

Persuasive Design of Destination Web Sites: An Analysis of First Impression

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This research examines the persuasiveness of destination Web sites through an investigation of users' first impression. To achieve this goal, it builds on research by Fogg (2003) and by Kim and Fesenmaier (2007) to assess the effect of the design factors of destination Web sites on first impression formation. The results of this study indicate that the participants were able to make quick judgments on tourism Web sites and that inspiration and usability were the primary drivers evoking a favorable first impression. This research concludes by discussing the implications of these findings and possible directions for future study.

Keywords: *tourism promotion; Web site design; first impression; persuasion; advertising; Internet*

The Internet has become the primary means with which destination marketing organizations (DMOs) communicate with prospective tourists (Buhalis 1998, 2000; Gretzel, Yuan, and Fesenmaier 2000; Hwang et al. 2006; Morrison, Taylor, and Douglas 2004; Wang, Hwang, and Fesenmaier 2003). Indeed, essentially every DMO in the United States has developed a Web site for the purpose of destination marketing (Zach, Xiang, and Fesenmaier 2007). DMOs are faced, however, with tremendous competition whereby destination marketers increasingly try to design their Web sites as a tool for influencing travelers' decision-making process (Werther and Klein 1999). Fogg (1999, 2003) and others (Gretzel 2004; Gretzel and Fesenmaier 2007; Kim and Fesenmaier 2007; Murphy et al. 2003; Xiang and Fesenmaier 2006) argue that the Internet is a particularly effective communication medium for persuading people. Zach, Xiang, and Fesenmaier (2007) indicate that most destination marketing Web sites focus primarily on information provision and usability with the belief that this strategy will be sufficient to attract the prospective visitor to the destination. Importantly, the recent evolution in Internet technology representing consumer-generated contents seems to support Fogg's findings, showing that the Internet is indeed one of the most persuasive media for destination marketing to influence tourists' travel planning process (Anderson 2006; Hwang et al. 2006; Kim and Fesenmaier 2005, 2006, 2007; Tapscott and Williams 2006). This study builds on the work by Fogg (2003) and Kim and Fesenmaier (2005, 2006, 2007) to investigate the persuasive design of destination Web sites. In particular, this study explores the underlying dimensions of persuasiveness of destination Web sites and assesses their influence on the formation of first impression. This study begins by reviewing the literature discussing information

search behavior and the use of the Internet for trip planning as well as the formation of a first impression toward destination Web sites provided by state tourism offices in the United States. The research methods and the findings of this study are then presented. The final section of the article concludes by discussing the theoretical and practical implications for further development of destination marketing Web sites.

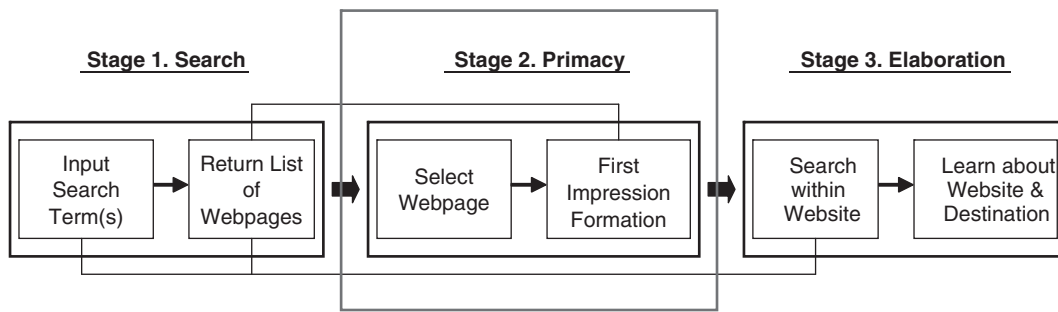
INFORMATION SEARCH USING THE INTERNET

The process of information search for travel planning using the Internet can be understood as comprising three distinct stages: (a) search, (b) primacy, and (c) elaboration (see figure 1). Online travel planners often begin their trip planning by using search engines (i.e., Excite, Google, Yahoo!, etc.) to find and choose useful information sources (Marchionini 1995; Pan and Fesenmaier 2006; Wöber 2006; Xiang et al. forthcoming). Travel information searchers may go directly to a Web site if they have favorite sites in their bookmark or have already determined which sites to visit. However, in the absence or lack of information of travel Web sites, online travel planners often choose a search engine, formulate a query, and execute the search; they are then presented with the results of their query according to the keywords they entered (Hwang et al. 2006; Levene 2006; Marchionini 1995; Nielson Media 2006). Thus, the first stage of the search process focuses on the relationships between the travel planner's mental model (which incorporates views of the travel planning task, knowledge and experience with travelling, the image of the destination, as well

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Journal of Travel Research, Vol. XX, Month XXXX, xx-xx
DOI: 10.1177/0047287507312405
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FIGURE 1
THE PROCESS OF INFORMATION SEARCH USING THE INTERNET FOR TRAVEL PLANNING



as the Internet) and the search terms that may be used to identify possible Web sites (Pan and Fesenmaier 2006; Wöber 2006). According to a Travel Industry Association report (2005), search engine Web sites are increasingly the first place consumers go in their travel planning process. Information search strategies on the Web may differ according to the type of search (whether or not it is goal oriented; Jang 2004). That is, goal-oriented information searchers who need specific information (e.g., maps and driving directions; price, availability of flights, and accommodations; calendar of local events; or deals) are more inclined to rely on a search engine. However, these findings do not automatically suggest that those who are not goal oriented do not use search engines to obtain necessary information.

