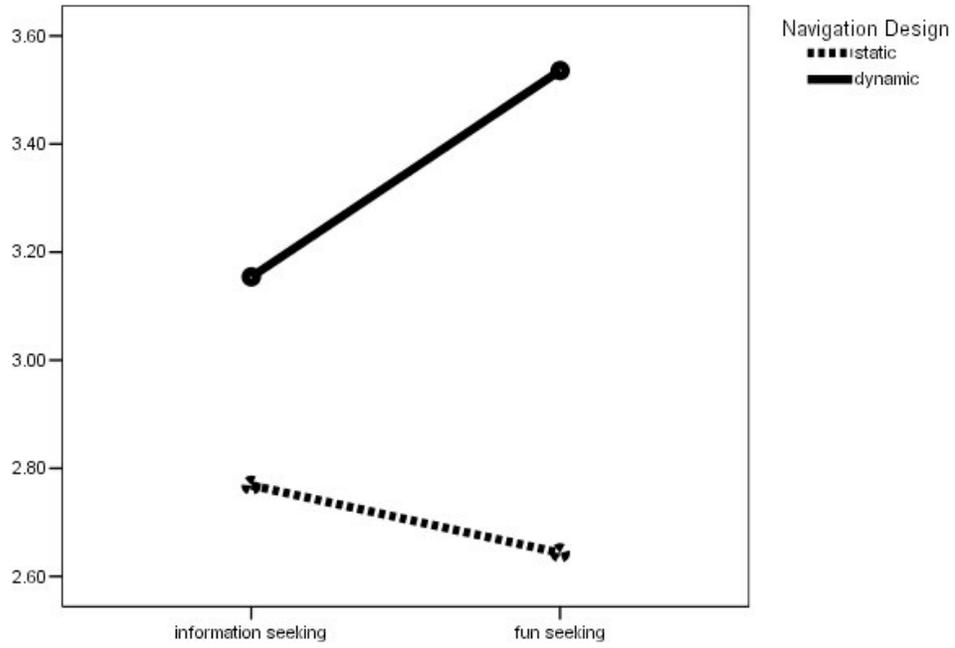
Figure 2: Flow by Navigation Design and Surfing Goal

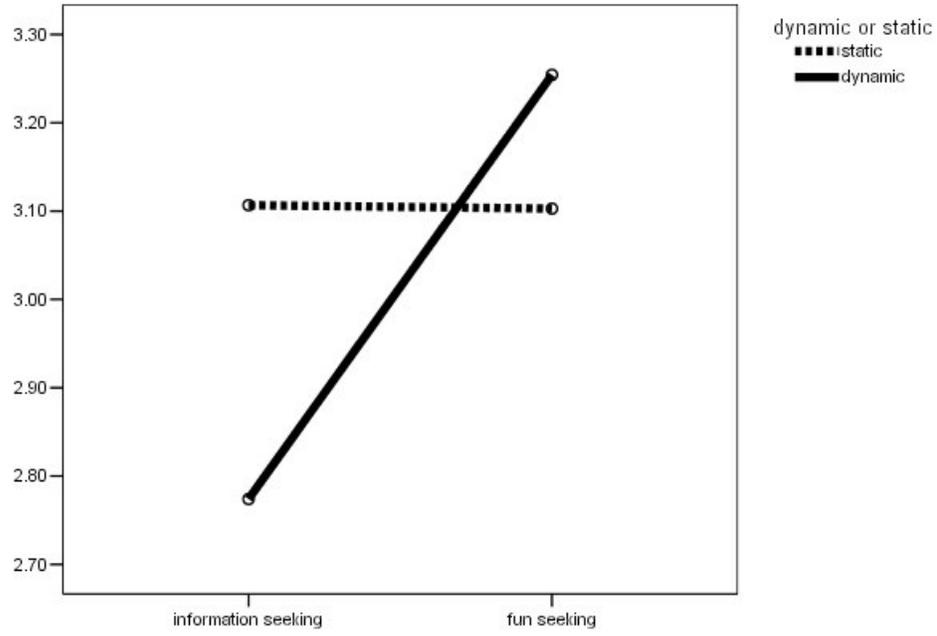**Figure 3. Web Structure by Navigation Deisgn and Surfing Goal**

