Designing Persuasive Destination Web Sites: A Mental Imagery Processing Perspective

1. Introduction

Persuasive Web sites are those that can influence the attitudes of Web site users (Morosan & Fesenmaier, 2007). Web sites’ influence on product attitudes has been confirmed by empirical research (Macias, 2003; Lee, Gretzel & Law, 2010). Strong attitudes that are resistant to change are especially important in the context of tourism destinations, for which online information is abundant (Xiang, Wöber & Fesenmaier, 2008), competition for the attention of consumers is fierce (Gretzel, Fesenmaier, Formica & O’Leary, 2006), and expectation formation is difficult due to the complexity and experiential nature of the destination product (Nelson, 1970). Consumers planning a vacation are also likely to encounter traveler reviews and other forms of social media (Xiang & Gretzel, 2010) that can challenge the brand image portrayed by the official destination Web site. Further, research has found that users typically make very quick judgments about destination Web sites (Kim & Fesenmaier, 2008); therefore, there is a great practical need from the destination marketing point of view to identify those features of destination Web sites that can effectively persuade and encourage users to elaborate on the portrayed advertising messages so they can form resistant attitudes.

Recent studies have especially addressed the importance of virtually transporting the consumers of travel information to the destination to support the formation of concrete expectations (Rozier-Rich & Santos, 2010; Lee et al., 2010). It is indeed a major concern of providers of tourism products to encourage quasi-trial experiences to support travel decision-making processes (Stamboulis & Skayannis, 2003). Since actual product trial is impossible, being able to vividly imagine what a destination is like is the next best alternative if the goal is to form concrete expectations (Goossens, 1995). Oh, Fiore and Jeong (2007) emphasize that
destination choice is influenced by the mental images the tourist forms based on the expected experience at the destination. Further, Miller and Stoica (2003) have demonstrated that consumers’ choices of vacations may be significantly influenced by mental imagery processing.

Mental imagery processing refers to high elaboration processing and involves the representation of nonverbal information in working memory (MacInnis & Price, 1987). When travelers engage in mental imagery processing, they experience the destination in their mind’s eye. Such processing is believed to help in learning about a product (Elliott, 1973). Research has also found that it helps in the persuasion process. For instance, MacInnis and Price (1990) have pointed out that mental imagery has a positive influence on consumer attitudes and leads to greater confidence that events will unfold as expected. Past research has revealed that imagery can be stimulated by various external advertising elements such as pictures, concrete words, sound effects, and instructions to imagine (Babin & Burns, 1997; Bone & Ellen, 1992; Lutz & Lutz, 1977; MacInnis & Price, 1987; Miller & Marks, 1997). Recently, Lee et al. (2010) identified sensory descriptions on destination Web sites as textual elements that encourage mental imagery processing. Building on this existing research, the study presented in this paper tests the ability of textual, auditory, and pictorial features on destination Web sites to foster strong and resistant attitudes by eliciting mental imagery processing.

2. Theoretical Background

2.1 Mental Imagery Processing and Persuasion

Mental imagery processing can be conceptualized as “a mode of information processing which includes sensory representations (images) in working memory that are used in the same way as perceptions of external stimuli” (Goossens, 2000, p. 306). Similarly, it is identified by
Lutz and Lutz (1978) as “a mental event involving visualization of a concept or relationship” (p.611). Mental imagery theory assumes that we mentally re-present in our minds something that was presented to us before by experience or that we imagine based on information available. According to Burns, Biswas and Babin (1993), this mental imagery can be experienced in different sensory modalities and can vary in terms of vividness and quantity. Research on imagery has provided strong evidence that elaborate imagery processing may positively influence decision outcomes (Babin & Burns, 1997; Bone & Ellen, 1990).

From the perspective of consumer research, a consumer’s mental image of a tourism product can be the main source of information available to enhance expectations and facilitate purchasing decisions (Walters, Sparks, & Herington, 2007). When imagery is encouraged through vivid product information, it strongly influences consumers’ attitudinal judgments (McGill & Anand, 1989). Most importantly, several researchers have found that attitudes formed based on mental imagery processing tend to be stronger, more stable over time, and more resistant to persuasion because of its high elaboration quality (Haugtvedt & Petty, 1992; Petty, Haugtvedt, & Smith, 1995). Considering these findings, it is critically important for tourism marketers to understand what types of stimuli on a destination Web site efficiently induce mental imagery so that they can design persuasive sites that can successfully compete in the tourism information space.

2.2 Narrative Information Processing

While the impact of pictures on imagery processing has been studied extensively in consumer research (e.g. Paivio, 1971; Rossiter, 1978; Babin, Burns & Biswas, 1992; Burns, Biswas & Babin, 1993; Babin & Burns, 1997), little empirical research exists that deals with the effects of text formats on mental imagery processing. Brewer (1988) claims that text genre can
indeed be an important factor in encouraging mental imagery processing and Lee et al. (2010) also found textual qualities of destination Web sites to matter. Thus, there is a need to further examine the relations between textual genre and mental imagery.