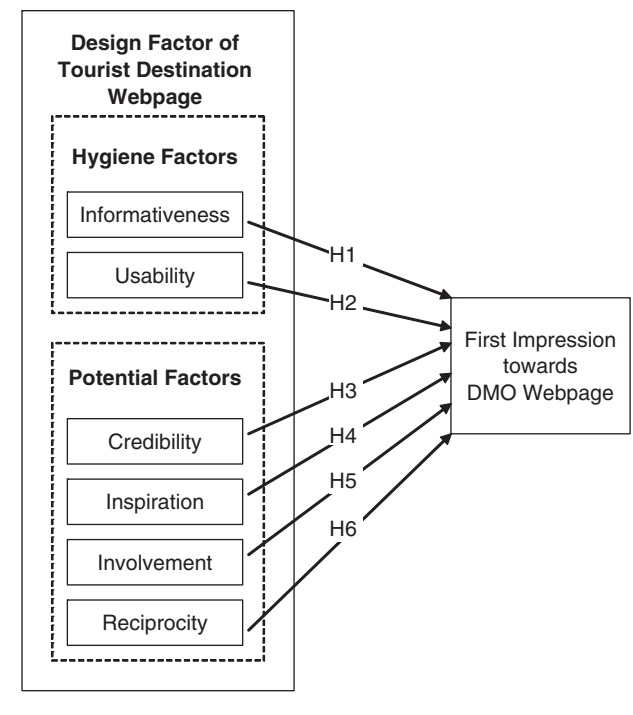
The second stage of the search process focuses on the selection of a particular Web page. That is, when travel information seekers use search engines, they begin by evaluating the relevance of the results of the search effort where their choice is often based on the nature (i.e., the intensity of persuasiveness) of the metadata presented in the search results (Pan and Fesenmaier 2006; Widyantoro and Yen 2001; Xiang and Fesenmaier 2006). The use of metadata is crucial at this stage in that it functions as a primary cue helping information seekers to evaluate the search results and to build expectancies toward the Web site. Thus, the metadata contributes to the information search process by creating a first impression of a Web site.

The final step of the online information search process is the decision of whether or not to elaborate (i.e., navigate within) the Web site. A recent study by Xiang and Fesenmaier (2006), for example, indicates that information searchers with favorable first impressions toward a Web page are more likely to stay on the Web site and use it for trip planning. The ease of backtracking facilitates frequent returns to recently visited Web pages through a simple click of the mouse and without incurring heavy cognitive load (Slone 2002); it is interesting that recent studies indicate that the "back" button is the most frequently used, representing at least 40% of all navigation actions (Bilal 2000; Large, Beheshti, and Moukdad 1999; Wang, Hawk, and Tenopir 2000). These findings suggest that if a Web site fails to appeal to and evoke good impressions for Web site visitors, they are more likely to stop browsing the site, go back to the search results, and repeat the same procedure until they find a satisfactory information source (Hoffman and Novak 1996; Pan and Fesenmaier 2006; Xiang and Fesenmaier 2006).

Studies by Levene (2006) and Widyantoro and Yen (2001) seem to suggest that when an online travel planner first evaluates the relevance and usefulness of a Web site, he or she evaluates the Web site within a short period of time in an attempt to form an overall impression of it. That is, these studies indicate that when information searchers access a Web site, a rapid and almost unconscious but complex thought process is activated (Gladwell 2005; Lindgaard et al. 2006; Winter, Saunders, and Hart 2003). Such a reaction is instantaneous but rational whereby the brain tries to categorize and filter a Web site into a certain type (e.g., maybe approve, maybe disapprove, or uncertain; Fiske and Taylor 1991; Gladwell 2005). Thus, this research suggests that first impressions aroused through an immediate interaction with Web page enables information searchers to make a quick choice about the particular Web site and even subsequent decisions. Importantly, these reactions have a potentially long-lasting effect (i.e., halo effect) whereby they support the search for, or interpretation of, information in a way that confirm one's preconceptions (Lindgaard et al. 2006; Nickerson 1998). For instance, Web site visitors with favorable first impressions toward the site may disregard or downplay possible negative aspects (e.g., dead links, slow downloads, outdated information, etc.). As such, information searchers tend to be consistent with their initial judgment in the following decision making or behaviors in Web sites unless the site strongly disappoints them. In addition, previous experience with a site (whether or not one has visited a Web site, the extent of site visits) can be a decisive factor in determining which information process route (i.e., central vs. peripheral) Web site visitors will follow. Thus, it is expected that repeat visitors to a Web site may skip some stages of the overall process but can easily infer the value of site. However, Web site visitors with no or only a moderate level of experience are more likely to go through every stage in the process (Han and Mills 2006).

