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Developing an Integrated Model of Interactivity in the Context of Travel-Related Web Sites

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To the Graduate Council:

I am submitting herewith a dissertation written by Juran Kim entitled "Developing an Integrated Model of Interactivity in the Context of Travel-Related Web Sites." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communication and Information.

Sally J. McMillan, Major Professor

We have read this dissertation and recommend its acceptance:

Ronald E. Taylor, Eric Haley, David W. Schumann

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Accepted for the Council:

Anne Mayhew
Vice Chancellor and
Dean of Graduate Studies

(Original signatures are on file with official student records.)

**DEVELOPING AN INTEGRATED MODEL OF INTERACTIVITY
IN THE CONTEXT OF TRAVEL-RELATED WEB SITES**

A Dissertation
Presented for the
Doctor of Philosophy Degree
The University of Tennessee, Knoxville

Juran Kim

August 2006

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ABSTRACT

This dissertation investigates relationships among interactivity as functional features, actual interaction and perception, its moderators (i.e. experience) and its consequences (i.e. attitude, trust and purchase intention) in the context of travel-related Web sites. This study is expected to contribute to the body of knowledge by clarifying the concept of interactivity in an important advertising/marketing context. An experimental design is used to explore key questions about relationships among types of interactivity, with a focus on exploring similarities and differences in Human-to-Human and Human-to-Computer interactivity, as well as moderators and consequences of the interactive experience at travel-related Web sites.

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Chapter One

Introduction

This dissertation will investigate relationships among interactivity as functional features, actual interaction and perception, its moderators (i.e. experience) and its consequences (i.e. attitude, trust and purchase intention) in the context of travel-related Web sites. The study will examine both Human-to-Human and Human-to-Computer interactivity.

While interactivity is central to Internet advertising, the concept of interactivity is still evolving and needs clarification. Travel-related Web sites are an ideal venue for studying interactivity because they utilize many interactive features and use of online travel sites is growing rapidly. This study is expected to contribute to the body of knowledge by clarifying the concept of interactivity in an important advertising/marketing context. An experimental design will be used to explore key questions about relationships among types of interactivity as well as moderators and consequences of the interactive experience at travel-related Web sites.

Theoretical Framework of Interactivity

While researchers have been attempting to operationalize the concept of interactivity since the 1980s (e.g. Rafaeli, 1988), it is not clearly defined in the literature. As communication technologies have rapidly developed, the concept of computer-mediated interactivity steadily evolved. Consequently, the concept of interactivity is still contested and needs clarifications.

Types of Interactivity

There have been attempts to classify types of interactivity: a dual approach considering User-to-User and User-to-Document interactivity (Heeter, 1989; Massey and Levy, 1999) and a three-way approach (Kayany, Wotring and Forrest 1996; McMillan, 2005) that typically considers Human-to-Human, Human-to-Content, and Human-to-Computer interactivity.

Functions, Processes, and Perceptions of Interactivity

The literature on interactivity also defines and measures interactivity in multiple ways – often in the context of functional features, actions and/or processes, and perceptions of interactivity. Research on interactivity as function has focused on clarifying manifest features of interactivity in Web sites. Most of these functional feature-based studies grow out of Heeter's (1989) conceptual definition of interactivity. McMillan (2005) proposed that functions could be further classified based on type of interactivity. Human-to-Human interactivity focuses on ways that individuals communicate with each other through computers. Human-to-Content focuses on ways that individuals co-create content. Human-to-Computer focuses on functions that allow individuals to control, navigate and transact with the computer.

A second stream of research has focused on interactive processes or the actual actions that go into making something interactive. Among the actions that are seen as interactive are two-way communication or exchange of information (Cho and Leckenby, 1999), user control (Bezjian-Avery, Calder and Iacobucci, 1998), and responsiveness (Rafaeli, 1988). The third stream of research has focused on what individuals perceive to be interactive (Day, 1998; McMillan and Hwang, 2002). While perception and function

often overlap, other issues such as timeliness and engagement also become important from the perspective of perceived interactivity.

Conceptualizing Relationships among Multiple Types of Interactivity

Several researchers have raised critical issues regarding the interrelationships between interactivity as function and interactivity as perception (McMillan, Hwang and Lee, 2003) or between interactivity as actual action and interactivity as perception (Chung and Zhao, 2004). These studies highlight the importance of carefully operationalizing interactivity and developing measures appropriate to the type of interactivity under examination. Causal relationships are best examined by measuring multiple types of interactivity because, for example, dependent variables (i.e. attitude toward site) may be influenced by both perceived and actual interaction.

Antecedents and Consequences of Interactivity

Most studies that examined antecedents in the context of interactivity (e.g. Jee and Lee, 2002) focused on how involvement and personality influenced perceived interactivity as well as other outcomes such as attitude toward the site and purchase intention. But, an earlier stream of research (Fazio and Zanna, 1978) emphasized that experience may be an important individual difference factor in this context. According to Fazio and Zanna (1981), attitudes developed through direct experience are more enduring, and more resistant than are those developed through indirect experience. Most studies using this factor have shown that direct experiences lead to greater consistency between attitudes and behaviors than do indirect experiences.

Studies examining consequences of interactivity have found a positive causal relationship between interactivity and attitude toward the site, trust perception, and

purchase intention (Cho and Leckenby, 1999; Jee and Lee, 2001). It is important to consider all of these potential consequences in a model that seeks to explore outcomes of multiple types of interactivity.

Human-to-Human (H to H) and Human-to-Computer (H to C) Interactivity in the Context of Travel-Related Web sites

This dissertation research will focus on Human-to-Human (H to H) and Human-to-Computer (H to C) interaction in travel-related Web sites. H to H interaction exists in multiple forms. This study considers two dominant functions: first, it can facilitate communication between individuals (e.g. send a virtual postcard), second, it can enable communication between individuals and organizations (e.g. e-mail link to organization). Two dominant functions of H to C interactivity examined in this study are: navigational features that enhance control (e.g. menus and buttons) and action/transaction features (e.g. take a survey, book a tour). Considering two primary types of interactivity as well as two dominant functions for each type will add depth to understanding relationships among interactivity as functional features, as actual actions and as perceptions. The study design also allows for comparison of antecedents and consequences of interactivity in both the H to H and H to C contexts.

This dissertation research focuses on travel related website context to study relationships among critical factors of interactivity as well as its antecedents and consequences because travel-related Web sites employ high levels of interactivity and are growing rapidly in the Internet advertising field. Importance of travel-related Web site contexts can be supported by the fast growth of travel advertising industry.

Purpose of the Dissertation

The primary question addressed by this study is: “what are the relationships among functional, actual, and perceived interactivity in both the H to H and H to C contexts, how are those relationships moderated by experience, and what are the consequences of interactivity on attitude, trust perception, and purchase intention?” Based on the primary question, the following purpose of this dissertation is suggested.

1. The primary purpose of the dissertation is to investigate relationships among interactivity as functional features, actual interaction and perception in the context of travel-related Web sites. The study will examine both Human-to-Human and Human-to-Computer interactivity and explore potential differences in relationships functions, actual interactions, and perceptions of interactivity in these two types of interactivity.
2. Another purpose of this dissertation is to explain how individual difference factors (i.e. experience) will moderate user’s perceived interactivity and actual interaction. Again, an important contribution of the study is to examine the relative effects of individual differences in Human-to-Human and Human-to-Computer contexts
3. The third purpose of this dissertation is to explain the potential consequences of perceived interactivity and actual interaction and to explore the differing nature of those consequences in different types of interactive environments.

Organization of the Dissertation

This dissertation will investigate relationships among interactivity as functional features, actual interaction and perception, its moderators (i.e. experience) and its consequences (i.e. attitude, trust and purchase intention) in the context of travel-related Web sites. The study will examine both Human-to-Human and Human-to-Computer interactivity.

In Chapter 1, a brief introduction to the importance for studying the phenomenon of interactivity in the context of travel-related Web sites was presented. An overview of the dissertation was offered with core concepts, which identified the relationships among interactivity as functional features, actual interaction and perception, as well as the moderator (i.e. experience) and the consequences (i.e. attitude, trust and purchase intention) of interactivity.

Chapter 2 serves as a theoretical framework for this dissertation. In chapter 2, existing literature on interactivity is reviewed. Based on the review of literature, interactivity is redefined as functions, processes and perceptions. Its moderator (i.e. experience) and consequences (i.e. attitude, trust and purchase intention) are identified leading to the research hypotheses.

Chapter 3 describes the methodology for this dissertation study. In this chapter, an experimental design is employed to test the research hypotheses developed in the previous chapter.

Chapter 4 describes the results for this dissertation study. In this chapter, a series of MANOVA and regression analyses are employed to test the research hypotheses

developed in the previous chapter. Finally, chapter 5 offers the discussion and conclusion for this dissertation study.

Chapter Two

Literature Review

Researchers have been attempting to conceptualize interactivity into their research over time. Miller (1987) offered definitions of the terms 'interactivity', 'interactive' and 'interactive media.' Interactivity is defined as “A reciprocal dialog between the user and the system” in which both mutual dialog and user and system conceptual constructions appear. The term 'interactive' is defined as “Involving the active participation of the user in directing the flow of the computer or video program; a system which exchanges information with the viewer, processing the viewer's input in order to generate the appropriate response within the context of the program...” Interactive media is defined as “Media which involves the viewer as a source of input to determine the content and duration of a message, which permits individualized program material.” Rice (1984, 35) defined new media as communication technologies “that allow or facilitate interactivity among users or between users and information.”

Rafaeli (1988) defined interactivity as “an expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions” (Rafaeli 1988, 111). Rafaeli (1988) considered dimensions of interactivity including conceptual factors communication (exchange and transmission), degree of interactivity and time factor. Rafaeli (1985, 6) also suggested that “studying interactivity is the special intellectual niche for communication researchers.”

However, literature on defining interactivity has shown discrepancies and disagreements although interactivity often is cited as a primary concept of Internet

advertising. Further, as communication technologies have developed over a decade, the concept of interactivity has also expanded. The concept of computer-mediated interactivity has been evolving over time and is still evolving. There have been several streams to define interactivity: interactivity as functional features, interactivity as process and interactivity as perception (McMillan 2005; Tremayne 2005; McMillan and Hwang 2002) while a number of studies attempted to classify types of interactivity. Researchers still disagree about how to operationalize interactivity and the concept needs clarification. Multiple types of interactivity and three research streams of conceptualizing interactivity are discussed below.

Theoretical Framework of Interactivity

Types of Interactivity

There have been attempts to classify types of interactivity for years. First, there is a dual approach to define interactivity by considering user to user and user to document interactivity. Massey and Levy (1999) identified as interpersonal interactivity, or the extent to which audiences can have computer-mediated conversations in the ‘spaces’ created for them by journalists. They defined the other dimension as content interactivity in which journalists technologically empower consumers over content. Schultz (2000) also indicated that two types of interactivity characterize journalistic Web sites: reader-to-reader and journalist-to-reader.

Under this dual approach, Lee (2000) indicated that two broad types of interactivity are interacting with people and interacting with technology. Hoffman and Novak (1996) described person interactivity and machine interactivity. Stromer-Galley

(2000) identified human-to-human and human-to-media interaction. Carey (1989: 328) defined interactive media as: ‘Technologies that provide person-to-person communications... and person-to-machine interactions.’

Second, there are approaches considering three types of interactivity by expanding the dual approach. Szuprowicz (1995) identified three types of interactivity: user-to-user, user-to-documents, and user-to-computer (or user-to-system). Kayany, Wotring, and Forrest (1996) identified their three-part typology of interactivity on the basis of three types of control: relational (or interpersonal), content (or document-based) and process/sequence (or interface-based) controls. McMillan (2005) proposed three types of interactivity as Human to Human, Human to Content, Human to Computer. Her typologies would correspond to the previous works of Szuprowicz (1995) and Kayany et al. (1996). Finally, McMillan (2005) proposed three by three typologies integrating not only three approaches defining interactivity – interactivity as function, perception and process but also three types of interactivity - Human to Human, Human to Content, Human to Computer.

While all cells of Table 1 have value in conceptualizing interactivity, this study will focus on the first two columns of the table. Human-to-Content is an emerging area of interactivity that is not as well developed as Human-to-Human and Human-to-Computer interactivity. While future studies may wish to add Human-to-Content interaction, the primary purpose of this study is to explore relationships among features, processes, and perceptions (as detailed in the next section), and thus limiting analysis to two types of interactivity helps to clarify that focus.