A text genre very common in tourism promotion is the narrative (Rozier-Rich & Santos, 2010). Narrative in a broad sense refers to anything recounted or retold; in a narrower sense it describes something that is told or recounted in the form of a story (Denning, 2000). It is the latter that is of specific interest in the context of persuasion. Delgado and Escalas (2004) identified two required structural features that distinguish narratives from other text genres: chronology and causality. The first refers to events described in the narrative as being organized with respect to a temporal sequence. Second, text elements are structured in a way that builds relationships among characters and objects, thus allowing for causal inference. Similarly, Stein and Albro (1997, p. 12) suggest that stories are comprised of “goal-directed action-outcome sequences” called “episode schemata,” that is, they start from initial events that result in a response from a character’s physical condition, psychological state, or both. These responses develop goals that lead to courses of action and certain outcomes (Pennington & Hastie, 1986).

The specific structure of narratives influences the way in which they are processed. According to Packer and Jordon (2001), narratives allow the human mind to “collapse boundaries of space and time, drawing attention to previously undetected connections, creating links between disparate ideas and elements (p. 174).” Some researchers claim that this is the case because the structure of narratives resembles the associative way the human mind stores knowledge (Schank & Abelson, 1995). They are also inherently entertaining (Brewer, 1988). Green and Brock (2002) stress that mental imagery may be facilitated by narratives because they allow for deep immersion and, thus, “transportation” into the story. Transportation into a
narrative world is conceptualized as a distinct mental process, which may mediate the impact of narratives on beliefs, and may derive its force from individuals’ general ability to create vivid mental images (Green & Brock, 2000; Escalas, 2004).

Narrative processing has indeed been linked to persuasion. Padgett and Allen (1997) contend that narrative advertising would be the most effective way to communicate, especially in the context of an experiential product such as tourism. This argument has also been made by Mattila (2000). Escalas (2007) finds that self-referenced narratives enable consumers to generate a positive evaluation of an advertised product no matter what level of argument strength they include. When narrative ads are presented in the form of stories, potential customers are likely to envision functional consequences and derive symbolic meanings to interpret the advertisement (Padgett & Allen, 1997). Phillips and McQuarrie (2010) also point out that the greater the transportation into a story, the greater the belief that the world within the story is true, since there will be less critical examination of the ideas that were presented in the story world.

In the context of tourism, Gretzel (2006) suggests that “travel stories help us understand and make meaning of our travel experiences and encourage us to relive and reflect on trips, as well as integrate travel experiences with the rest of our experiences and knowledge” (p. 175). Adaval and Wyer (1998) found that vacations at unfamiliar destinations were more positively evaluated by consumers who were exposed to advertising information in a narrative format rather than in a list of attributes. According to research by Tussyadiah and Fesenmaier (2008), the narrative structure of travel blogs allows readers to feel empathy and associate the experiences of the blogger with their own. A connection between the reading of travel narratives and narrative transportation was established by Rozier-Rich and Santos (2010).
While tourism-related print and TV advertising make extensive use of sensory descriptions and narrative texts, destination Web sites often contain functional lists of, for example, attractions or accommodation establishments (Gretzel & Fesenmaier, 2002). The question is whether including a greater amount of narrative text on destination Web sites will increase the persuasiveness of these Web sites.

2.3 Processing Pictures and Sounds

As mentioned above, pictures have been studied extensively in the context of mental imagery processing (Rossiter 1978; Shepard, 1967; Kisielius & Sternthal, 1984). In addition, Lutz and Lutz (1977, 1978), Alesandrini and Sheikh (1983), and Rossiter and Percy (1983) investigated the effects of various types of pictures specifically on recall and attitude. Babin et al. (1992) found a picture superiority effect which demonstrated that visual information would be remembered over verbal information. In the context of destination marketing, Olson, McAleander, and Roberts (1986) found that pictures presented in destination advertisements have an influence on a consumer’s perception of the vacation experience through the association of variety of pictures with certain types of experiences. Furthermore, Miller and Stoica (2003) indicated that photographic images of beach scenes effectively stimulated mental imagery processing. More recently, Walters, Sparks and Herington (2007) asserted that the presence of more concrete pictures affects the extent of elaboration and the quality of consumers’ consumption visions. Adaval and Wyer (1998) noted that the addition of pictures to a narrative format can encourage readers to imagine the sequence of events, and can facilitate the construction of a representation to be used as a basis for judgment. In a more recent study they reconfirmed that a picture presented in combination with narrative text can cause a verbal event description to be more vivid, help the recipients to enhance perceptual links between events, and
increase the story’s coherence (Adaval, Isbell, & Wyer, 2007). On the other hand, Goossens (1995) claimed that using pictorial images may smother individuals’ imagination as they become over-reliant on the featured image as an information source rather than elaborating on their own mentally created images.