The selection of search results also depends on the order of exposure (Luchins 1957; Lund 1925; Miller and Campbell 1959); that is, the results presented on the first page are substantially more likely to be selected than those further down the list. The effect of an advertising message's order (i.e., primacy vs. recency) has been long been recognized within the context of learning, recall, memory, attitude, decision making, and choice. Research on primacy is traceable to Asch's (1946) study, which examined the order of words describing the characteristics of an evaluated person. More

FIGURE 2
FACTORS AFFECTING THE PERSUASIVENESS OF
DESTINATION WEB SITES



recent studies (Buda and Zhang 2000; Haugtvæd and Wegener 1994; Jones and Goethals 1972) have confirmed the effect of primacy in the areas of attitude formation, information presentation and the attractiveness, willingness to purchase, purchase behavior, as well as perceived performance of an advertised product (Buda and Zhang 2000; DiGirolamo and Hintzman 1997; Ditmer and Fgriffin 1994; Lohse 1997; Miller 1980; Zhao 1997). This primary effect has also been evaluated within the online environment (Ansari and Mesa 2003; Drèze and Zufreden 2004; Murphy, Hofacker, and Mizerski 2006) with the aim of understanding the navigational patterns of information searchers. These studies confirm that the higher a link's position in a list of links, the greater the probability that information searchers online will click on that link.

PERSUASIVENESS OF DESTINATION WEB PAGES

This study focuses attention on the second stage of the process of destination information search as it represents the first substantive contact between the destination Web site and traveler. It is interesting that very little research has been conducted examining the concept of persuasion and Web site design (Gretzel and Fesenmaier 2007; Fogg 1999, 2003; Xiang and Fesenmaier 2006). Generally, persuasion refers to human communication that is designed to influence people's beliefs, values, or attitudes (Simon 1976). In this study, persuasion is operationally defined as a destination Web site's ability to evoke favorable impressions toward the site.

According to Fogg (2003), computer systems and applications can influence human behavior by playing three different

roles: computers as a tool, a medium, and a social actor. That is, technology can be used to increase working capability by making human activities easier or more efficient (e.g., math calculators), creating second-hand experiences, providing sensory information (e.g., virtual environment and simulation), and building relationships with counter users or even the systems (e.g., matchmaker Web sites or digital pets). Recently, the persuasive roles of computer technology have been explored by Fesenmaier and his colleagues in the tourism context. Specifically, research by Gretzel (2004) and Gretzel and Fesenmaier (2007) focused on the use of travel recommender systems, and Xiang and Fesenmaier (2006) examined the design of destination Web sites based on the Fogg's functional triads of technology.

Taking a different approach, Zhang et al. (2000) and Zhang and von Dran (2001) extended Herzberg's (1987) dual structure model to the online context to identify Web design factors that support the information-seeking process. The contribution of Zhang and von Dran's studies is significant in that they provide a rigorous definition of satisfaction with technology use. Zhang and von Dran's conceptual framework has been adopted in several studies that investigate the effectiveness of information and communication technology design (Tractinsky 2005) and of online advertising (Chingning et al. 2002), and predict system users' attitudes and behaviors (Heshan and Zhang 2006; Na and Zhang 2002). Based on Herzberg's theory, these studies identified a series of basic requirements that Web sites must include to avoid user dissatisfaction (referred to as hygiene factors) as well as a number of value-adding features that enhance user satisfaction (referred to as motivator factors). Kim and Fesenmaier (2005, 2006, 2007) reinterpreted the notion of motivation, arguing that within the context of destination marketing, it is likely to be related to or coincident with the persuasiveness of the Web site. From this and the basic communication and advertising literature, they argued that six dimensions (i.e., informativeness, usability, credibility, inspiration, involvement, and reciprocity) can be used to measure the persuasiveness of destination Web sites in the United States. Unfortunately, this research has not resulted in useful scales, nor has it provided recommendations concerning possible design cues that can be used to improve the persuasiveness of destination Web sites. The goal of this study is to extend the most recent work of Kim and Fesenmaier (2007) by developing a theoretically supported set of measurement scales and evaluating their relationship to the perceived persuasiveness of destination Web sites. The following section provides a detailed description of each of the components (design factors) of the model proposed by Zhang and von Dran (2001) and extended by Kim and Fesenmaier (2007; see figure 2).

Informative-Related Design Factors

Information has been shown to be the primary motivation for Internet users to visit Web sites, suggesting that consumers often see advertising as a means to become informed about product alternatives (Barker 2005; Davis 1986; Ducoffe 1996; Huang 2005; Hwang et al. 2006; Jang 2004; Jeong and Lambert 2001; Marchionini 1995). The informativeness of Web sites was proposed by Zhang and von Dran (2001) as one of the most important hygiene factors. Within the context of tourism, trip planners searching for information seek to reduce the perceived risk embedded in travel product and service purchase (Vogt and Fesenmaier 1998).