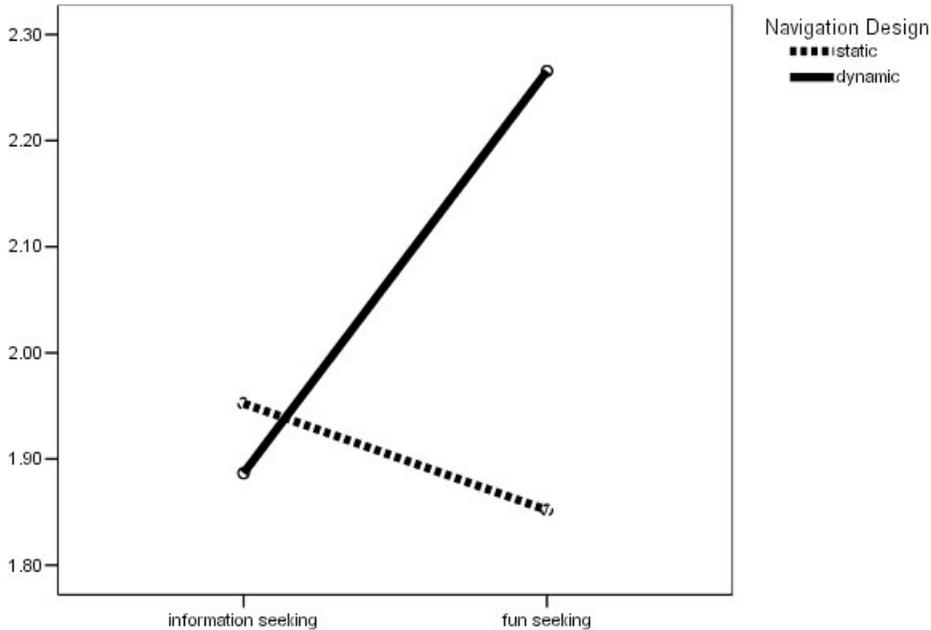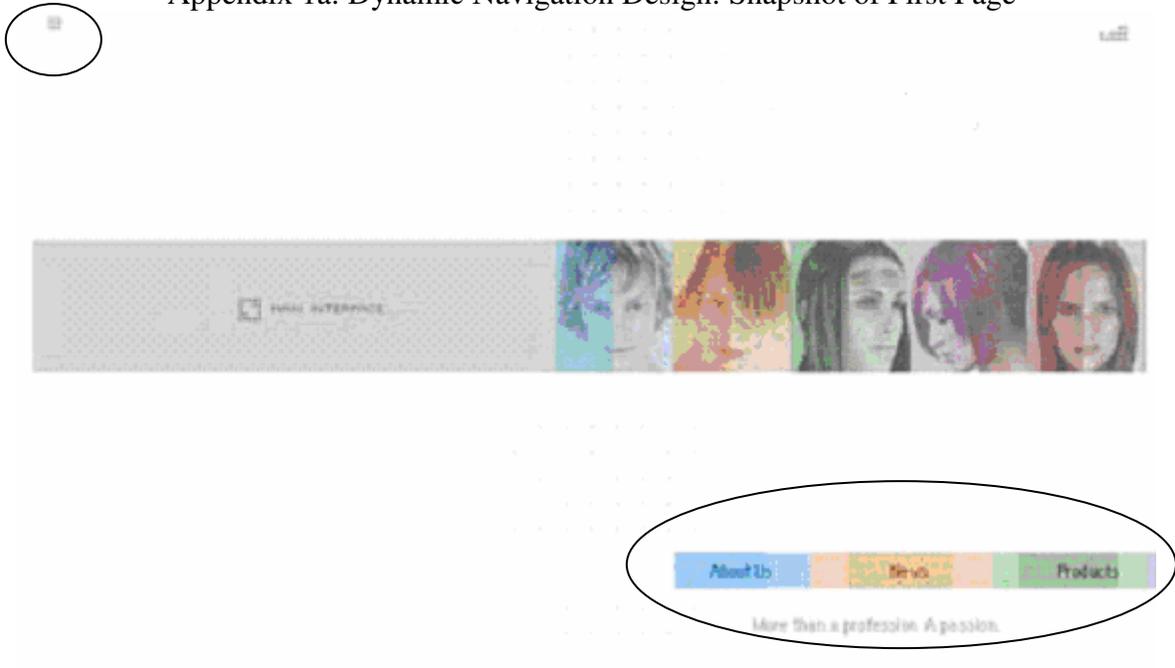**Figure 4. Web Stickiness by Navigation Design and Surfing Goal**

Navigation Design
- static
- dynamic

Appendix 1a: Dynamic Navigation Design: Snapshot of First Page

Appendix 1b: Static Navigation Design: Snapshot of the First Page

Note: There are three major differences between the two versions. First, on the dynamic web site, a drop-down navigation menu is hidden in the upper-left hand corner. Only when users move around mouse cursor and finally put it on the small gray square icon in the upper-left hand corner, the drop-down menu will be displayed. In contrast, in the experimental Web page, the menu is exposed in the same position and in static form. The other difference is the navigation bar at the bottom of the two pages. Second, on the dynamic web site, the navigation bar only displays part of the optional links and it keeps rolling constantly. Once users put their mouse cursor on it, the navigation bar stops rolling and allows users to click on a link. On the static web site, all the links in the navigation bar are exposed and stay static, allowing users' click all the time. Third, the female images on the dynamic web site keep rolling, following the rhythm of the music. However, on the static web site, these images stay static.

Appendix 2: Scale Items

Scale	Item	Factor loadings	Alpha
Flow	Cool	.845	.95
	Entertaining	.787	
	Exciting	.820	
	Flashy	.793	
	Lively	.774	
	Unique	.806	
	Attractive	.781	
	This site is appealing	.778	
	Time flew by while on this site.	.677	
	I experienced enjoyment during the Web navigation.	.678	
	I found this site is interesting.	.782	
Web structure	I got lost while navigating this site.	.759	.90
	This site is well-organized.	.723	
	The navigation of this site is easy to use.	.827	
	This site has clear layout.	.836	
	I experienced the feeling of being in control during Web navigation.	.724	
	It's easy to get around in this site.	.836	
	This site provides clear directions on where to go.	.678	
	I feel confused by this site.	.717	
Web stickiness (behavioral)	I would like to visit this Website again.	.773	.89
	I will recommend this Website to my friend.	.802	
	If possible, I will purchase products from this Website.	.870	