With regard to the effects of sound on mental imagery, several researchers found that the inclusion of sound effects increased mental imagery processing (Ferrington, 1994; Miller & Marks, 1992, 1997). Lee et al. (2010), however, did not identify any significant sound effects. Interestingly, Frick (1984) discovered that if processing was evoked visually with a set of items followed by a series of auditory items, recall was better than if both sets of items were elicited by auditory or visual modes alone. With regard to mixing sound and narrative text, Kerr (1999) claimed that sounds add critical information to narrative text. Even more persuasively, Verhallen, Bus, and De Jong (2006) showed that stories accompanied by multimedia features including video, sounds and music were able to stimulate people to construct meaning and gain a deeper understanding of the story line. Specifically, presenting the story with sounds can result in a listener’s greater ability to process the story and to construct a more coherent mental representation of the story events (Verhallen et al., 2006). These findings are consistent with dual coding theory.

Dual coding theory developed by Paivio (1971) points out that people learn better when stimuli include related verbal and pictorial information compared to verbal information alone or pictorial information alone. He also indicated that information presented via the pictorial channel is more salient and better remembered than information presented through the verbal channel (Paivio, 1991). Richardson (1999) also pointed out that information is likely to be retrieved more accurately when it is encoded using dual codes rather than just one code. If one code is
forgotten, the other code can still facilitate the retrieval of all the information. Lukosius (2004) claimed that the more codes (e.g. picture, sound, text, touch, etc.) used, the better the recall. Multimedia learning theory developed by Mayer (1997) suggests that multimedia presentations can foster focused attention and immersion into the content and, consequently, can make it more meaningful. The ability of destination Web sites to include both visual, verbal and auditory stimuli should therefore contribute to their persuasiveness.

Along with multimedia learning theory and dual coding theory, media richness theory, which was initially posited by Daft and Lengel (1986), also asserts that multiple cues embedded in messages support information processing tasks. Rich media are especially important in ambiguous communication contexts (Daft, Lengel & Trevino, 1987; Dennis & Kinney, 1998). In the context of online consumer behavior, a recent study noted that the perceived richness of online stores may have a significant impact on consumers’ intentions to buy online (Brunelle & Lapierre, 2008). However, a priori statements of one medium being richer than another are inappropriate as they neglect the specific communication context (Dennis & Valacich, 1999). Furthermore, D’Ambra (1995) asserted that the measures provided by Daft et al., (1987) were highly unreliable and unidimensional. Due to these reasons, this study adopted dual coding theory and multimedia learning theory as theoretical frameworks to guide the research.

2.4. *Communication Effects of Mental Imagery Processing*

Mental imagery plays a significant role in mediating ad-evoked feelings and attitudes (Bone & Allen, 1990, 1992; Burns et al., 1993; Mitchell, 1986; Mitchell & Olsen, 1981). Since mental imagery is self-generated cognitive processing, it can be expected to be more personally relevant (Escalas, 2007). Thus, it may result in self-generated persuasion and stronger attitudes (MacInnis & Jaworski, 1989). Importantly, mental imagery can lead to self-sell and therefore
greater belief that the formed attitude is correct (Tormala & Petty, 2004). The literature also infers stronger attitudes as a result of mental imagery processing from the fact that it involves high elaboration processing (Haugtvedt & Petty, 1992; Petty et al., 1995). Petty and Krosnick (1995) noted that there are two dimensions of strong attitudes: the first is related to the persistence of an attitude (stability), which is the degree to which an attitude remains unchanged over an extended period. The other is resistance: the attitude’s ability to withstand an attack. Research by Petty and Cacioppo (1986) indicates that strong attitudes are more likely to come to mind faster, persist over time, resist counter persuasive attempts and guide behavior more than weak attitudes. Several researchers have also found a connection between attitude certainty and resistance to persuasion (Bassili, 1996; Krosnick & Abelson, 1992; Swan, Pelham, & Chidester, 1988; Pomerantz, Chaiken, & Tordesillas; 1995; Tormala & Petty, 2002). Such resistance to persuasion is of great importance in an online travel planning context, where new and potentially negative information about a destination is only a click away.