Table 1 Typologies of Interactivity

	Human to Human	Human to Computer	Human to Content
Features	Instant Messaging E mail	Navigation tools Search tools	Tools that facilitate Personalized content Unique content forms
Processes	Participating in an chat, Sending / receiving email	Navigating a web site Using a search engine	Creating a personalized home page
Perceptions	Believing that IM and email facilitate communication	Finding a web site easy to control and engaging	Believing that customized & in depth content is interactive.

(McMillan 2005)

Functions, Processes, and Perceptions of Interactivity

Interactivity as Functions

One stream of research has focused on clarifying manifest interactive features for years. Early research defined interactivity as functional features by considering interactive criteria or given interactive features that must be fulfilled. Carey (1989, p.328) proposed the provisions for the interactive media in the *International Encyclopedia of Communications*: “Technologies that provide person-to-person communications mediated by a telecommunications channel (e.g., a telephone call) and person-to-machine interactions that simulate an interpersonal exchange (e.g., an electronic banking transaction).” Carey (1989, p.328) explained interpersonal exchange as “most of the content is created by a centralized production group or organization”, and “individual users interact with content created by an organization.”

In this research stream of interactivity as functions, researchers have focused more on the manifest content of interactivity in Web sites – the features that make online communication interactive (McMillan et al 2004). Most of these feature-based studies

grow out of Heeter's (1989) conceptual definition of interactivity. Massey and Levy (1999) operationalized Heeter's conceptual definition of interaction interactivity that resided in the processes, or features, of a communication medium. They examined Web sites for interactivity based on the presence of functional features such as e-mail links, feedback forms, and chat rooms.

In addition, there are feature-based studies on navigation functions that discussed hypertextuality (Sundar, Brwon and Kalyanaraman, 1999; Sundar, Narayan, Obregon, and Uppal, 1998) and navigation tools (Heeter, 2000). There has been literature dealing with hypertextuality and the ways in which linked text can be used to manage non-linear communication (Belkin et al., 1993; Klein, 2000; Landow, 1992; Mayhew, 1998; Schaffer and Hannafin, 1986; Sundar, Brown, and Kalyanaraman, 1999; Sundar, Narayan, Obregon, and Uppal, 1998). Hypertext is generally defined as blocks of text and the electronic links that join them. The concept of hypertext was developed by Nelson in the 1960s and has earlier roots in Vannevar Bush's 1945 article on mechanically linked information-retrieval systems (Landow, 1992). The primary advantage of hypertext is the control that it gives to the user who navigates through a computer-based system.

Recently, McMillan (2005) proposed that functions could be further classified based on multiple types of interactivity. Human-to-Human interactivity focuses on ways that individuals communicate with each other through computers. Human-to-Content focuses on ways that individuals co-create content. Human-to-Computer focuses on functions that allow individuals to control, navigate and transact with the computer. Although there are several studies on interactivity as functions, there are still needs for

the conceptual clarifications and the empirical studies of interactivity as functions among multiple types of interactivity.

Interactivity as Processes

A second stream of research has focused on interactive processes or the actual actions that go into making something interactive (McMillan 2005). Among the actions that are seen as interactive are two-way communication or exchange of information (Cho and Leckenby 1999; Haeckel 1998; Pavlik 1998), user control (Bezjian-Avery, Calder, and Iacobucci 1998; Guedj et al. 1980), and responsiveness (Miles 1992; Rafaeli 1988).

Rafaeli (1988) proposed the interactivity as process as a variable quality of communication settings that referred to how reciprocal a particular exchange was. Ball-Rokeach and Reardon (1988) identified interactivity as exchange, associational, and debate functions. Ogan (1993) examined posting messages to an electronic bulletin board by adopting conceptualization of interactivity of Rafaeli and Ball-Rokeach and Reardon (1988).

Heeter (2000) proposed the user's experiences with a particular technology define the concept, specifically: "actions the participant is capable of observing through one or more senses over whatever channels exist to connect the participant to the experience." Interactivity is conceptualized not by channel or technology itself but by what occurs on the channels. Heeter (1989) also suggested a six-dimensional choice based on: complexity of user choice, effort users must exert, responsiveness to the user, monitoring information use, ease of adding information, and facilitation of interpersonal communication. Rice (1984) approached interactivity in terms of the amount of choice provided users because more user choice makes it difficult to define a particular audience

using specified content of a given medium at a particular time. Interactivity as processes has been studied as user choice and input (Belkin et al., 1993; Daft et al., 1987; Durlak, 1987; Hanssen et al., 1996; Looms, 1993; Mahood et al., 2000; Steuer, 1992; Zeltzer, 1992) and complexity of choice and monitoring information use (Heeter 1989).

Cho and Leckenby (1999) conceptualized interactivity as a process, specifically the degree to which a person interacted with the ad. Although their operationalization is cognitive, it is not the same as a measure of the perception of interactivity. Cho and Leckenby (1999) used the participant perspective on the effectiveness of banner ads. In their study, participants were exposed to web structures that were either high or low in interactive potential. Cho and Leckenby (1999) examined interactivity as process by using a self-reported measure of intention to interact.

Macias (2003) also proposed a process-oriented conceptualization: “interactivity is the state or process of communicating, exchanging, obtaining and/or modifying content and/or its form with or through a medium.” Macias examined the role of interactivity on company websites on comprehension and persuasion regarding company products by using an indirect measure and added a perceptual measure as a manipulation check. While there have been several studies on interactive processes, there is still a need for clarifying interactivity as actions and processes among multiple types of interactivity.

Interactivity as Perceptions

The third stream of research has focused more on what individuals perceive to be interactive (Day 1998; McMillan and Hwang 2002; Newhagen, Cordes, and Levy 1996; Wu 1999). While perception and function often overlap, other issues such as timeliness and engagement also become important from the perspective of perceived interactivity.

Among the studies that focus on the human side are those that examine how individuals interpret computer personality (Moon and Nass, 1996), level of agency that individuals perceive they have in working with the computer (Huhtamo, 1999; Murray, 1997), individual decision styles (Vasarhelyi, 1977), and goals that the individual brings to the system (Belkin, Marchetti, and Cool, 1993; Xie, 2000). Recent studies focused more on what individuals perceive to be interactive (Day 1998; McMillan and Hwang 2002; Newhagen, Cordes, and Levy 1996; Wu 1999).

Bucy (2004) also argued that interactivity is best conceived as a perceptual variable and proposed interactivity as a perceptual variable that “routinizes the concept and makes it a part of everyday media experience,” and further, encourages “the concept’s theoretical development by enabling empirical measurement through attitudinal and emotional scales” (p. 377).

Chung and Zhao (2004) examined perceived interactivity by considering an individual characteristic, motivation. The researchers found “a positive impact of perceived interactivity on both attitude and memory” concerning the ad, but the motivation manipulation had no significant consequence for perceived interactivity.

Jee and Lee (2002) measured perceived interactivity by using a nine-item scale adapted from Wu (2000). Jee and Lee (2002) found that perceived interactivity was positively associated with attitude toward the site, which in turn was related to purchase intention. In sum, Jee and Lee (2002) investigate how different personal factors, general factors and different perceived interactivity influence attitude toward site in the context of making a purchase decision.

Finally, McMillan and Hwang (2002)'s work is noteworthy because not only did they develop an 18- item scale for the measurement of perceived interactivity (MPI) but also they clarified that consumers' perception based approach to interactivity is important and fruitful in Internet advertising. The MPI scale was applied in their field experiment to compare the effects of structural and perceptual interactivity (McMillan, Hwang, and Lee 2003). The researchers found some evidence that the perception of interactivity was more closely related to the dependent measure attitude toward the site than was structural factors of interactivity. In sum, a number of studies investigated perceived interactivity both conceptually and empirically while there are still needs for the empirical studies of interactivity as perceptions among multiple types of interactivity.

Conceptualizing Relationships among Multiple Types of Interactivity

While there have been three streams to study interactivity: functions, processes and perceptions of interactivity; in fact, the previous empirical studies have focused on each typology, mainly interactivity as perception.

McMillan, Hwang and Lee (2003) raised the issues that interactivity as perception and as function often overlap and might be interrelated while most previous empirical studies focused on a positive causal relationship between interactivity as perception and attitude toward the site (Wu 2000; Jee and Lee 2001). McMillan et al. (2003) examined effects of interactivity as both structural factors and perceptual factors on attitudes toward the website. McMillan et al. proposed that "perceptual variables seem to be stronger predictors of [attitude toward the site] than structural variables" (p. 406). Involvement was also found to be closely related to perceived interactivity.

Further, McMillan et al. (2003) raised a critical issue on the functional view of interactivity, the mere presence or absence of certain features matters most if it affects how the messages are consumed. One of the sites with the fewest interactive features scored well with participants on attitude toward the site possibly due to the presence of one particular web feature, a virtual tour. Even though the site had few interactive elements, one of the ones it did contain may have been responsible for higher attitude toward the site scores. Studying how the sites were navigated and interacted by the users and which of the interactive features present were actually used might reveal the true causal mechanism.

Lee et al. (2004) also compared objective characteristics with users' perceptions. They coded each for the presence or absence of 88 interactive tools that had been identified in an earlier study (Stout, Villegas, and Kim 2001). Participants were asked to shop at three computer web stores which had been content analyzed by the researchers. While the content analysis revealed no significant difference amongst the three on interactive features, study participants during in-depth interviews rated one site significantly more interactive than the others. Lee et al. (2004) suggested a possible explanation could be in how the sites were navigated by the users and which of the interactive features present were actually used. The sites could have almost the same number of interactive features but their unique design may make it more or less likely that they were encountered (and used) by study participants.

Chung and Zhao (2004)'s work is noteworthy because they examined the relationship between perceived and functional interactivity by partially considering actual interaction. The researchers (2004) measured both functional and perceptual interactivity.

and found that users with high product involvement were more interactive with product-related content than those with low involvement. Those with low product involvement also exhibited interactive behavior but with content not related to the product. In both cases, perceived interactivity (a five-item scale) was related to functional interactivity regardless of involvement. Further, they found that perceived interactivity resulted not from the presence of certain structures, but from the interaction with them by users. This was measured by recording every click of a study participant's mouse. And perceived interactivity was positively associated with a post-test of product recall. Finally, the authors controlled for perceived interactivity and level of involvement and found that clicking behavior was still significantly related to product recall.

Three studies highlight the importance of distinction of functional and perceptual interactivity. A perception of high interactivity can occur even when the structures necessary for it do not seem to be present (McMillan et al. 2003). Perception of interactivity can be low even when many interactive features are available if, for whatever reason, subjects are not using them. Critical issues on functional and perceptual interactivity beyond the mere presence or absence of certain features inform McMillan et al.'s study (2003) and provide potential explanations for the discrepancy and findings from Lee et al.'s work (2003). Chung and Zhao's study (2004) offers one of the strongest needs for inclusion in empirical work of a detailed measure of actual use by each study participant. Causal mechanisms are best revealed by designs where each type of interactivity is measured because certain dependent variables (i.e. attitude toward site) can be influenced by both the perception of interactivity and by actual interaction with

the content. Thus, there are needs for empirical examinations of the relationships among functional, actual, and perceived interactivity among multiple types of interactivity.

The following model (see Figure 1) provides the framework for the primary question addressed by this study: “what are the relationships among functional, actual, and perceived interactivity in both the H to H and H to C contexts, how are those relationships moderated by experience, and what are the consequences of interactivity on attitude, trust perception, and purchase intention?”

Figure 1 suggests an overall relationship among interactive functions, actual interactions, perceived interactivity and antecedents and consequences of interactivity. However, as noted at the left side of the model, the study will further contribute to the body of literature by recognizing that interactivity is not a monolithic concept. Interactive features can be subdivided into multiple types and there may be multiple kinds of dominant functions within each of those types. The hypotheses developed in later sections examine possible differences that may result from different ways of operationalizing interactive functions.