The literature indicates that the primary criteria for assessing information quality include accuracy, variety, relevance, usefulness, currency, security, validity, and completeness (Auster and Choo 1993; Jeong and Lambert 2001; Miller 1996; Rieh 2002; Smith 1996). Significant and positive correlations between informativeness, advertising value, and attitude toward advertising have been found in numerous studies across a variety of disciplines (Ducoffe 1996). Importantly, Luo (2002) found that the informativeness of a Web site is positively associated with attitude toward the Web site. Based on this literature, the following hypothesis was drawn:

Hypothesis 1: The more *informative* a tourism destination Web page is perceived to be, the more likely information searchers are to form a *favorable* first impression toward the Web page.

Usability-Related Design Factors

Along with informativeness, usability was found to be a second important hygiene factor of information systems (Zhang and von Dran, 2001). That is, it is posited that destination Web sites must be user-friendly so that information searchers can easily navigate sites with no (or a minimum level of) mental effort. Researchers have proposed several different approaches for measuring Web site usability (Benbunan-Fich 2001; Goodwin 1987; Kim and Moon 1998; Kuan, Bock, and Vathanophas 2005). Its core concept, ease of use, is composed of two distinct features: (a) ease of understanding and (b) ease of navigation (Goodwin 1987; Loiacono, Watson, and Goodhue 2002). As such, Web sites should be designed so that visitors easily understand who sponsors the site, what the goals of the sites are, and what they can achieve on the Web site. Ease of navigation enables users to acquire the information they are seeking with less effort (Machlis 1988; Nielson 2000). The perceived ease of use, in turn, influences the overall satisfaction with the use of system and behavioral intentions to purchase the product or service (Davis 1986; Heshan and Zhang forthcoming; Venkatesh and Morris 2000). Thus, perceived ease of use (refers to usability) plays an important role as an antecedent in attitude formation, which in turn leads to a positive behavioral intention toward the system. As a result of this research, it can be posited that:

Hypothesis 2: The more *usable* a tourism destination Web page is perceived to be, the more likely information searchers are to form a *favorable* first impression toward the Web page.

Credibility-Related Design Factors

The perceived credibility of a Web site is an important foundation of persuasion (Fogg 1999, 2003). Web design elements can establish credibility and enhance the consumer's perceptions of the Web site (Fogg et al. 2002; Long and Chiagouris 2006). Wang, Beatty, and Foxx (2004) found that Web site visitors can infer site credibility through simple inspection and proposed the notion of "cue-based trust," which is similar to the notion of "surface credibility" proposed by Fogg and Tseng (1999), describing how much a Web site visitor trusts the Web site based on simple inspection of credibility cues the Web site contains. They found that Internet users infer the level of trustworthiness of a Web site during an initial visit based on cues such as awards from

neutral sources, celebrity, privacy and security components, the identity of site operator, seals of approval, and/or sponsorship (Fogg 1999; Fogg et al. 2002; Fogg et al. 2001; Yang et al. 2003). Recently, cues such as "official" have been incorporated into many destination marketing Web sites to convey credibility (Xiang and Fesenmaier 2006). The issue of Web site credibility has been highlighted within the context of online transaction, whereby high credibility toward a Web site reduces the perceived risks associated with online shopping in the sites and generates more favorable attitudes toward the Web site and online shopping itself (Huang and Trifts 2000; Jarvenpaa, Tractinsky, and Vitale 2000; Na and Zhang 2002). Therefore, it is hypothesized:

Hypothesis 3: The more *credible* a tourism destination Web page is perceived to be, the more likely information searchers are to form a *favorable* first impression toward the Web page.

Inspiration-Related Design Factors

Inspiration is defined as an infusion of some idea or purpose into the mind (Thrash and Elliot 2003). These ideas may include a suggestion, awakening, or creation of a feeling or impulse. Inspiration can be understood as an indicator of motivation involving the energy and direction of behavior and can be evoked by stimuli appealing to truth, goodness, beauty, or superiority (Averill 1975; Thrash and Elliot 2003). Thus, within the context of destination Web sites, the emphasis on scenic beauty (using visual, auditory, and/or imagery oriented features) reflects the underlying aim of destination marketing to build a strong and positive associative link or image about the destination and to create seductive experiences so that the positive images encourage potential tourists to visit the destination. Based on this research, it is hypothesized that:

Hypothesis 4: The more *inspiring* a destination tourism Web page is perceived to be, the more likely information searchers are to form a *favorable* first impression toward the Web page.