3. **Conceptual Framework and Hypotheses**

While there is strong theoretical and, in part, also empirical support for the positive effects of narrative, pictorial and auditory stimuli on mental imagery processing and for mental imagery processing leading to stronger attitudes, no empirical study has so far tested these relationships in a comprehensive model. A comprehensive model is important to simultaneously test the effects and also to identify interaction effects. Further, most of the research on which the theories are based was conducted using print advertising. In contrast, the current study seeks to examine whether these assumptions hold true in the context of multimedia environments such as destination Web sites.
As illustrated in Figure 1, specific Web site features (text information in narrative format, presence of picture and presence of sound) are posited as predictor variables, while communication effects in the form of attitude strength, attitude confidence, and attitude resistance are assigned as dependent variables. Mental imagery serves as a mediator to accentuate or attenuate the effects of the predictor variables on the dependent constructs. Overall, the conceptual framework indicates that an imagery-eliciting Web site feature is assumed to evoke mental imagery, which in turn is expected to lead to stronger attitudes, i.e., attitudes that are more resistant to counter-persuasion attacks.

<Insert Figure 1 about here>

As described in the literature review, narratives, pictures and sounds enrich information, foster immersion, and encourage a deeper and more extensive processing of content. Therefore, the following hypotheses are proposed:

**H1**: Narrative text on a destination Web site has a positive influence on mental imagery processing.

**H2**: Pictures on a destination Web site positively affect mental imagery processing.

**H3**: The presence of sound on a destination Web site encourages mental imagery processing.

According to the cognitive theory of multimedia learning (Mayer 1997), a story supplemented with multimedia such as pictures or sounds may foster a deeper understanding of information. Additionally, research by Verhallen et al. (2006) suggests that presenting pictures or sounds can increase the ability to process a story and construct a more coherent mental
representation of story events. Stories can uniquely incorporate pictures or sounds to enhance perceptual links between events and to increase the story’s coherence (Adaval et al., 2007). Thus, there is strong support for interaction effects to take place among the mental imagery inducing stimuli.

**H1a**: The positive impact of narrative text on imagery processing will be even greater when pictures are present.

**H1b**: The positive impact of narrative text on imagery processing will be even greater when sounds are present.

**H1c**: The positive impact of narrative text on imagery processing will be the greatest when pictures and sounds are both present.

**H2a**: The positive impact of pictures on imagery processing will be greater when sound is present.

The reviewed literature suggests that mental imagery processing is a form of cognitive processing that is elaborate and focused and very influential when it comes to attitude formation. Consequently, when customers surf destination Web sites, imagery processing allows them to form more concrete expectations and engage in greater information elaboration, which will likely instill confidence and make their attitudes stronger and more resistant to change.

**H4**: Mental imagery processing leads to positive communication effects, namely greater attitude strength and confidence.

**H5**: Attitude strength and confidence effects generated through mental imagery processing significantly influence attitude resistance to change.

4. **Research Methodology**
An experiment was designed to examine the influence of Web site design features including narrative texts, presence of pictures, and sound effects on attitude strength, confidence and resistance, with the assumption that this influence is mediated by mental imagery processing induced by these Web site elements.

4.1 Design

The study used a 2 (narrative text vs. expository text) × 2 (picture vs. no picture) × 2 (sound vs. no sound) full factorial between-subjects design to determine the main and interaction effects of the influence of narrative content, pictures, and sounds on mental imagery processing and ultimately attitude strength, confidence and resistance. The Web site designed for the purpose of the experiment showed a fictitious island destination. Only the homepage of the Web site was visible, with the links indicated on the page not being active to achieve controlled exposure to the text/picture/sound elements. There were a total of eight experimental conditions. The contents and lengths of the text included on the sites were the same, only the text structure varied. Narrative text and expository text differ in that narrative text portrays a sequence of events, includes protagonists, and connects parts of the text by means of suggesting causal relationships (Wolfe, 2005). In contrast, expository text is descriptive, does not refer to protagonists, and does not seek to connect the individual text elements (Figure 2). The narrative text condition is presented in Figure 3. The Web site shown to the subjects only included the logo and text in the no-picture condition. The picture condition (Figure 3) included a series of four revolving pictures of island, beach, and ocean scenes. In the sound condition, the Website included ocean sounds (crashing waves and seagulls). All conditions were pre-tested to ensure their appropriateness.
4.2 Measures

4.2.1 Mental Imagery. To measure the mental imagery construct, the present study adapted an imagery scale developed by Miller, Hadjimarcou, and Miciak (2000). This mental imagery scale consists of four dimensions: 1) vividness; 2) quantity; 3) valence; and, 4) modality. Quantity and modality were measured using seven-point rating scales ranging from 1 (Strongly disagree) to 7 (Strongly agree), including three items for quantity and two items for modality (Table 1). Only taste and scent were tested as modalities as sound and visual stimuli were provided in some of the conditions and touch was not applicable in the context of the study. The vividness and valence scales were measured using seven-point semantic differential scales, including five items for vividness and five for valence (Table 1). The items were preceded by the introductory statement “The mental imagery I experienced was…”.