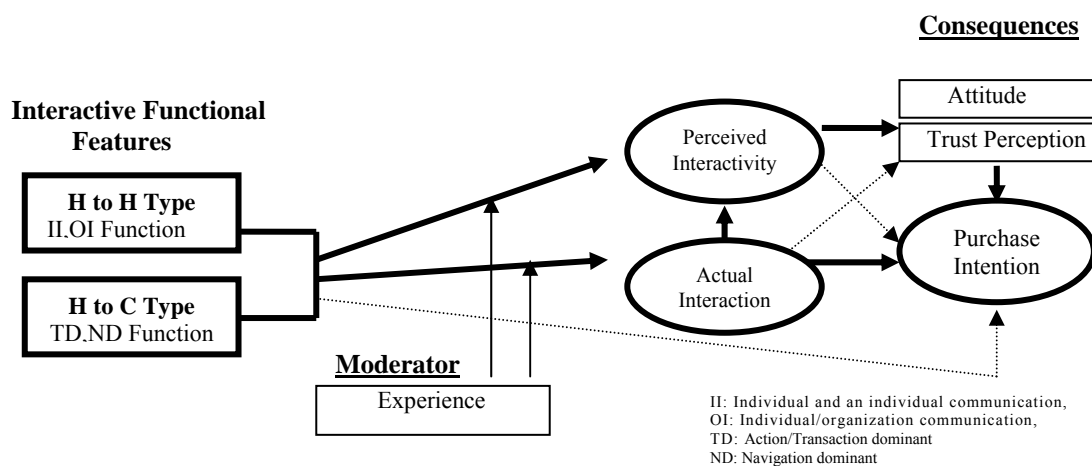


Figure 1 A Suggested Model of Interactivity

Human-to-Human (H to H) and Human-to-Computer (H to C) Interactivity in the Context of Travel-Related Web sites

This dissertation research will focus on Human-to-Human (H to H) and Human-to-Computer (H to C) interaction in travel-related Web sites. H to H interaction exists in multiple forms. This study considers two dominant functions: first, it can facilitate communication between individuals (e.g. send a virtual postcard), second, it can enable communication between individuals and organizations (e.g. e-mail link to organization). Two dominant functions of H to C interactivity are: navigational features that enhance control (e.g. menus and buttons) and action/transaction features (e.g. take a survey, book a tour). Considering two primary types of interactivity as well as two dominant functions for each type will add depth to understanding of relationships among interactivity as functional features, as actual actions and as perceptions.

This dissertation research focuses on the context of travel related Websites to study relationships among critical factors of interactivity as well as its antecedents and consequences because travel-related Web sites employ high levels of interactivity and are growing rapidly in the Internet advertising field. Importance of the context of travel-related Web sites can be supported by the fast growth of the travel advertising industry. The travel industry is one of the top four categories that will experience the highest growth with an expected \$16.1 million spent on Internet ads by 2009 (, 2004). According to (2004), the travel industry is not only expected to achieve 18.3% growth in Internet ad spending but also is expected to take the leading position with 1 billion as one of the biggest Internet advertisers. A better understanding of the context of the travel related

Web sites is likely to support developing marketing communication strategies, particularly in the tourism industry.

Antecedents and Consequences of Interactivity

Moderator: Experience

Most studies that examined antecedents in the context of interactivity (e.g. Jee and Lee, 2002) focused on how involvement and personality influenced perceived interactivity as well as other outcomes such as attitude toward the site and purchase intention. But, an earlier stream of research (Fazio and Zanna, 1978) emphasized that experience may be an important individual difference factor in this context. According to Fazio and Zanna (1981), attitudes developed through direct experience are more enduring, and more resistant than are those developed through indirect experience. Most studies using this factor have shown that direct experiences lead to greater consistency between attitudes and behaviors than do indirect experiences. In fact, marketers in the travel industry (Jupiter Research, 2004) argued that direct online experience on travel related Websites is an important factor in the context of online shopping for travel-related products (e.g. airlines, hotels).

Recently, Coyle and Thorson (2001) examined the effects of levels of interactivity and vividness in Web marketing sites moderated by direct computer experience. Individual differences in experience with computerized media have been shown to affect attitudes toward computer programs (Goldstein and Ford 1978; Kieras and Polson 1985; Vincente, Hayes, and Williges 1987), and researchers have warned about the confounding potential of such experience (Jih and Reeves 1992). In the study of Coyle and Thorson (2001), participants were asked how many hours a week they spent using

the Internet, and this answer was used as a covariate. Thus, direct experience is noteworthy to study as a moderator of interactivity.

Figure 1 illustrates overall expected relationships defined by this study. As shown in the model, general expectations are predicted for relationships among functional, actual, and perceived interactivity and antecedents and consequences of interactivity. While the overall model holds some interest, of greater concern to this study are potential differential effects of interactivity in the Human-to-Human and Human-to-Computer contexts. Thus, whenever possible, hypothesis testing suggests predicted relationships with a primary focus on these two types of interactivity.

The first two hypotheses examine relationships among types of interactivity and both actual interaction and perceived interactivity (also see Figure 1). The moderating role of experience is also considered.

H1: When functional features employing Human-to-Human (H to H) interaction are introduced, individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience.

H2: When functional features employing Human-to-Computer (H to C) interaction are introduced, individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience.

As illustrated in Figure 1, even within these types of interactivity there are various ways of implementing interactive functions. For Human-to-Human interactivity the focus may be more on facilitating communication among individuals or on enabling communication between the organization and individuals. In the context of Human-to-Computer interactivity, two dominant functions are action/transaction and navigation. In general, experience is expected to moderate actual interaction regardless of the dominant function of interactivity at a Web site.

H 3: For all dominant functions, individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience.

However, the moderating effect of experience may be different for the two different types of interactivity examined in this study. The literature suggests no reason to believe that experience should moderate the two dominant functions of H to H interactivity. The tools and techniques required for communicating with other individuals are virtually identical to those used for communication between the organization and individuals (See Figure 2). However, rather than trying to prove a negative difference, the following hypothesis predicts that a significant difference will occur. If lack of support is found for this hypothesis, then the underlying concept is supported – experience is not an important factor in moderating relationships between actual and perceived interactivity for these two dominant functions of H to H interactivity.

H 3.1: Within the H to H type of interactivity, experience is expected to have a significant moderating effect in actual interaction and perceived interaction between the two dominant functions (individual/individual and organization/individual communication).

By contrast, the two dominant functions examined in the context of H to C interactivity may be more affected by direct experience. Using a Web site to identify a destination site or book a room requires a different type of expertise than does utilizing navigational tools such as site maps and hyperlinks. Direct experience with tourism Web sites is more likely to have a moderating effect on the relationship between actual and perceived interactivity in this context (See Figure 3).

H 3.2: Within the H to C type of interactivity, experience is expected to have a greater moderating effect in actual and perceived interaction for action/transaction dominant functions than for navigation dominant functions.

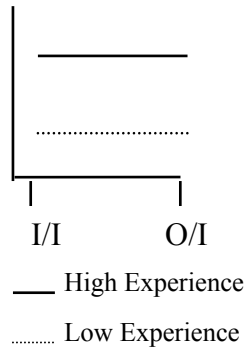


Figure 2 Hypothesis 3.1

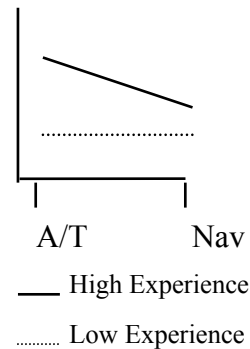


Figure 3 Hypothesis 3.2

Consequences of Interactivity: Trust Perception and Purchase Intention

Persuasion researchers propose that source credibility has important links to trustworthiness. Hovland, Janis, and Kelley (1953) proposed that credibility was affected by two factors: expertise and trustworthiness. Dholakia and Sternthal (1977) found expertise effects in a consumer context. Parasuraman, Zeithaml, and Berry (1985) proposed trustworthiness as a part of credibility, which determines perceptions of service quality. Priester and Petty (1995) found that trustworthiness of the source led to a reduction of message elaboration, especially for those low in need for cognition. Studies demonstrate that trust leads to positive attitudes toward buying (Harmon and Coney 1987) and increased purchase intentions (Harmon and Coney 1982). Further, Lee (2002) found heightened trust perceptions is likely to lead to increased purchase intention in Human to Computer interaction in her dissertation research. Thus, trust perception and purchase intention are noteworthy to study as consequences.

Consequences of Interactivity: Attitude and Purchase Intention

Several researchers found that perceived interactivity has positive influences on attitudes toward the web sites, attitudes toward the brand, and purchase intention (Cho and Leckenby 1999, Wu 2000, Jee and Lee 2001). It is not surprising that attitude toward the site should lead to consequences similar to those found in earlier attitude research that found attitude toward the ad is a good indicator of an ad's effectiveness (Petty, Caioppo, and Schumann 1983; Batra and Ray 1986; MacKenzie, Lutz, and Belch 1986).

Specifically, Wu (2000) found that perceived interactivity did have positive influences on attitudes toward the site, attitudes toward the brand, and purchase intention. Although not directly studying consumers' attitudes toward the site, Ghose and Dou (1998) also found that greater interactivity was an important predictor of experts' evaluation of a web site as a quality one. Further, Yoo and Stout (2001) observed that consumers' "intention to interact" with a web site positively influenced their attitudes toward the web site and purchase intention in their experimental study. Jee and Lee found that interactivity is positively related to attitude toward the site and attitude toward the site is positively related to purchase intention. Thus, heightened attitude toward web site will likely lead to increased intentions to purchase products that are presented in an interactive context. But also, beyond the hierarchy effects of attitude toward web site and purchase intention, the positive relationships between purchase intention and perceived interactivity as well as actual interaction can be suggested. Thus, attitude and purchase intention are noteworthy to study as consequences. Consequently, the following hypotheses are offered for this dissertation research.

The final set of hypotheses examines potential consequences of interactivity as well as potential relationships among the outcome variables. As illustrated in Figure 1, there is an overall expectation that increased actual interaction (using the features that facilitate some form of interactivity) will lead to increased overall perceptions of interactivity.

H4: Heightened actual interaction will lead to increased perceived interactivity among all types of interactivity and all dominant functions.

However, it is possible that this relationship might be different for Human-to-Human and Human-to-Computer types of interactivity. Therefore, this study also tests relationships among actual and perceived interactivity for both types of interactivity and examines possible effects of dominant function on that relationship.

H4.1: Within the H to H type of interactivity, heightened actual interaction will lead to increased perceived interactivity between the two dominant functions (individual/individual and organization/individual communication).

H4.2: Within the H to C type of interactivity, heightened actual interaction will lead to increased perceived interactivity between the two dominant functions (action/transaction and navigation functions).

As illustrated in Figure 1, the overall expectation is that heightened actual interaction will lead to increased purchase intention.

H5: Heightened actual interaction will lead to increased purchase intention among all types of interactivity and all dominant functions.

Again, however, it is important to tease out possible different outcomes for different types of interactivity.

H5.1: Within the H to H type of interactivity, heightened actual interaction will lead to increased purchase intention.

H5.2: Within the H to C type of interactivity, heightened actual interaction will lead to increased perceived interactivity.

The literature has resulted in mixed findings about the relationship between interactivity and positive outcomes. This study is ideally designed to test the relationships among perceived interactivity and positive outcomes such as attitude toward the Web site and trust perception.

H6: Heightened perceived interactivity will lead to increased attitude and increased trust perception among all types of interactivity and all dominant functions.

Perhaps one of the reasons for mixed findings in earlier studies is that they did not differentiate between different types of interactivity. Thus, this study also examines the relationship between perceived interactivity and outcome variables for different types of interactivity.

H6.1: Within the H to H type of interactivity, heightened perceived interactivity will lead to increased attitude and increased trust perception.

H6.2: Within the H to C type of interactivity, heightened perceived interactivity will lead to increased attitude and increased trust perception.

Finally, this study will test the relationship between attitude and trust perception and a key behavioral outcome – purchase intention.

H7: Heightened attitude and trust perception will lead to increased purchase intention among all types of interactivity and all dominant functions.

However, it is important to recognize that purchase intention may not be universally affected by all types of interactivity. Thus it is important to examine the relationship between attitude, perception, and purchase intention in the context of both Human-to-Human and Human-to-Computer interactivity.

H7.1: Within the H to H type of interactivity, heightened attitude and trust perception will lead to increased purchase intention.

H7.2: Within the H to C type of interactivity, heightened attitude and trust perception will lead to increased purchase intention.

Chapter Three Methodology

Sampling

A total of 170 undergraduate students in the United States participated in the study. Participants attended an experimental session in return for extra credit with the permission of instructors for the corresponding courses. Participants were recruited from several different undergraduate courses at a large Southeastern university.

Experiment Design

The experimental design involved four treatment conditions. Two conditions focused on H to H interactivity and employed a 2 (dominant functions: individual/individual, organization/ individual) \times 2 (Experience: high, low) design. Two conditions focused on H to C interactivity and employed a 2 (dominant functions: action/transaction, navigation) \times 2 (Experience: high, low) design. The main hypotheses were tested for both studies. Hypothesis 3.1, 4.1, 5.1, 6.1 and 7.1 were tested only with H to H interactivity and Hypothesis 3.2, 4.2, 5.2, 6.2 and 7.2 were tested only with H to C interactivity.