Involvement-Related Design Factors

Involvement is generally referred to as one's motivational state toward an object in which that motivational state is activated by the relevance or importance of the object (Bloch and Richins 1983; Rothschild 1984; Zaichkowsky 1985). Involvement is perceived as a motivational force directly related to various behavioral outcomes, including the number and types of choice criteria, extensiveness of information search (Beatty and Smith 1987; Petty and Caccipio 1981), length of the decision-making process, variety seeking, and brand attitude (Bloch and Richins 1983; Mitchell 1979). Highly involved individuals are more likely to search for more information, accept fewer alternatives, process relevant information in detail, and form attitudes that are more resistant to change. Within the online environment, interactivity has been found to be one of the most significant determinants influencing the level of involvement with Internet-based applications. Indeed, recent research indicates that an increase in the interactivity of Web sites contributes to a corresponding increase in the level of liking (Chung and Zhao 2004; Jee and Lee 2002; Stromer-Galley

TABLE 1
ITEMS RELATED TO DESIGN FACTORS IN
DESTINATION WEB PAGES

Items	The Destination Homepage
Hygiene factors	
Informativeness	
INFO1	provides a variety of information
INFO2	provides useful information
INFO3	provides up-to-date information
Usability	
USE1	is easy to understand
USE2	is easy to use
USE3	helps me to easily find the information I need
Potential factors	
Credibility	
CRED1	is trustworthy
CRED2	represents a tourism information provider I can trust
CRED3	represents a tourism office that will keep its promises
Inspiration	
INSP1	represents the destination in an appealing way
INSP2	helps me to be imaginative about the destination
INSP3	inspires me to visit the destination
Involvement	
INV1	is highly interactive
INV2	helps me become involved in planning my trip
INV3	is enjoyable/fun to plan my trip
Reciprocity	
RECP1	offers travel brochures I like to request
RECP2	enables me to directly contact the tourism office
RECP3	provides helpful customer service
RECP4	enables me to register for special offers, newsletter, personalization, etc.

2004). Also, playful and enjoyable Web sites invite browsers to visit, keep them entertained, and increase their depth of exploration (Kim, Morosan, and Fesenmaier 2006). From this literature, it is hypothesized that:

Hypothesis 5: The more information seekers perceive to be *involved* with a tourism destination Web page, the more likely they are to form a *favorable* first impression toward the Web page.

Reciprocity-Related Design Factors

It is posited that communication is more persuasive when reciprocity is perceived and when the rewards for the communication are discerned to be more or less equal (LaGaipa 1977). Reciprocity connotes that each party has rights and duties (Gouldner 1960). Therefore, a reciprocal transaction exhibits mutually gratifying patterns of exchanging goods and services. Applied to the online environment, reciprocity refers to the extent to which a Web site is perceived to provide or support two-way information exchange between the destination and users (Huang and Trifts 2000). Melek (2004) conducted a survey on consumers' readiness to provide personal

information to a Web site that would use the data to customize the online experience. Of those surveyed, 96% would supply their names, 95% would provide their e-mail addresses, 81% would provide their addresses, and 76% would provide their hobbies and interests. Within destination marketing Web sites, travel brochures, guidebooks, special offers, deals, sweepstakes, and contests are examples of benefits generally offered to visitors in hopes of building the reciprocal relationship. In many cases, Web site visitors are asked to provide personal information such as name and e-mail and/or address as a repayment for benefits received. Based on this research, it is hypothesized that:

Hypothesis 6: The more *reciprocal* a tourism destination Web page is perceived to be, the more likely information searchers are to form a *favorable* first impression toward the Web page.

RESEARCH METHOD

The objective of this study is to assess the influence of the respective persuasiveness dimensions on the formation of first impression toward the homepage of destination Web sites. The development of scales followed the steps proposed by Churchill (1979) and DeVellis (1991), whereby the first step involved extensive evaluation of destination Web sites in America and a comprehensive literature review (Han and Mills 2006; Jang 2004; Kim, Morrison, and Mills 2003; Morrison, O'Leary, and Cai 2001; Morrison, Taylor, and Douglas 2004); this effort resulted in a total of 28 items to measure the 6 design constructs. The initial item pool was then reviewed by 12 experts in the tourism field to assess their face validity and construct validity. Specifically, the experts were asked to evaluate the clarity of the items and to identify the best matching construct for each respective item. The scales were subsequently reworded and refined based on the results of the sorting task. It was decided to eliminate items that did not show a consistent pattern in panels' evaluations or was reported more than two categories as the best matching. This effort resulted in a final pool of 19 items.

Following Straub (1989), prespecified constructs were used for scale development where possible (see table 1). Specifically, first impression (the dependent variable in this study) toward the homepages of destination Web sites was measured using Crites, Fabrigar, and Petty's (1994) 5-point Likert-type scale (i.e., terrible vs. awesome), which measures one's attitude toward an advertisement within a short period of time. Three items used to measure the information construct were adapted from Rieh (2002). For usability, Loiacono, Watson, and Goodhue's (2002) scales were integrated into this study. The credibility-related Web page design construct was based on the concept of cue-based trust as proposed by Wang, Beatty, and Foxx (2004). Because appropriate scales were not found to measure inspiration, this concept was operationalized based on Scioli and Averill's (1998) definition, and three items were generated by decomposing tourism destination Web pages into individual design elements. Involvement with the use of Web page was operationalized following McQuarrie and Munson (1991). Last, reliable scales were not available to measure the reciprocity-related Web page design construct; thus, four new items were created by following the same procedure used for the inspiration-related Web page design construct.