4.2.2 Attitude Scales. As dependent variables, the current study explored attitude strength, confidence, and resistance of attitude to counter-arguments. The scales for attitude strength and confidence were adapted and modified from Bizer, Tormala, Rucker, and Petty (2006) using seven-point rating scales (Table 1). Attitude strength was measured with four items and confidence with two. In order to measure attitude resistance, subjects were exposed to a negative destination review that contradicted the initial destination description. Attitude strength was measured before as well as after the exposure to the reviews. Accordingly, an attitude resistance
measure was produced by subtracting the attitude strength score of each item in time two from attitude strength scores in time one.

<Insert Table 1 about here>

4.3 Participants

This study intended to obtain a minimum of 25 responses per experimental cell; thus, at least 200 participants were needed. The goal of the study was to test a theoretical model rather than to describe occurrences of a phenomenon in a population; also, influences of visual, textual and auditory stimuli on mental imagery processing are based on very basic cognitive processes in which social characteristics should not play a role. Thus, a student sample was deemed to be appropriate. Problems arising from potential gender differences were avoided by using random assignment to the experimental conditions. A $3 gift card was given to each participant as an incentive to join the study. The recruitment effort resulted in 252 responses. However, seven students could not complete the survey due to technical problems, and six students completed the survey but indicated the same response for every question. Consequently, a total of 239 subjects were included in the analysis.

4.4 Procedure

When subjects arrived at the research lab, they were greeted by a research assistant and informed that an online travel agency was interested in developing a newly created destination Website. Next, they were seated at a computer and randomly assigned to an experimental condition based on the order of their appearance. The subjects were instructed to carefully look
at the Website and read the vacation destination description provided. After being exposed to the Website for two minutes, they were presented with an online, self-administered questionnaire asking them to evaluate the Website and rate their attitude toward the destination. The Web-based survey then presented a negative review of the destination. The participants were asked to indicate their attitudes toward the destination again after their exposure to the negative review. After completing the survey, all subjects were debriefed and compensated.

4.5 Manipulation Checks

To make sure that the manipulations were reliable and effective, this study conducted several manipulation checks during pre-tests by asking pre-test subjects about the believability of the Website and the destination review as well as the suitability of the texts, pictures and the sound. More specifically, 15 graduate students and 20 students from the same subject pool as the main study were involved in a series of pre-tests to evaluate the validity and score reliability of the scales used in this study as well as to test whether subjects could successfully distinguish the narrative text from the expository text; pre-testing determined that this was the case. During the main study, manipulation checks aimed to make sure that the subjects actually paid attention to the manipulations. First, all subjects in the picture conditions stated that they saw pictures. Second, all of those in the sound conditions indicated that they had heard sound.

4.6 Analysis

The hypothesized relationships between independent, mediator, and dependent measures were tested by means of structural equation modeling (SEM) using Amos 5.0 (Arbuckle, 2003). To address problems with large sample size requirements, unreliability, and non-normal or coarsely measured item-level data, parceling was used (Landis, Beal, & Tesluk, 2000). The idea
of creating and using item parcels was originally introduced by Cattell (1956), and further explored by Cattell and Burdsal (1975). Parceling is usually done by summing or averaging several items that presumably measure the same construct (Meade & Kroustalis, 2005). For the current study, a total of six parcels were created for each dimension underlying a latent construct. First, under the mental imagery construct, quantity, modality, vividness and valence parcels were created by averaging the item scores. In the context of the communication effect construct, attitude strength and attitude confidence parcels were produced. However, attitude resistance was measured using its four items separately since the construct consisted of only one dimension.

5. Results

5.1 Measurement Model

The originally proposed measurement model was estimated using maximum-likelihood estimation. As suggested by Hu and Bentler (1999) and Quintana and Maxwell (1999), several indices were used to assess goodness of fit for the model. The initial test of the measurement model resulted in poor model fit (Chi-Square/df = 4.1; CFI = .95; NFI = .93, RMSEA = .10). In particular, the mental imagery construct exhibited very poor construct reliability, as indicated by the fact that the four parcel indicators loaded inappropriately onto the latent construct. Additional analyses suggested that vividness and valence variables were causing the problems. Therefore, an alternative model was estimated that only included quantity and modality as dimensions of mental imagery processing. As discussed by other researchers (Gefen, Straub & Boudreau, 2000; Chin & Todd, 1995; MacClallum, Roznowski & Necowitz, 1992), the dropping of measurement items to improve model fit should be executed with caution as it can generate an overfitting of the model to the data. As recommended in the literature (MacCallum et al. 1992),
only a few model modifications were made to fix the relatively severe model-fit problems. Also, appropriateness from a theoretical point of view was a major decision criterion. The overall model fit improved: Chi-Square/df=3.0, which is appropriate (Kline, 1998); CFI = .97; NFI = .95; and RMSEA = .09; consequently, the alternative model was adopted. The discriminant validity of the constructs was tested by calculating the squared roots of average variance extracted (AVE). As shown in Table 2, all AVE scores were higher than the threshold of .5 as recommended by Fornell & Larcker (1981) for all three constructs (mental imagery= .65; communication effect= .84; attitude resistance= .84). Second, the convergent validity of the constructs was examined. All items had factor loadings higher than .5, which suggests good convergent validity (Nunnally, 1967). Composite reliability was computed to assess the internal consistency of the constructs. As shown in Table 2, the composite reliability values of all of the constructs exceeded the minimum .60 suggested by Nunnally and Bernstein (1994).