Interface Development – Manipulating Independent Variables

Four interfaces were developed. Two conditions manipulate independent variables for H to H sites: a site with individual/individual communication functions dominant and one with individual/organization communication functions dominant. Two conditions manipulate independent variables for H to C sites: a

site with action/transaction functions dominant and one with navigation functions dominant.

Content analysis of existing travel Web sites was conducted to find and download sites that meet these conditions. Twenty six state tourism sites were randomly selected from those representing official tourism organizations of the 50 states and the District of Columbia and were analyzed (McMillan et al. 2006). A Tennessee tourism site that showed high frequency of the targeted features of all four functions (i.e. individual/individual, organization/ individual, action/transaction, navigation) was chosen from 26 tourism sites. Four travel-related Web sites for each function were developed by adopting the Tennessee tourism site while the contents and the levels of all the Web sites were maintained as the same.

For two H to H sites, an individual/individual communication functions dominant site and an individual/organization communication functions dominant site were developed by adopting the Tennessee tourism site. The individual/individual communication function dominant site included features that enable communication between an individual and an individual (e.g. send a virtual post card, send this page to a friend). Specifically, features that enable sending a virtual post card and sending email about a web page to a friend were included (at level 1, 2 and 3) in the individual/individual communication functions dominant site. The individual/organization communication function dominant site included features that enable communication between an individual and an organization (e.g. tourism contacts, contact us). Specifically, features for tourism contacts and contact us were included (at level 1, 2 and 3) in the individual/organization

communication functions dominant. Except for the targeted functional features and basic navigational tools, all other functional features were excluded. See Figure 4 and 5.

For two H to C sites, an action/transaction functions dominant site and a navigation functions dominant site were developed by adopting the Tennessee tourism site. The action /transaction functions dominant site included features that allow consumers' activities other than searching information. Specifically, action functions allow users to give information to the computer but do not result in a purchase or other clearly transactional exchange. Transaction functions allow individuals to receive something that has been requested through the Web site. The action/ transaction functions dominant site included features that enable ordering (e.g. order a free travel kit), and actual transactions (e.g. online reservation). Specifically, features that enable ordering a free travel kit (at level 1 and 2) and features for online reservation (at level 1, 2 and 3) were included in the action /transaction functions dominant site. See Figure 6. Except for the targeted functional features and basic navigational tools, all other functional features were excluded.

The navigation functions dominant site included features that allow users to find their way among various elements of the site. The navigation functions dominant site included organizational cues (e.g. menus, drop down boxes), hypertextuality (e.g. hyperlinks that lead to desired content). Specifically, menus (at level 1, 2 and 3) and drop down boxes and hyperlinks (at level 2 and 3) were included in navigation functions dominant site. See Figure 7. Except for the targeted functional features, all other functional features were excluded. Four interfaces are summarized in Table 2.

Table 2 Interface Development by Four Functions

Function	H to H type		H to C type	
	II	OI	TD	ND
	Send a virtual post card, Send this page to a friend	Tourism contacts, Contact us	Features enable ordering (e.g. order a free travel kit), Actual transactions (e.g. online reservation).	Organizational cues (e.g. menus, drop down boxes), Hypertextuality (e.g. hyperlinks that lead to desired content)

* II: Individual and an individual communication,
OI: Individual/organization communication,
TD: Action/Transaction dominant
ND: Navigation dominant

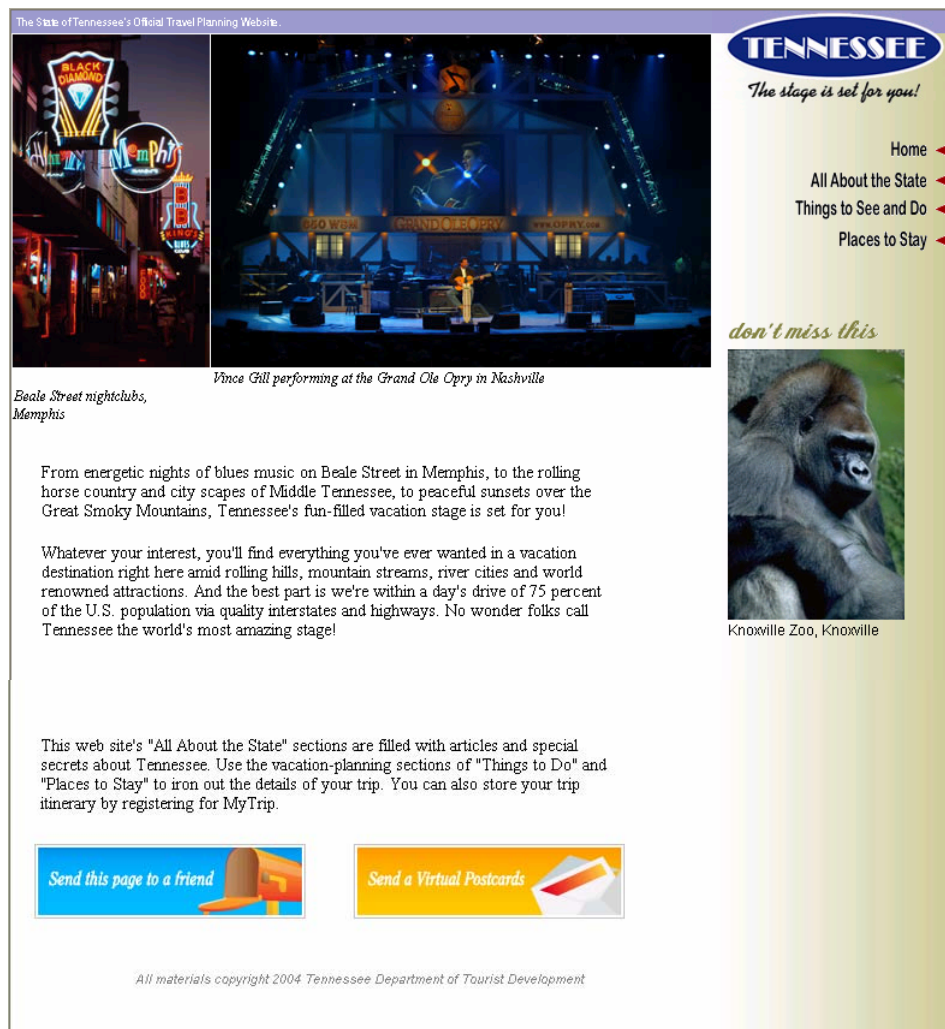


Figure 4 Human-to-Human Individual/ Individual Communication Site

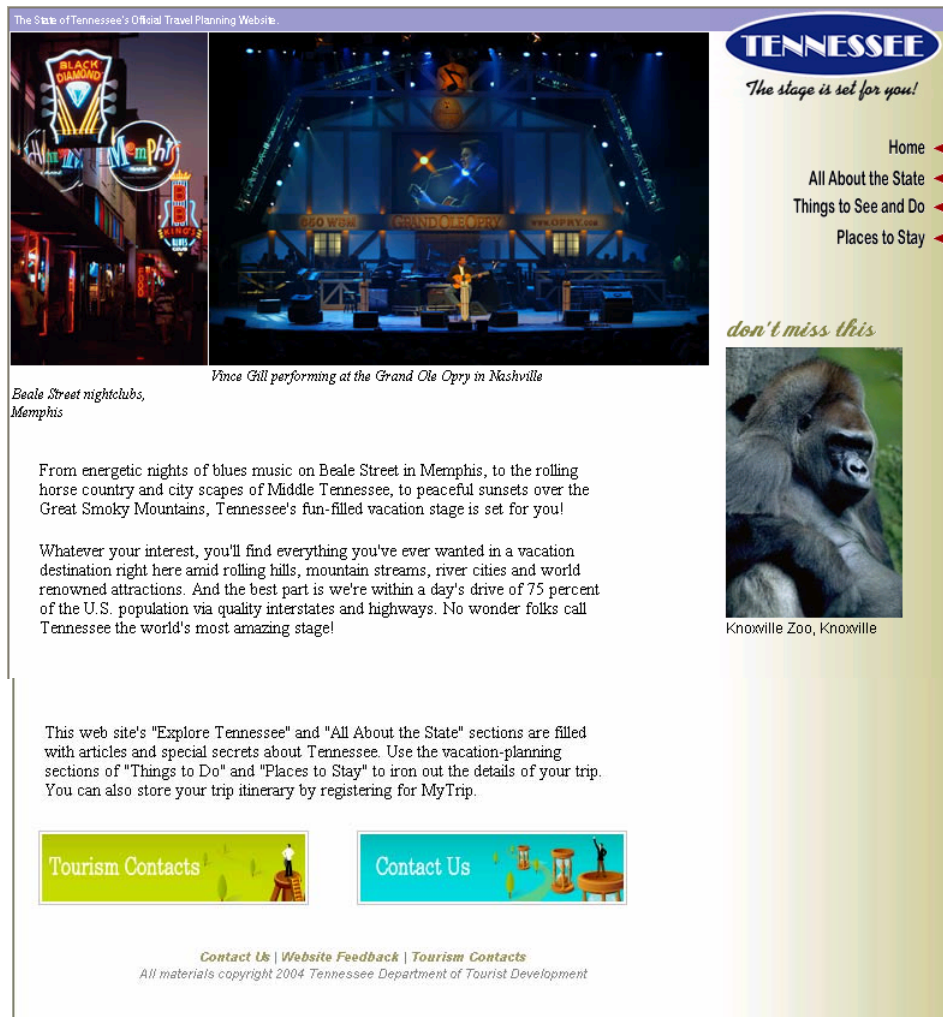





Figure 5 Human-to-Human Individual/ Organization Communication Site

The State of Tennessee's Official Travel Planning Website





Beale Street nightclubs, Memphis

Vince Gill performing at the Grand Ole Opry in Nashville




[Home](#)
[All About the State](#)
[Things to See and Do](#)
[Places to Stay](#)



From energetic nights of blues music on Beale Street in Memphis, to the rolling horse country and city scapes of Middle Tennessee, to peaceful sunsets over the Great Smoky Mountains, Tennessee's fun-filled vacation stage is set for you!

Whatever your interest, you'll find everything you've ever wanted in a vacation destination right here amid rolling hills, mountain streams, river cities and world renowned attractions. And the best part is we're within a day's drive of 75 percent of the U.S. population via quality interstates and highways. No wonder folks call Tennessee the world's most amazing stage!



Click a region of the map to explore all Tennessee has to offer.

This web site's "All About the State" sections are filled with articles and special secrets about Tennessee. Use the vacation-planning sections of "Things to Do" and "Places to Stay" to iron out the details of your trip. You can also store your trip itinerary by registering for MyTrip.

Make an Online Reservation

Places to Stay

Search by Region :

-- Categories --

Go!

Things to Do


Search by Region :

-- Categories --

Go!