Treatments

The homepage is often the entry point of a Web site (Nielson 2000; Pandir and Knight 2006). Therefore, full-page screenshots of homepages of the 50 official state tourism Web sites in the United States were used as the stimuli with which to measure participants' overall impressions toward destination homepages. The screenshots of the homepages were taken within an Internet Explorer 7 browser at 1024 × 768 pixel resolution in 32-bit true color. The 50 screenshots were then blocked into three sets whereby the names of states were placed in an alphabetical order and every third state was then selected. As a result, each set included 16 or 17 treatments; two additional Web pages of city tourism destinations were included as warm-up exercises. It must be mentioned that the screen shots of the homepages might cause biased responses in that an identical environment to the Web was not provided in terms of the level of interactivity. However, it is argued that the lack of interactivity did not substantively distort the participants' responses, because this study aimed to measure the spontaneous effect of Web site design characteristics on their first impression.

Survey Procedures

Studies indicate that individuals form an initial impression of an object within a short period of time: 3 seconds (Lindgaard et al. 2006); 4 seconds (Kaiser 2001); 5 seconds (Perfetti 2005); and 7 seconds (Ramsey 2004) in human-to-human interaction. In addition, recent studies indicate that this time span may be very brief (i.e., as short as 50 milliseconds; Hotchkiss 2006) when applied to the online context. Although a variety of opinions exist on the time threshold required for the formation of first impression, there are very few empirical studies testing timing for the first impression formation in human-to-computer interaction. In this study, the viewing time for each Web page was restricted to 7 seconds, because it was believed based on the literature that 7 seconds was sufficient for Web site visitors to discover cues conveying the value and the quality of the destination Web pages.

A hypertext system was developed using PowerPoint that displayed a Web page for exactly 7 seconds and then prompted the respondent to complete the questions included in the survey. This strategy allowed for the elimination of variation due to differences in server response times while retaining the Web-like environment (Chen and Wells 1999; Desmond and Steward 2002; Sandhu and Corbitt 2002). Importantly, the survey system did not allow participants to go back and forth between destination homepages. Participants were randomly assigned by the computer to one out of three sets of treatments. They were first given a general description of the study as well as a specifically designed scenario in the trip planning context. A paper-based questionnaire was then provided to participants to report their answers for each homepage. A "don't know" option was provided in addition to the 5-point Likert-type scales to accommodate the possibility that respondents could not assess the design cues within the 7-second time frame.

Participants and Data Collection

An invitation was provided to 105 undergraduate students through an instructor responsible for the course; extra credit was provided as an attempt to maximize response rate. As a

result of this effort, 65 students completed a survey, resulting in a response rate of 61.9%. It is important to note that there is considerable discussion regarding the external validity of student samples (Burnett and Dunne 1986; Copeland, Francia, and Strawser 1973; Cunningham, Anderson, and Murphy 1974; Enis, Cox, and Stafford 1972; Lamb and Stem 1979). It is argued here that student samples can be a good starting point in the exploratory study setting and, in particular, the characteristic of student participants in terms of computer skill and Internet experience fits well to studies regarding Internet usage. Indeed, students may better reflect the nature of actual users and consumers in the computer-mediated environment. This is supported by a Travel Industry Association report (2005) saying that one-third (33%) of online travelers is aged between 18 and 34 years. Additionally, it is presumed that the process of information search for travel planning of a student is reasonably similar to other younger travelers. Consequently, it is argued that the external validity of this study is not substantively threatened by the use of students.

RESULTS

Data analysis was performed in four steps. First, the completion rates of survey items were calculated to assess the extent to which respondents were able to detect the design cues conveying the nature of the Web sites within the 7-second time frame. Second, Cronbach's coefficient alpha was computed, and confirmatory factor analyses were performed to test the reliability and unidimensionality of the respective Web site design constructs. Third, the variability in responses was assessed to evaluate the heterogeneity of the respective Web sites. Last, multiple regression analysis was conducted to investigate key driver(s) in the formation of first impressions of the destination Web pages. Responses to the warm-up exercises were excluded from the data analysis.

Completion of Survey Items

In total, 1,416 homepages of destination Web sites were evaluated by the participants in this study. Overall, the completion rate was relatively high (greater than 75%) for the majority of survey questions; however, the response rate to the items related to credibility (except "cred1") and reciprocity was not as high as for the other design categories (approximately 50%). A relatively low response rate (54%) was also detected for the survey item "info3" (see table 2). This disproportional completion rate suggests that participants of the study struggled to discover and understand certain design elements related to the credibility and reciprocity constructs and that the cues supporting inspiration, usability, and involvement within an online environment are relatively easy (in comparison) to convey.

Instrument Validation

One of the primary goals of this research was to develop scales for measuring the persuasiveness of tourism Web pages. Reliability was assessed by computing Cronbach's coefficient alpha, and a confirmatory factor analysis was conducted to test the unidimensionality of each construct (see table 3).