<Insert Table 2 about here>

5.2 Structural Model

The overall model fit and the regression paths were estimated to determine if the proposed model described the data well. As shown in Table 3, the model fit is acceptable. The normalized chi-square statistic indicated an adequate fit (Kline, 1998). Further, the recommended threshold is 0.9. for NFI, CFI and GFI (Brown, 2006), and RMSEA values less than .08 are seen as indicating satisfactory fit (Hu & Bentler, 1999).

<Insert Table 3 about here>
The squared multiple correlation coefficients (SMC; $R^2$) for indicator variables were assessed. SMCs lie between 0 and 1 (the closer to 1, the more of the latent construct can be explained by the model). The results reveal that the model does not explain mental imagery ($R^2=0.07$) and attitude resistance ($R^2=0.10$) very well. However, it explains a large portion of the communication effects construct ($R^2=0.72$).

Figure 4 shows the hypothesized structural model paths. Most of the model paths yielded significant parameter estimates. However, in the context of the impact of multimedia stimuli (e.g., narrative text, pictures, and sound) on mental imagery processing, only pictures showed a significant effect ($\beta=0.23$, $p<0.01$). These results provide support for Hypothesis 2, but not for Hypotheses 1 and 3. Additionally, the interaction effects were not significant. Thus, the results of the structural model did not support H1a, H1b, H1c, and H2a.

Most importantly, Figure 4 reveals that the mental imagery construct strongly influenced the communication effects construct ($\beta=0.85$, $p<0.01$), which is represented by attitude strength and attitude confidence. In other words, evoked mental imagery leads to positive communication effects, which supports Hypothesis 4. In addition, the results presented in Figure 4 show that attitude strength and confidence have a significant impact on attitude resistance ($\beta=0.32$, $p<0.01$). This implies that the stronger the attitude the more resistant it is to negative stimuli. This finding supports Hypothesis 5. In addition, this study confirmed full mediation of mental imagery processing as the modification indices for the model did not suggest the need for modeling additional relationships among the constructs.
6. Implications

The purpose of this study was to generate insights into the nature of imagery-evoking Website features including narrative text, pictures, and sounds, and to explore the relationship between these Web site features and communication effects that are encouraged through mental imagery processing. The overarching goal was to see whether certain Website features can induce changes in attitudes that are resistant to subsequent persuasion attempts.

6.1 Theoretical Implications

Prior research has found that mental imagery processing can be evoked by various external advertising stimuli (Babin & Burns, 1997; Bone & Ellen, 1992; MacInnis & Price, 1987; Miller & Marks, 1997; Lutz & Lutz, 1977). Most of this research has focused on print advertising and has usually only included one stimulus, which does not allow for interaction effects to be tested. Mental imagery research in the context of Websites has mainly dealt with the effects of object interactivity (Schlosser, 2003; Macias, 2003) and sensory information (Lee et al., 2010). Thus, the current study has contributed to mental imagery research by simultaneously testing three different stimuli in the context of a Website. Further, in the tourism field very little research has been conducted on the effects of features (Lee & Gretzel, 2008) and particularly pictures (Jeong & Choi, 2004) included in destination Websites. Thus, the findings certainly contribute to this body of literature as well.

The most important finding of the study is that mental imagery processing indeed not only leads to very strong attitudes but also greater confidence in attitudes. This issue had not
been addressed in the context of tourism nor in the context of online information processing. In the present study, mental imagery processing was confirmed as an important element of persuasive communication in the context of travel planning, even if the persuader is not a human communicator or a traditional advertising medium but a Website. Consequently, more emphasis needs to be placed on studying mental imagery processing in the context of tourism marketing and travel decision-making as well as online communication environments.

With respect to attitude resistance, this study also successfully supports past research indicating that strong attitudes significantly influence attitude resistance (Haugtvedt & Petty, 1992; Petty et al., 1995). Based on these findings, it can be stated that once subjects form strong attitudes and confidence in the destination through mental imagery processing, they are more likely to resist negative reviews of the destination. Given that very little research has been conducted regarding attitude resistance in the realm of tourism marketing while the likelihood of tourism consumers being exposed to reviews is increasing, the findings of this study are an important contribution to tourism marketing research.