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don't miss this



Knoxville Zoo, Knoxville

Figure 6 Human-to-Computer Action/Transaction Dominant Functions Site

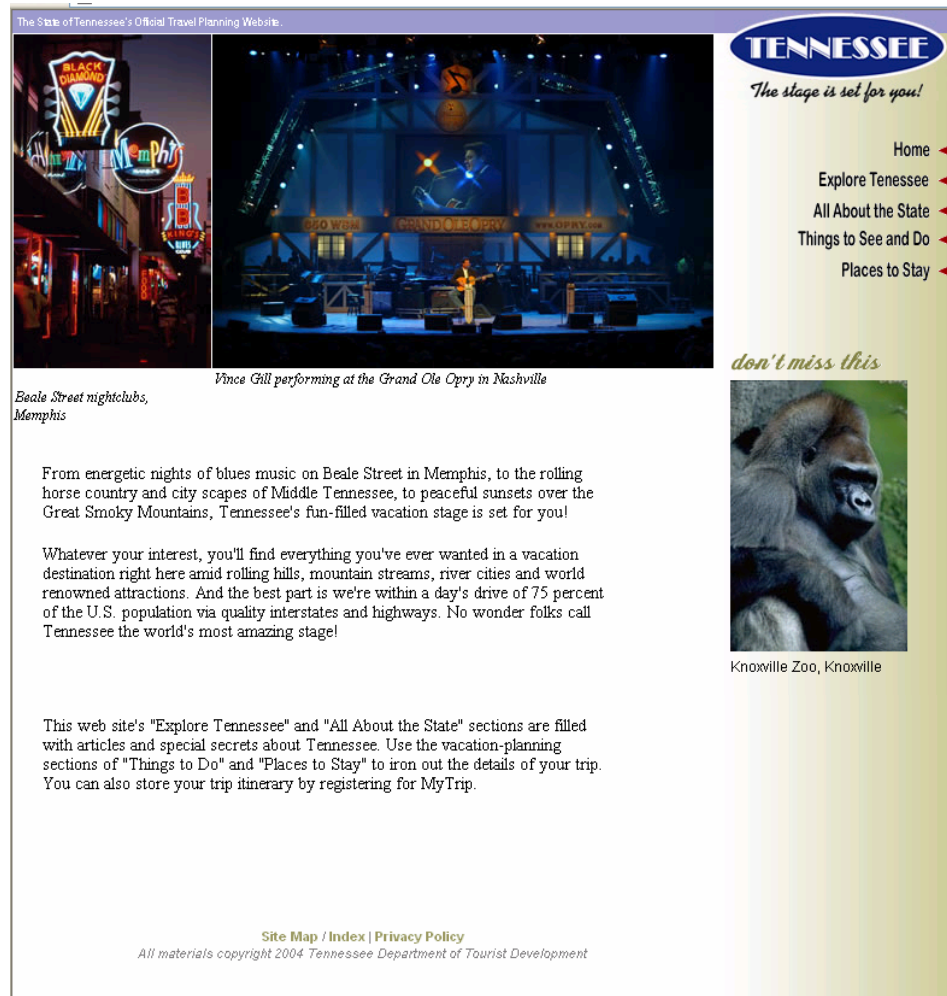


Figure 7 Human-to-Computer Navigation Dominant Functions Site

Moderator: Experience

Experience is operationalized as direct online experience with travel-related Web sites and online shopping experience for travel-related products (e.g. reservations for airlines, hotels). Experience was measured by seven-point Likert scales to indicate participants' agreement or disagreement with the pre-tested experience scales adapted from the existing experience scales (Celly & Frazier, 1996). Celly and Frazier (1996) proposed the experience scales with strong Coefficient alpha (.86) in their study.

A confirmatory factor analysis was performed on the items to measure participants' experience, which revealed that the data were consistent with the posited three-factor model. Responses to items were measured by seven-point Likert scales (1 = strongly disagree, 7 = strongly agree) to indicate participants' agreement or disagreement. Inspection of the factor loadings and errors generated from the discrepancy between the obtained and predicted correlations resulted in inclusion of the items from each of the three scales. Items retained for inclusion in the analysis are identified in Appendix 1. The reliability of the scales was measured by Coefficient alpha and reported in Appendix 1. The scales were found to be reliable with high Coefficient alpha (.94).

Experience was measured by seven-point Likert scales to indicate participants' agreement or disagreement with the pre-tested experience scales by the confirmatory factor analysis and the reliability test. Respondents were asked to rate their direct experience with visiting travel related Web sites and their online shopping experience with travel related products (e.g. book a hotel room, book a flight) through travel related Web sites.

Tertile analysis was used to identify three groups of respondents based on experience level. Those in the top tertile (high experience) and bottom tertile (low experience) were analyzed for hypotheses testing. While middle tertile was used for testing experience scale, it was not used for the hypotheses testing.

Dependent Variables Description

Actual Interaction

Actual interaction is operationalized as actual clicking behaviors and time spent on interactive features by considering participants' choice and input (Heeter, 1989). While several researchers (Cho & Leckenby, 1999) used an indirect method, using a self-reported measure of intention to interact, because it was more practical, the most direct and precise operationalization for the interactivity-as-process conceptualization will be direct measurement of user interactions with the interactive features.

Consequently, in this dissertation research, actual interaction was measured by actual clicking behaviors during the first five minutes on the targeted interactive features. Participants' actual interaction was recorded and measured by Camtasia studio software. The recorded actual interaction was measured by the number of actual clicking behaviors during the first five minutes on the targeted interactive features. Five minutes was selected as the unit of analysis for two reasons. First, during the pre-test five minutes was the minimum amount of time required for the task. Second, the data provided by Camtasia was very dense and there was no additional benefit to be achieved by coding more than five minutes worth of data.

The measurement process of actual interaction is as follow. First, all the activities of respondents during the computer simulation (i.e. actual interaction on the travel related Websites, online survey activity) were recorded by Camtasia studio software. The recorded data set of each respondent had each specific serial number including date and time of the research session.

Second, the recorded actual interaction on the travel related Websites was measured by the number of actual clicking behaviors during the first five minutes on the targeted interactive features. Specifically, in the individual/individual communication function dominant site, actual clicking behaviors on the features that enable communication between an individual and an individual (e.g. send a virtual post card, send this page to a friend) were coded. In the individual/organization communication function dominant site, actual clicking behaviors on the features that enable communication between an individual and an organization (e.g. tourism contacts, contact us).

In the action /transaction functions dominant site, clicking behaviors on the features that enable ordering (e.g. order a free travel kit), and actual transactions (e.g. online reservation) were coded. In the navigation functions dominant site, clicking behaviors on organizational cues (e.g. menus, drop down boxes), hypertextuality (e.g. hyperlinks that lead to desired content).

After completing the coding of actual interaction, the results were included into the main SPSS data set. Input of actual interaction data into the SPSS data set was a critical issue. The serial number of each actual interaction data that present date and time of the research session was used to match each actual interaction data with each

respondent in the SPSS data set. Further, the recorded data set of each respondent had an open-ended question and optional comments. It was double-checked if both open-ended answers and optional comments in the recorded Camtasia data set were exactly matched up with ones in the SPSS data set.

Perceived Interactivity

Perceived interactivity was measured by user evaluations of the interactivity of the evaluated Web site using the Measures of Perceived Interactivity (MPI) developed by McMillan and Hwang (2002). A seven-point Likert-scale was used ranging from "strongly disagree" (1) to "strongly agree" (7). Eighteen items from the Measures of Perceived Interactivity (MPI) in the analysis are identified in Appendix 2. The reliability of the MPI was measured by Coefficient alpha and reported. The scales were found to be reliable with substantial Coefficient alpha (.84).

Trust Perception

Respondents' trust perceptions regarding the interfaces were assessed in three dimensions: benevolence (Ganesan, 1994), competence (Moorman, Zaltman, & Deshpande, 1992), and credibility of information (Ganesan, 1994). A seven-point Likert-scale was used ranging from "strongly disagree" (1) to "strongly agree" (7). Eleven items from the trust perceptions scales in the analysis are identified in Appendix 3. The reliability of the scales was measured by Coefficient alpha and reported. The scales were found to be reliable with high Coefficient alpha (.94).

Attitude

In this study, attitude toward the travel-related Web site means whether the participants like or dislike the travel-related Web site. While some researchers (Chen & Wells, 1999) argued that attitude includes cognitive, affective and behavioral dimensions, most attitude studies proposed attitude toward ad (Aad) simply as whether the participants like or dislike an ad (Petty, Cacioppo, & Schumann 1983; Schumann, Petty, & Clemons, 1990). Thus, attitude toward the travel-related Web sites will be measured by using a seven-point Likert scale (I liked this site/ I had a favorable attitude toward this site) (Schumann et al., 1990). The correlation of the two items was measured (.908**).

Purchase Intention

Purchase intention will be measured with three seven-point semantic differential scales (likely/ unlikely, probable/ improbable, possible/ impossible) (MacKenzie, Lutz, & Belch, 1986). The reliability of scales was measured by Coefficient alpha and reported. The scales were found to be reliable with high Coefficient alpha (.95).

Procedure

Potential respondents were given an online individual difference survey to measure experience before the actual experiment. Participants were randomly assigned to one of the four treatments.

After reading instructions on the screen, the computer simulation took about 10 to 15 minutes for most of the participants. All subjects first read a scenario on the screen, and then looked at the assigned travel site. A scenario presented that a

participant's friend will visit Tennessee during Spring break and has asked the participant to help plan the trip. The scenario is provided in Appendix 4. Then, respondents looked at one assigned travel site for about 10 to 15 minutes. Subjects were reminded to interact with every component of the test site. Two types of analysis were done to determine task completion. First, each Camtasia recording was briefly examined to make sure that participants actually did examine most of the portions of the Web site that was presented to them. Most participants did fully explore the site to which they had been assigned. Second, the open-ended comments in the survey document were examined for any comments that might have revealed either frustrations or successes in task completion. Comments generally indicated that participants had "found" the information as required in the scenario and very few comments were posted about any frustrations with the Web sites.

After interacting with the site, respondents were provided with an online survey to be completed containing questionnaire items measuring perceived interactivity, trust perceptions, attitude and purchase intention. They worked through the online survey at their own pace and responded to the dependent measures.

Chapter Four Results

Manipulation Checks

Before the main experiment, the manipulated travel sites were pretested on 26 undergraduate students. For the manipulation checks, participants were asked if there were any interactive feature in the four different travel web sites. Further, participant's actual interaction was recorded and measured by Camtasia studio software. The recorded data were analyzed to determine if participants actually clicked the targeted functional features in each function dominant site. In the pretest, participants recognized the targeted functional features and actually clicked the targeted features in each function dominant site.

A series of MANOVAs was conducted to evaluate the manipulations. All the analyses revealed at least partially significant results in the expected direction.

During the pre-test, checks were also done to determine whether experience was having the expected relationships with both actual and perceived interactivity. When introduced to different types of interactivity - H to H and H to C (H1 and H2, respectively), individuals with high experience were expected to display higher actual interaction and higher perceived interaction than individuals with low experience. The results showed a significant effect of types of interactivity (Wilks's lambda = .23, $F = 21.769$, $p = .000$). When exposed to types of interactivity - H to H and H to C, individuals with high experience displayed higher actual interaction ($F = 42.921$, p

= .000) than individuals with low experience. But, the effect of types of interactivity on perceived interactivity was not significant ($F = .654$, $p = .432$).

Second, the pretest examined the relationships between experience and dominant interactive functions (e.g. action/transaction, communication between the organization and individuals). The results showed the significant effect of functions of interactivity (Wilks's lambda = .163, $F = 4.431$, $p = .006$). When exposed to dominant functions, individuals with high experience displayed higher actual interaction ($F = 13.679$, $p = .001$). But, the effect of functions on perceived interactivity was not significant ($F = .587$, $p = .637$). Overall analyses revealed at least partial significant results in the expected direction with the significant effects of both types and functions of interactivity. Thus, all of the manipulations were noticed by respondents and showed the significant effects.

Results

Effects of Types of Interactivity and Experience

The first two hypotheses examine relationships among types of interactivity (i.e. H to H, H to C) and both actual interaction and perceived interactivity. The moderating role of experience is also considered. It was hypothesized that when introduced to types of interactivity - H to H and H to C (H1 and H2, respectively), individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience.

Descriptive statistics illustrate both actual and perceived interactivity for both of the types of interactivity examined in this study. Clearly, participants were more

likely to use the interactive functions in the H to C condition. One-way analysis of variance was conducted for each of the dependent variables, actual interaction and perceived interactivity with the independent variable for each type of interactivity. The means and significance tests are summarized in Table 3. When introduced to both types of interactivity - H to H and H to C, individuals with high experience displayed higher actual interaction than individuals with low experience. But, the mean difference was not statistically significant.

To further test hypotheses 1 and 2, multivariate analysis of variance (MANOVA) was used to determine the main and interaction effects on actual interaction and perceived interactivity. The results showed significant main effects of types of interactivity (Wilks's lambda = .63, $F = 32.86$, $p = .000$) with no interaction effect. The effect of experience as a moderator was not significant (Wilks's lambda = .97, $F = 1.514$, $p = .225$). The results of MANOVA are presented in Table 4. Consequently, H1 and H2 were not supported.

The multivariate analysis of variance (MANOVA) of types of interactivity showed a substantial main effect on actual interaction ($F = 65.29$, $p = .000$). But, the main effect on perceived interactivity was not significant ($F = .059$, $p = .808$). This suggests that there is a significant relationship between type of interactivity and the number of actual interactions that participants use (with the stronger likelihood being to interact with H to C sites). But these higher actual interactions did not result in higher perceived interactivity. The results of the MANOVA are presented in Table 5.

Table 3 Descriptive Statistics for Dependent Variables by Types of Interactivity

Types	H to H		H to C	
	High	Low	High	Low
Actual	M=.42	M=.08	M=8.55	M=5.92
Interaction	SD=.97	SD=.49	SD=7.98	SD=3.92
Perceived	M=4.61	M=4.59	M=4.53	M=4.60
Interactivity	SD=.76	SD=.74	SD=.84	SD=.73

Means are not significantly different.