TABLE 2
COMPLETION RATES OF DESTINATION WEB PAGE DESIGN CONSTRUCTS

Construct	Items in Scale	Percentage of Completion
Informativeness	INFO1	95.1
	INFO2	88.3
	INFO3	54.2
Usability	USE1	88.2
	USE2	85.6
	USE3	91.2
Credibility	CRED1	70.9
	CRED2	51.1
	CRED3	50.0
Inspiration	INSP1	93.5
	INSP2	92.9
	INSP3	94.6
Involvement	INV1	82.8
	INV2	76.9
	INV3	77.1
Reciprocity	RECP1	59.5
	RECP2	48.4
	RECP3	39.9
	RECP4	43.4

TABLE 3
MEASUREMENT PROPERTIES OF SCALES

Construct	Items in Scale	Internal Consistency	Unidimensionality	
		Cronbach's Alpha	Factor Loading	Variance Explained
Informativeness		.79		70.4%
	INFO1		.85	
	INFO2		.87	
Usability	INFO3	.86	.80	77.4%
	USE1		.89	
	USE2		.87	
Credibility	USE3	.85	.88	76.8%
	CRED1		.85	
	CRED2		.89	
Inspiration	CRED3	.91	.89	84.6%
	INSP1		.92	
	INSP2		.93	
Involvement	INSP3	.82	.91	74.1%
	INV1		.88	
	INV2		.85	
Reciprocity	INV3	.85	.85	68.5%
	RECP1		.80	
	RECP2		.84	
	RECP3		.85	
	RECP4		.82	

This assessment is necessary, because a high Cronbach's alpha does not automatically imply unidimensionality (Gardner 1995). The scales used in this study reached the satisfactory level of internal consistency and reliability with coefficient alpha equaling .79 for information, .86 for usability, .85 for

TABLE 4
DESCRIPTIVE STATISTICS OF DESTINATION WEB PAGES

Construct	Sample Size	M	SD	Range
1. Informativeness	766	3.69	0.79	2.90 – 4.48
2. Usability	1184	3.67	0.87	2.80 – 4.54
3. Credibility	592	3.50	.77	2.73 – 4.27
4. Inspiration	1306	3.31	1.09	2.22 – 4.40
5. Involvement	969	3.48	0.88	2.60 – 4.36
6. Reciprocity	350	3.53	0.86	2.67 – 4.39

credibility, .91 for inspiration, .82 for involvement, and .85 for reciprocity. The unidimensionality of the respective scales was evaluated using principal component factor analysis with an orthogonal rotation (varimax solution). All items for each persuasive design category showed extremely high factor loadings (> 0.8), and the single-factor solution for each design factor accounted for at least 70% of the total variance. Therefore, it was concluded that the items included in each design category represented the corresponding constructs well. Table 3 provides an overview of the results of tests assessing the internal consistency and unidimensionality of the items used to evaluate respondents' perceptions.

Characteristics of Destination Web Pages

This study used the 50 official state tourism Web sites as a representation of destination Web sites. An important issue to consider is heterogeneity in that there must be sufficient variation (or perceived variation) among the treatments for further analysis. Table 4 presents the distribution of the participants' responses for each design characteristic across the treatments. As can be seen, informativeness and usability ($\bar{x} = 3.7$; $SD = 0.79$ for informativeness; $\bar{x} = 3.7$; $SD = 0.87$ for usability) were rated, on average, relatively high as compared to the other four design categories (credibility, inspiration, involvement, and reciprocity) which ranged from 3.3 to 3.5 (i.e., credibility: $\bar{x} = 3.5$, $SD = 0.77$; involvement: $\bar{x} = 3.5$, $SD = 0.89$; reciprocity: $\bar{x} = 3.5$, $SD = 0.86$; inspiration: $\bar{x} = 3.3$, $SD = 1.10$). Analyses of the distribution of the Web pages using basic descriptive statistics (i.e., mean, standard deviation, and range) confirmed that the 50 state homepages differed substantially whereby some state Web pages were rated relatively low (i.e., less than 2.5), whereas others were rated relatively high (i.e., 4.5) in terms of the six design factors.

An additional analysis (cluster analysis and one-way ANOVA) followed to examine the best and worst practices of treatments perceived by the participants. Fifty treatments were classified into four clusters based on the participants' perceptions of the treatments in terms of six design factors and overall impressions, whereby the seven treatments fell into the highest and lowest group, respectively, in terms of the average value of overall impression. For instance, the official Web sites of Minnesota, Wyoming, North Carolina, Alabama, Maine, Nevada, and Missouri were substantially perceived highest in terms of the average mean of overall impression towards the Web pages, ranging from 3.75 to 4.04. In contrast, West Virginia, Massachusetts, Delaware, Arkansas, Kentucky, Kansas, and Louisiana were rated considerably lower in terms of overall impressions (i.e., the means ranged from 2.61 to 2.95). Comparisons of the ratings