6.2 Practical Implications

With the growing amount of information available on the Internet and the increasing number of destination options available to travel consumers, it will be ever more important to create persuasive Website designs that can help consumers learn about destinations and form strong attitudes about them. Moreover, in the context of successful tourism marketing, with the rocketing amounts of consumer-generated contents that include personal stories, pictures, and sound available on tourism Websites, a persuasive Website effectively instills confidence in consumers and helps them form attitudes that are more resistant to counter-arguments. Also,
given the many benefits for marketing that can be assumed to result from imagery processing, it appears to be critical for online tourism marketing to be better informed about the effectiveness of imagery processing and the stimuli that can encourage it. When consumers evaluate experience products, they may have a higher degree of uncertainty compared to other physical products. Running a simulation-like scenario in one's mind can facilitate the process of destination decision making and lead to more confidence in the decision. While customers consume information on travel Websites, imagery processing enables them to engage in greater information elaboration and to form more certain expectations (Goossens, 2000). Tourism marketers should make an effort to help travel planners to imagine what it would be like to experience the destination, which can lead to positive attitudes and build confidence. Furthermore, the generated high levels of certainty foster resistance to subsequent negative persuasion, which is of high practical relevance given the likely exposure to social media content in travel information searches (Xiang & Gretzel, 2010).

These findings can help tourism marketers understand how critical it is to invest in careful Website design and also to evaluate the effectiveness of particular designs. The current study especially emphasizes the importance of pictures. While many tourism marketers intuitively know that they are important, this study shows that they can make a significant difference; thus, decisions to place pictures on Websites need to be made with an understanding that changes will affect the Website’s persuasiveness. In general, Websites are often designed by practitioners based on past experience, existing examples, or technological considerations. The research presented in this paper argues very strongly for a more scientific approach to Website design.
6.3 Limitations and Future Research

The current study should be considered in light of its limitations. First, while the manipulations were extensively pre-tested there always remains the question of whether they were strong enough. Second, using just a beach destination for this experiment may constrain the generalizability of the results found in this study. The use of Websites for a broader array of tourism products such as hotels, events and festivals, and other destinations may generate different results in terms of mental imagery processing. Third, the use of student subjects was limiting in that students can be different from older and less educated individuals in terms of their experience or proficiency in interpreting information (James & Sonner, 2001). However, given that the research aim of the current study was to focus on theoretical explanation rather than the generalization of the study to a population, using student subjects was appropriate (Sternthal, Tybout & Calder, 1994; Peterson, 2001; Walters, Sparks & Herington, 2007). Moreover, as is typical for experiments, the context was artificially created and did not represent a real travel planning scenario, which can influence motivations to process the information. Further, the problems in measuring the vividness and valence of mental imagery processing suggest that a stable measure has yet to be developed to assess these dimensions. The lack of visible effects could have been due to only measuring the quantity and modality of the mental imagery.

Future research in this area should be extended to include a greater variety of potentially imagery-evoking Website features. For example, it may be interesting to investigate how interactive or customized features such as interactive maps or chatting with travel experts on the Website influence mental imagery processing. On the other hand, presenting just pictures to subjects without any other conditions, or pictures with narration in the form of audio instead of
narrative text, or videos that combine moving pictures with narrative and sound may result in a
different level of mental imagery processing. Also, varying the length of the narratives and the
type and quality of sound might produce different results. Additionally, while instructions to
imagine have been widely tested for evoking mental imagery processing, they have not been
tested in online environments, and thus can be a subject for future research. Further, the
experiment was conducted using traditional computer screens. However, Fogg, Booker and Don
(2004) assert that recently developed mobile phones are more compelling platforms for
narratives. They claim that mobile phones are highly personal devices, thus people are more
likely to experience content from those phones in a way that is more personal and influential than
content from a computer. If people are indeed more receptive to persuasive messages through
mobile phones, it will be valuable to study mental imagery processing while using these other
types of platforms, which are increasingly used in the context of travel and tourism.

Several issues need to be discussed with regard to the text manipulation. First, all
subjects were exposed to a text in either expository or narrative form. Thus, even though the
findings of this study revealed that the narrative versus expository text did not influence mental
imagery processing, it is highly possible that the information contained in the text by itself might
have evoked mental imagery processing. The proposed structural model showed that the picture
condition significantly affected mental imagery, but indicated a small standardized coefficient
$\beta=0.23$, which means that the pictures had a small influence on mental imagery. Nevertheless,
many of the subjects reported mental imagery. It needs to be asked what generated this mental
imagery. Indeed, both text conditions contained a large number of sensory words. Previous
research has found that the proper mixture of sensory information presented on Websites can
strongly evoke mental imagery, which can greatly influence consumer attitudes and behavioral
intentions (Lee et al., 2010; Miller et al., 2000; Schlosser, 2003). Another aspect that might have to be considered is the length of the text as it was rather short to avoid burdening the study subjects. In real trip planning contexts, individuals are highly motivated to process information and will probably consume more text, which might make effects more visible.