Table 4 Tests of Effects of Effects of Independent Variable and Moderator - Types of Interactivity and Experience 1

Multivariate Tests ^b						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.972	1978.690 ^a	2.000	113.000	.000
	Wilks' Lambda	.028	1978.690 ^a	2.000	113.000	.000
	Hotelling's Trace	35.021	1978.690 ^a	2.000	113.000	.000
	Roy's Largest Root	35.021	1978.690 ^a	2.000	113.000	.000
Type	Pillai's Trace	.368	32.862 ^a	2.000	113.000	.000
	Wilks' Lambda	.632	32.862 ^a	2.000	113.000	.000
	Hotelling's Trace	.582	32.862 ^a	2.000	113.000	.000
	Roy's Largest Root	.582	32.862 ^a	2.000	113.000	.000
Experience	Pillai's Trace	.026	1.514 ^a	2.000	113.000	.225
	Wilks' Lambda	.974	1.514 ^a	2.000	113.000	.225
	Hotelling's Trace	.027	1.514 ^a	2.000	113.000	.225
	Roy's Largest Root	.027	1.514 ^a	2.000	113.000	.225
Type * Experience	Pillai's Trace	.017	.975 ^a	2.000	113.000	.380
	Wilks' Lambda	.983	.975 ^a	2.000	113.000	.380
	Hotelling's Trace	.017	.975 ^a	2.000	113.000	.380
	Roy's Largest Root	.017	.975 ^a	2.000	113.000	.380

a. Exact statistic

b. Design: Intercept+Type+Experience+Type * Experience

Table 5 Tests of Effects of Independent Variable and Moderator - Types of Interactivity and Experience 2

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Actual Interaction	1636.013 ^a	3	545.338	25.683	.000
	Perceived Interactivity	.124 ^b	3	.041	.069	.976
Intercept	Actual Interaction	1591.016	1	1591.016	74.930	.000
	Perceived Interactivity	2388.398	1	2388.398	3984.969	.000
Type	Actual Interaction	1386.315	1	1386.315	65.289	.000
	Perceived Interactivity	.035	1	.035	.059	.808
Experience	Actual Interaction	62.472	1	62.472	2.942	.089
	Perceived Interactivity	.018	1	.018	.029	.864
Type * Experience	Actual Interaction	37.386	1	37.386	1.761	.187
	Perceived Interactivity	.064	1	.064	.107	.744
Error	Actual Interaction	2420.605	114	21.233		
	Perceived Interactivity	68.326	114	.599		
Total	Actual Interaction	5675.000	118			
	Perceived Interactivity	2542.475	118			
Corrected Total	Actual Interaction	4056.619	117			
	Perceived Interactivity	68.450	117			

a. R Squared = .403 (Adjusted R Squared = .388)

b. R Squared = .002 (Adjusted R Squared = -.024)

Effects of Dominant Functions and Experience

The next set of hypotheses examined relationships among all dominant functions and both actual interaction and perceived interactivity. The moderating role of experience was also considered. H3 hypothesized that when introduced to all dominant functions, individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience.

Table 6 provides descriptive statistics that illustrate both actual and perceived interactivity for all dominant functions within both H to H and H to C types of interactivity examined in this study. Clearly, participants with high experience were more likely to use the all dominant functions than participants with low experience. One-way analysis of variance was conducted for each of the dependent variables, actual interaction and perceived interactivity with the independent variable for all functions of interactivity. The means and significance tests are summarized in Table 6. When introduced to all dominant functions, individuals with high experience displayed higher actual interaction than individuals with low experience with significant mean difference. But the effect on perceived interactivity was not significant. H3 was partially supported.

Table 6 Descriptive Statistics for Dependent Variables by All Functions of Interactivity

Functions	All Functions	
	High	Low
Actual Interaction	M=5.12 * (SD=7.29)	M=2.38 * (SD= 3.78)
Perceived Interactivity	M=4.56 (SD=.80)	M=4.6 (SD=.73)

Means are significantly different at $p < .05$.

To further test hypotheses 3, the multivariate analysis of variance (MANOVA) was used to determine the main and interaction effects of all dominant functions and experience on actual interaction and perceived interactivity. The results for H3 showed significant interaction effects of all dominant functions and experience (Wilks's lambda = .85, $F = 3.05$, $p = .007$), with the substantial effect of dominant functions (Wilks's lambda = .60, $F = 10.49$, $p = .000$). See Table 7.

The multivariate analysis of variance of experience by all dominant functions showed a substantial interaction effect of experience by all dominant functions on Actual interaction ($F = 5.72$, $p = .001$). However, interaction effect on perceived interactivity was not significant ($F = .799$, $p = .497$). The results of MANOVA are presented in Table 8. Consequently, H3 was partially supported.

Table 7 Tests of Effects of All Dominant Functions and Experience 1

Multivariate Tests ^c						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.973	1973.081 ^a	2.000	109.000	.000
	Wilks' Lambda	.027	1973.081 ^a	2.000	109.000	.000
	Hotelling's Trace	36.203	1973.081 ^a	2.000	109.000	.000
	Roy's Largest Root	36.203	1973.081 ^a	2.000	109.000	.000
Function	Pillai's Trace	.403	9.244	6.000	220.000	.000
	Wilks' Lambda	.602	10.493 ^a	6.000	218.000	.000
	Hotelling's Trace	.653	11.757	6.000	216.000	.000
	Roy's Largest Root	.641	23.500 ^b	3.000	110.000	.000
Experience	Pillai's Trace	.032	1.809 ^a	2.000	109.000	.169
	Wilks' Lambda	.968	1.809 ^a	2.000	109.000	.169
	Hotelling's Trace	.033	1.809 ^a	2.000	109.000	.169
	Roy's Largest Root	.033	1.809 ^a	2.000	109.000	.169
Function * Experience	Pillai's Trace	.150	2.971	6.000	220.000	.008
	Wilks' Lambda	.851	3.050 ^a	6.000	218.000	.007
	Hotelling's Trace	.174	3.127	6.000	216.000	.006
	Roy's Largest Root	.167	6.107 ^b	3.000	110.000	.001

^a. Exact statistic

^b. The statistic is an upper bound on F that yields a lower bound on the significance level.

^c. Design: Intercept+Function+Experience+Function * Experience

Table 8 Tests of Effects of All Dominant Functions and Experience 2

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Action	1932.453 ^a	7	276.065	14.296	.000
	Perceived Interactivity	2.415 ^b	7	.345	.575	.775
Intercept	Action	1518.673	1	1518.673	78.645	.000
	Perceived Interactivity	2370.313	1	2370.313	3948.415	.000
Function	Action	1353.163	3	451.054	23.358	.000
	Perceived Interactivity	.847	3	.282	.470	.704
Experience	Action	69.514	1	69.514	3.600	.060
	Perceived Interactivity	.011	1	.011	.018	.894
Function * Experience	Action	331.603	3	110.534	5.724	.001
	Perceived Interactivity	1.438	3	.479	.799	.497
Error	Action	2124.166	110	19.311		
	Perceived Interactivity	66.035	110	.600		
Total	Action	5675.000	118			
	Perceived Interactivity	2542.475	118			
Corrected Total	Action	4056.619	117			
	Perceived Interactivity	68.450	117			

a. R Squared = .476 (Adjusted R Squared = .443)

b. R Squared = .035 (Adjusted R Squared = -.026)

H3.1 hypothesized that within the H to H type of interactivity that experience is expected to have a significant moderating effect in actual interaction and perceived interaction between the two dominant functions (individual/individual and organization/individual communication).

Table 9 provides descriptive statistics that illustrate both actual and perceived interactivity for two dominant functions within H to H type of interactivity examined in this study. Within H to H type of interactivity, participants with high experience were more likely to use two dominant functions than participants with low experience. The one-way analysis of variance was conducted for each of the dependent variables, actual interaction and perceived interactivity with the independent variable for each function (i.e. OI, II) of H to H interactivity. The means and significance tests are summarized in Table 9.

Table 9 Descriptive statistics for Dependent Variables by each function of H to H Interactivity

Types		H to H			
Functions		OI		II	
Experience		High	Low	High	Low
Actual	M=.62	M=.16	M=.18	M=.00	
Interaction	SD=1.19	SD= .69	SD=.60	SD=.00	
Perceived	M=4.67	M=4.74	M=4.54	M=4.43	
Interactivity	SD=.70	SD= .81	SD=.76	SD=.72	

Means are not significantly different.

Within the H to H type of interactivity, experience did not show a significant moderating effect in actual interaction and perceived interaction between the two dominant functions. Individuals with high experience displayed higher actual interaction than individuals with low experience. But, mean difference was not statistically significant (see Table 9). Consequently, H3.1 was not supported.

To further test hypotheses 3.1, the multivariate analysis of variance (MANOVA) was used to determine the moderating effect of experience in actual interaction and perceived interaction between the two dominant functions within H to H type of interactivity.

Within the H to H type of interactivity, experience did not show a significant moderating effect in actual interaction or perceived interaction between the two dominant functions (experience: Wilks's lambda = .95, $F = 1.45$, $p = .242$). The results of MANOVA are presented in Table 10 and 11 (also, see Figure 8 and 9). Consequently, H3.1 was not supported.

Table 10 Within H to H, Tests of Effects of Dominant Functions and Experience 1

Multivariate Tests ^b						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.975	1112.916 ^a	2.000	56.000	.000
	Wilks' Lambda	.025	1112.916 ^a	2.000	56.000	.000
	Hotelling's Trace	39.747	1112.916 ^a	2.000	56.000	.000
	Roy's Largest Root	39.747	1112.916 ^a	2.000	56.000	.000
Function	Pillai's Trace	.052	1.538 ^a	2.000	56.000	.224
	Wilks' Lambda	.948	1.538 ^a	2.000	56.000	.224
	Hotelling's Trace	.055	1.538 ^a	2.000	56.000	.224
	Roy's Largest Root	.055	1.538 ^a	2.000	56.000	.224
Experience	Pillai's Trace	.049	1.454 ^a	2.000	56.000	.242
	Wilks' Lambda	.951	1.454 ^a	2.000	56.000	.242
	Hotelling's Trace	.052	1.454 ^a	2.000	56.000	.242
	Roy's Largest Root	.052	1.454 ^a	2.000	56.000	.242
Function * Experience	Pillai's Trace	.017	.474 ^a	2.000	56.000	.625
	Wilks' Lambda	.983	.474 ^a	2.000	56.000	.625
	Hotelling's Trace	.017	.474 ^a	2.000	56.000	.625
	Roy's Largest Root	.017	.474 ^a	2.000	56.000	.625

a. Exact statistic

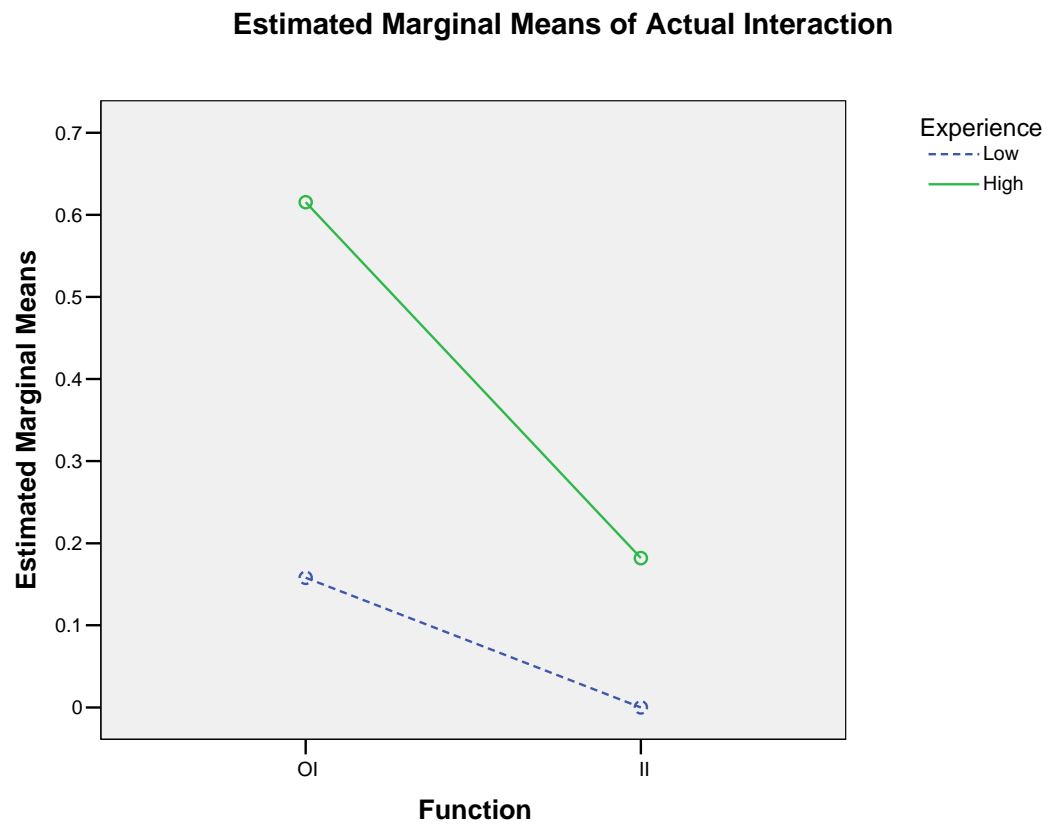
b. Design: Intercept+Function+Experience+Function * Experience