TABLE 5
MULTIPLE REGRESSION RESULTS

Dependent Variable: Overall impression towards a tourism destination web page formed within 7 seconds of interaction Goodness of Fit: Multiple $R = .870$, $R^2 = .757$, Adjusted $R^2 = .750$, $SE = .439$						
Analysis of Variance	<i>df</i>		Sum of Squares		Mean Square	
Regression	6		126.848		21.141	
Residual	211		40.753		0.193	
$F = 109.461$						
Significant $F = .000$						
Independent Variable	B	SE B	Beta	T	Significance	Tolerance Value
Inspiration	.30	.08	.30	6.04	.00	.465
Usability	.26	.09	.24	3.00	.00	.182
Credibility	.16	.08	.14	2.08	.04	.244
Informativeness	.15	.09	.14	1.72	.09	.165
Involvement	.13	.08	.12	1.55	.12	.193
Reciprocity	.03	.08	.03	.35	.70	.209
Constant	-.11	.14		-7.33	.46	

were conducted using one-way ANOVA and indicated significant differences among the four clusters for overall impressions as well as for the six design characteristics ($p = .01$). These findings indicate that there is substantial variation among the treatments (state tourism Web sites) and thus, it was concluded that the following analyses would not be limited by a truncated distribution.

First Impression Formation Toward Destination Web Pages

Multiple regression analysis was conducted to assess the importance of the six Web site design factors on the formation of a first impression toward a destination homepage. The high Multiple R^2 statistic (.76) indicates that the model fits extremely well. As can be seen in table 5, the regression coefficients for inspiration, usability, and credibility were significant ($p < .01$) and all positive. Specifically, inspiration appears to have had the greatest impact ($\beta = .298$) on first impression, followed closely by usability ($\beta = .260$). Credibility was also significant ($p = .05$), but it was notably lower in impact ($\beta = .159$) as compared with the other two design factors. Based on these results, it was concluded that hypotheses 2, 3, and 4 were confirmed, whereas hypotheses 1, 5, and 6 were rejected.

DISCUSSION

The primary goal of this research was to investigate the key elements of first-impression formation toward tourism destination Web pages. The results of this study confirm that the majority of state tourism Web sites in the United States meet the basic needs of travel information seekers in terms of the characteristics informativeness and usability. However, other design characteristics (i.e., credibility, inspiration, involvement, and reciprocity-related design elements) were not

perceived as favorably. These results are consistent with the findings of studies by Travel Industry Association (2005) and Zach, Xiang, and Fesenmaier (2007), indicating that the fundamental role of destination Web sites is that of information service provider. That is, current destination Web sites are largely acting as online brochures rather than taking advantage of the Internet for creating deeper and longer lasting relationships with existing and potential visitors.

Another important finding was the discovery of the key drivers of people's first impression of destination Web sites. Among the six design-related characteristics of destination sites, it was found that inspiration-related elements had the greatest impact on first-impression formation. This finding enables us to suggest that visually appealing stimuli are the most important tool for converting Web site lookers to users and/or making them stay longer on the Web site. Usability was the second most significant driver of first impression formation, followed by credibility. From these findings, it can be inferred that travelers easily gravitate toward Web sites that are easy to learn and exhibit clear navigational paths. Thus, because Web site choice is a preliminary step for earnest trip planning, Web site design must provide obvious and appropriate cues indicating the quality of the information source, thereby requiring a minimum level of mental effort.

A substantial number of research has explored the variety of design strategies for increasing Web site effectiveness. However, it is argued that these efforts have overemphasized the importance of usability while ignoring other potentially important aspects, including the persuasiveness of the Web site. Within this context, it seems indispensable for a destination Web site to evoke a favorable initial impression at the moment when information searchers access it, because they can easily leave the site through one-time click to find another potentially more persuasive Web site. Under such an environment, DMOs must be aware of the importance of the various tools that can be used to create a highly persuasive Web site design so that they can better influence trip planners' decision-making process.

A few limitations of this study must be identified along with the directions for future study. First, the survey system developed for this study did not provide an identical environment to the Web. Thus, the limited interactivity may distort participants' responses to treatments; future studies should fine-tune the study design, whereby the survey system enables direct access to respective treatments. Second, this study did not examine the rationale of participants' responses (e.g., the use of particular design components or the effective use of message cues). It would be interesting to examine the Web features of respective Web design categories and measure the influence of individual design features on the initial impression formation. Third, predetermined images and prior experiences of participants with states as tourism destinations were not controlled in this study. Consequently, subsequent research should examine the elicitation of first impressions by controlling the potential effects of these factors. Finally, the use of a student-based sample poses some threat to the validity of the finding in that tourism advertising typically do not target the younger market; therefore, it is important for future research to be conducted that focuses on the general traveling public to examine the consistency in responses across the various users groups.

Despite the limitations described above, it is argued that the results of this study contribute substantially to our understanding of the persuasive architecture of destination Web sites and provide a foundation for future research investigating the Internet as a persuasive tool. The study also provides the basis with which DMO can design more effective Web sites. Thus, it is expected that the present study opens a new direction for research on travel Web site design by focusing on the role of first impressions within the context of tourists' use of the Internet.

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