Of the stimuli included in the study, only pictures significantly affected mental imagery processing. The result is consistent with existing research (Babin et al., 1992; Kisielius & Sternthal, 1984; Paivio, 1971; Rossiter, 1978; Shepard, 1967; Hirschman & Solomon, 1984; Starch, 1966) that finds pictures to more efficiently evoke mental imagery processing than other stimuli. However, the insignificant results for the other modalities are inconsistent with research that claims that narrative texts and sounds support mental imagery processing. More research is needed to examine whether the specific context (i.e. destinations) is the reason for this or if other types of manipulations are needed to evoke effects.

In addition, the current study revealed that sound does not influence mental imagery. Some researchers claim that when imagery processing and auditory perception compete for the same resources, elaboration of information can be reduced (Unnava, Agarwal, & Haugtvedt, 1996). In other words, they assert that imagery generated by subjects selectively interfered with the processing of externally provided information (Unnava et al., 1996). For example, while conducting the experiment for this study, subjects were informed that they would see the Website of an island destination. At that time, subjects might have generated auditory imagery by themselves before they actually heard waves and seagull sounds. In this case, based on Unnava et al. (1996), the interference between self-generated auditory imagery and actual sounds can adversely affect cognitive elaboration. Not enough research currently exists to address this issue in a definitive manner.
REFERENCES


Green, M. C., & Brock, T. C. (2002). In the mind’s eye: Transportation-imagery model of narrative persuasion. In M. C. Green, J. J. Strange & T. C. Brock (Eds.), *Narrative impact: Social and cognitive foundations* (pp. 315-341). Mahwah, NJ: Lawrence Erlbaum Associate, Inc.


Table 1. Descriptive Statistics for Each Construct

<table>
<thead>
<tr>
<th>Construct Name</th>
<th>Item No.</th>
<th>Item Wording</th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach’s Alpha</th>
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<td>Quantity</td>
<td>Q12a</td>
<td>Many images came to my mind</td>
<td>5.23</td>
<td>1.34</td>
<td></td>
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<tr>
<td></td>
<td>Q12b</td>
<td>A lot of images came to my mind</td>
<td>4.96</td>
<td>1.45</td>
<td>0.92</td>
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<tr>
<td></td>
<td>Q12c</td>
<td>I experienced various images in my mind</td>
<td>5.02</td>
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<tr>
<td>Modality</td>
<td>Q12d</td>
<td>I imagined tastes</td>
<td>3.38</td>
<td>1.71</td>
<td>0.82</td>
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<tr>
<td></td>
<td>Q12e</td>
<td>I imagined scents</td>
<td>3.72</td>
<td>1.85</td>
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<tr>
<td>Vividness</td>
<td>Q13a</td>
<td>Vivid-Vague</td>
<td>2.77</td>
<td>1.49</td>
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<td></td>
<td>Q13b</td>
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<td></td>
<td>Q13c</td>
<td>Sharp-Dull</td>
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<td>Q13g</td>
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<td></td>
<td>Q13i</td>
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<td></td>
<td>Q13j</td>
<td>Positive-Not positive</td>
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<td>Attitude</td>
<td>Q14</td>
<td>How good would the destination be for a pleasure trip?</td>
<td>6.12</td>
<td>1.02</td>
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<td>Strength-Time 1</td>
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<td>How positive would you say is your impression of the destination?</td>
<td>5.88</td>
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<td>Q16</td>
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<td>Q17</td>
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<td>Strength-Time 2</td>
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<td>Q22</td>
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<td>How favorable is your impression of the destination?</td>
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<td>Construct Reliability</td>
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<td>df</td>
<td>$\chi^2$/df</td>
<td>CFI</td>
<td>GFI</td>
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<td>2.03</td>
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Figure 1. Conceptual Framework
Figure 2. Experimental Condition: Expository Text Only
Figure 3. Experimental Condition: Narrative Text, Picture, No Sound
**denotes significance at the 0.5 level

Figure 4. Hypothesized Structural Model.
Appendix 1.

Intercorrelations Among Proposed Indicators

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<td>5. Quan</td>
<td>.54**</td>
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<td>-.70**</td>
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<td>.13*</td>
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<td>.17**</td>
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<td>.02</td>
<td>.10</td>
<td>.05</td>
<td>-.15*</td>
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</table>

Note. N = 239. 1=AtRes (Attitude resistance) , 2= AtRes2 , 3= AtRes3 , 4= AtRes4 , 5= Quantity , 6= Modality , 7= Vividness , 8= Valence 9= Attitude Strength , 10= Attitude Confidence

* p < .05. ** p < .01.