Table 11 Within H to H, Tests of Effects of Dominant Functions and Experience 2

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Actual Interaction	1932.453 ^a	7	276.065	14.296	.000
	Perceived Interactivity	2.415 ^b	7	.345	.575	.775
Intercept	Actual Interaction	1518.673	1	1518.673	78.645	.000
	Perceived Interactivity	2370.313	1	2370.313	3948.415	.000
Function	Actual Interaction	1353.163	3	451.054	23.358	.000
	Perceived Interactivity	.847	3	.282	.470	.704
Experience	Actual Interaction	69.514	1	69.514	3.600	.060
	Perceived Interactivity	.011	1	.011	.018	.894
Function * Experience	Actual Interaction	331.603	3	110.534	5.724	.001
	Perceived Interactivity	1.438	3	.479	.799	.497
Error	Actual Interaction	2124.166	110	19.311		
	Perceived Interactivity	66.035	110	.600		
Total	Actual Interaction	5675.000	118			
	Perceived Interactivity	2542.475	118			
Corrected Total	Actual Interaction	4056.619	117			
	Perceived Interactivity	68.450	117			

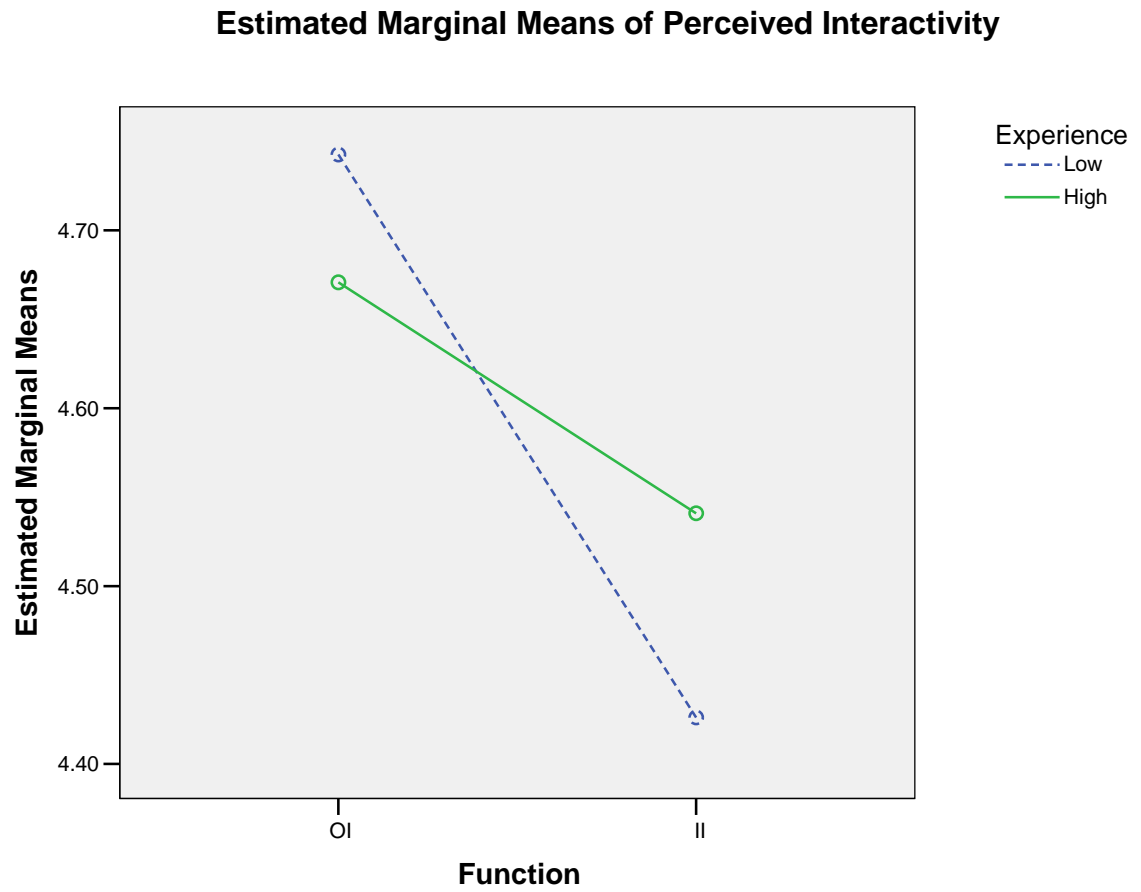
a. R Squared = .476 (Adjusted R Squared = .443)

b. R Squared = .035 (Adjusted R Squared = -.026)



* OI=organization/individual communication; II=individual/individual communication

Figure 8 Within H to H, Actual Interaction



* OI=organization/individual communication; II=individual/individual communication

Figure 9 Within H to H, Perceived Interactivity

H3.2 hypothesized that within the H to C type of interactivity, experience is expected to have a greater moderating effect in actual and perceived interaction for action/transaction dominant functions than for navigation dominant functions.

Table 12 provides descriptive statistics that illustrate both actual and perceived interactivity for two dominant functions within H to C type of interactivity examined in this study. The one-way analysis of variance was conducted for each of the dependent variables, actual interaction and perceived interactivity with the independent variable for each function (i.e. TD, ND) of H to C interactivity. The means and significance tests are summarized in Table 12.

Within the H to C type of interactivity, experience showed a greater moderating effect in actual interaction for action/transaction dominant functions than for navigation dominant functions. For action/transaction dominant functions, individuals with high experience displayed higher actual interaction than individuals with low experience with significant mean difference while for navigation dominant functions individuals with low experience displayed higher actual interaction than individuals with high experience with insignificant mean difference. The moderating effect of experience in perceived interactivity was not significant. H3.2 was partially supported.

To further test hypotheses 3.2, the multivariate analysis of variance (MANOVA) was used to determine the moderating effect of experience in actual interaction and perceived interaction between the two dominant functions within H to C type of interactivity. Within the H to C type of interactivity, the results showed significant interaction effects of two dominant functions and experience (Wilks's lambda = .96, $F = 2.28$, $p = .035$).

Table 12 Descriptive statistics for Dependent Variables by each function of H to C Interactivity

Types		H to C		
Functions	TD		ND	
Experience	High	Low	High	Low
Actual Interaction	M=8.55** SD=8.35	M=2.82** SD=1.78	M=6.75 SD=7.38	M=8.54 SD=3.26
Perceived Interactivity	M=4.64 SD=.76	M=4.4 SD=.97	M=4.41 SD=.45	M=4.77 SD=.93

** Means are significantly different at $p < .01$

The multivariate analysis of variance of experience by dominant functions showed a significant interaction effect of experience by all dominant functions on actual interaction ($F = 38.17, p = .000$). Further, Figure 10 showed a substantial interaction effect of experience by two dominant functions (action/transaction and navigation) on actual interaction. But, interaction effect on Perceived Interactivity was not significant ($F = 13.01, p = .000$). See Figure 11. The results of MANOVA are presented in Table 13 and Table 14. Consequently, H3.2 was partially supported.

The final set of hypotheses examines potential consequences of interactivity as well as potential relationships among the outcome variables. H4 hypothesized the relationship between actual interaction and perceived interactivity. H5 hypothesized the relationship between actual interaction and purchase intention. H6 hypothesized that the relationship between perceived interactivity and attitude as well as trust perception. H7 hypothesized that the relationship between attitude as well as trust perception and purchase intention.

Table 13 Within H to C, Tests of Effects of Dominant Functions and Experience 1

Multivariate Tests ^b						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.972	890.611 ^a	2.000	52.000	.000
	Wilks' Lambda	.028	890.611 ^a	2.000	52.000	.000
	Hotelling's Trace	34.254	890.611 ^a	2.000	52.000	.000
	Roy's Largest Root	34.254	890.611 ^a	2.000	52.000	.000
Function	Pillai's Trace	.010	.256 ^a	2.000	52.000	.775
	Wilks' Lambda	.990	.256 ^a	2.000	52.000	.775
	Hotelling's Trace	.010	.256 ^a	2.000	52.000	.775
	Roy's Largest Root	.010	.256 ^a	2.000	52.000	.775
Experience	Pillai's Trace	.052	1.420 ^a	2.000	52.000	.251
	Wilks' Lambda	.948	1.420 ^a	2.000	52.000	.251
	Hotelling's Trace	.055	1.420 ^a	2.000	52.000	.251
	Roy's Largest Root	.055	1.420 ^a	2.000	52.000	.251
Function * Experience	Pillai's Trace	.146	4.439 ^a	2.000	52.000	.017
	Wilks' Lambda	.854	4.439 ^a	2.000	52.000	.017
	Hotelling's Trace	.171	4.439 ^a	2.000	52.000	.017
	Roy's Largest Root	.171	4.439 ^a	2.000	52.000	.017

a. Exact statistic

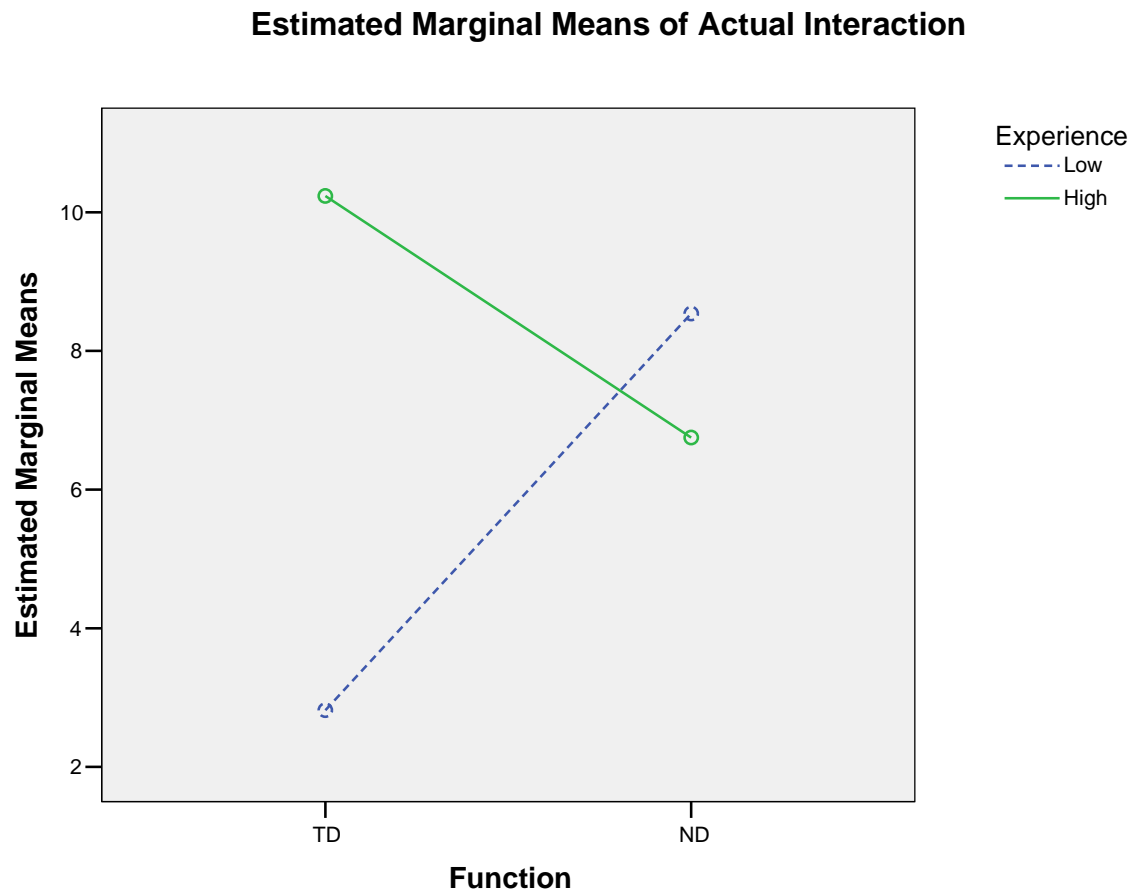
b. Design: Intercept+Function+Experience+Function * Experience

Table 14 Within H to C, Tests of Effects of Dominant Functions and Experience 2

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Actual Interaction	391.109 ^a	3	130.370	3.298	.027
	Perceived Interactivity	1.337 ^b	3	.446	.688	.563
Intercept	Actual Interaction	2777.969	1	2777.969	70.280	.000
	Perceived Interactivity	1148.149	1	1148.149	1772.008	.000
Function	Actual Interaction	17.275	1	17.275	.437	.511
	Perceived Interactivity	.066	1	.066	.102	.751
Experience	Actual Interaction	109.566	1	109.566	2.772	.102
	Perceived Interactivity	.051	1	.051	.078	.781
Function * Experience	Actual Interaction	293.069	1	293.069	7.414	.009
	Perceived Interactivity	1.258	1	1.258	1.942	.169
Error	Actual Interaction	2094.926	53	39.527		
	Perceived Interactivity	34.341	53	.648		
Total	Actual Interaction	5640.000	57			
	Perceived Interactivity	1220.366	57			
Corrected Total	Actual Interaction	2486.035	56			
	Perceived Interactivity	35.678	56			

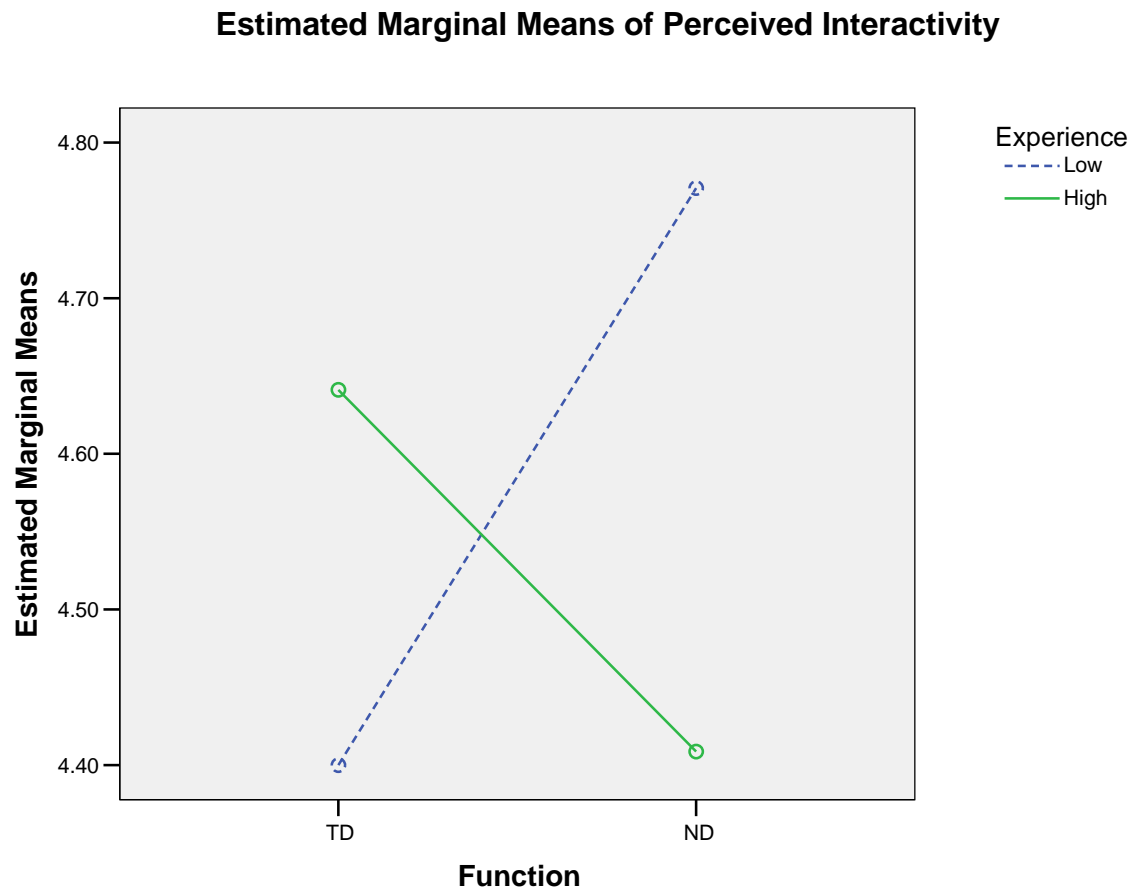
a. R Squared = .157 (Adjusted R Squared = .110)

b. R Squared = .037 (Adjusted R Squared = -.017)



* TD = transaction dominant; ND= navigation dominant

Figure 10 Within H to C, Actual Interaction



* TD = transaction dominant function; ND= navigation dominant function

Figure 11 Within H to C, Perceived Interactivity

Actual Interaction and Perceived Interactivity

H4 hypothesized that heightened actual interaction will lead to increased perceived interactivity among all types of interactivity and all dominant functions. Linear regression was used to examine the relationship between actual interaction and perceived interactivity among all types of interactivity and all dominant functions. The results of linear regression showed that the effect of actual interaction on perceived interactivity was not significant ($\beta = .007$, $t = .563$, $p = .574$). See Table 15. H4 was not supported.

H4.1 hypothesized that within the H to H type of interactivity, heightened actual interaction will lead to increased perceived interactivity between the two dominant functions (individual/individual and organization/individual communication). Within the H to H type of interactivity, correlation analysis was conducted to examine the relationships between actual interaction and perceived interactivity between the two dominant functions (individual/individual and organization/individual communication). The correlations were not significant in individual/individual functions (.344) and individual/organization (.187) functions. See Table 16. Also, linear regression was used to examine the relationship between actual interaction and perceived interactivity. The results of linear regression showed that the effect of actual interaction on perceived interactivity was not significant in individual/individual functions ($\beta = .679$, $t = 1.906$, $p = .067$) and individual/organization ($\beta = .147$, $t = 1.04$, $p = .307$). See Table 17. Thus, H4.1 was not supported. It is noteworthy that one of the reasons for the lack of significance for H to H communication might be the relatively low use of those features. But it may also be that there is a “disconnect” between this type of interactive functions and how individuals perceive interactivity.

Table 15 Regression – Actual Interaction and Perceived Interactivity

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.187	1	.187	.318	.574 ^a
	Residual	68.263	116	.588		
	Total	68.450	117			

a. Predictors: (Constant), Actual Interaction

b. Dependent Variable: Perceived Interactivity

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	4.554	.084		54.519
	Actual Interaction	.007	.012	.052	.563

a. Dependent Variable: Perceived Interactivity

Table 16 Within H to H, Correlations – Actual Interaction and Perceived Interactivity

Correlations				
Function			Actual Interaction	Perceived Interactivity
OI	Actual Interaction	Pearson Correlation	1	.187
		Sig. (2-tailed)		.307
		N	32	32
	Perceived Interactivity	Pearson Correlation	.187	1
		Sig. (2-tailed)	.307	
		N	32	32
II	Actual Interaction	Pearson Correlation	1	.344
		Sig. (2-tailed)		.067
		N	29	29
	Perceived Interactivity	Pearson Correlation	.344	1
		Sig. (2-tailed)	.067	
		N	29	29

Table 17 Within H to H, Regression – Actual Interaction and Perceived Interactivity

ANOVA ^b							
Function	Model		Sum of Squares	df	Mean Square	F	Sig.
OI	1	Regression	.586	1	.586	1.082	.307 ^a
		Residual	16.242	30	.541		
		Total	16.827	31			
II	1	Regression	1.778	1	1.778	3.632	.067 ^a
		Residual	13.219	27	.490		
		Total	14.997	28			

a. Predictors: (Constant), Actual Interaction

b. Dependent Variable: Perceived Interactivity

Coefficients ^a							
Function	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
OI	1	(Constant)	4.663	.139		33.592	.000
		Actual Interaction	.147	.141	.187	1.040	.307
II	1	(Constant)	4.423	.132		33.448	.000
		Actual Interaction	.679	.356	.344	1.906	.067

a. Dependent Variable: Perceived Interactivity

H4.2 hypothesized that within the H to C type of interactivity, heightened actual interaction will lead to increased perceived interactivity between the two dominant functions (action/transaction and navigation functions). Within the H to C type of interactivity, the results of correlation analysis showed that the correlations between actual interaction and perceived interactivity were significant in action/transaction functions (.613 **) and the navigation functions (-.607 **). See Table 18. Then, linear regression was used to examine the relationship between actual interaction and perceived interactivity in each action/transaction and the navigation function. The results of linear regression showed that the effect of actual interaction on perceived interactivity was significant in action/transaction functions ($\beta=.613$, $t=3.952$, $p=.001$) and the navigation functions ($\beta=-.607$, $t=-3.968$, $p=.000$). It means that heightened actual interaction led to increased perceived interactivity while in the navigation functions, heightened actual interaction led to decrease perceived interactivity. See Table 19. H4.2 was supported.

Table 18 Within H to C, Correlations – Actual Interaction and Perceived Interactivity

Correlations				
Function			Actual Interaction	Perceived Interactivity
TD	Actual Interaction	Pearson Correlation	1	.613**
		Sig. (2-tailed)		.001
		N	28	28
	Perceived Interactivity	Pearson Correlation	.613**	1
		Sig. (2-tailed)	.001	
		N	28	28
ND	Actual Interaction	Pearson Correlation	1	-.607**
		Sig. (2-tailed)		.000
		N	29	29
	Perceived Interactivity	Pearson Correlation	-.607**	1
		Sig. (2-tailed)	.000	
		N	29	30

** . Correlation is significant at the 0.01 level (2-tailed).

Table 19 Within H to C, Regression – Actual Interaction and Perceived Interactivity

ANOVA ^b							
Function	Model		Sum of Squares	df	Mean Square	F	Sig.
TD	1	Regression	7.209	1	7.209	15.618	.001 ^a
		Residual	12.000	26	.462		
		Total	19.209	27			
ND	1	Regression	6.063	1	6.063	15.745	.000 ^a
		Residual	10.397	27	.385		
		Total	16.460	28			

a. Predictors: (Constant), Action

b. Dependent Variable: Perceived Interactivity

Coefficients ^a						
Function	Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
			B	Std. Error	Beta	
TD	1	(Constant)	4.042	.181		.000
		Actual Interaction	.069	.017	.613	.001
ND	1	(Constant)	5.169	.190		.000
		Actual Interaction	-.079	.020	-.607	.000

a. Dependent Variable: Perceived Interactivity

Actual Interaction and Purchase Intention

H5 hypothesized that heightened actual interaction will lead to increased purchase intention among all types of interactivity and all dominant functions. Linear regression was used to examine the relationships between actual interaction and purchase intention. The results of linear regression showed that the effect of actual interaction on purchase intention was not significant ($\beta=.143$, $t=1.56$, $p=.121$). See Table 20. Consequently, H5 was not supported.

H5.1 hypothesized within the H to H type of interactivity, heightened actual interaction will lead to increased purchase intention. Linear regression was used to examine the relationships between actual interaction and purchase intention. The results of linear regression showed that the effect of actual interaction on purchase intention was not significant ($\beta=-.029$, $t=-.128$, $p=.898$). See Table 21. Consequently, H5.1 was not supported.

H5.2 hypothesized within the H to C type of interactivity, heightened actual interaction will lead to increased perceived interactivity. Linear regression was used to examine the relationships between actual interaction and purchase intention. The results of linear regression showed that the effect of actual interaction on purchase intention was not significant ($\beta=.036$, $t=1.055$, $p=.296$). See Table 21. Consequently, H5.2 was not supported. Thus, the effect of actual interaction on purchase intention was not significant among each dominant function within H to H and H to C types of interactivity.

Table 20 Action and Purchase Intention

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.430	1	5.430	2.435	.121 ^a
	Residual	258.681	116	2.230		
	Total	264.111	117			

a. Predictors: (Constant), Action

b. Dependent Variable: PI

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	4.195	.163		25.800	.000
	Actual Interaction	.037	.023	.143	1.560	.121

a. Dependent Variable: PI

Table 21 Within H to H and H to C, Action and Purchase Intention

ANOVA ^b							
Type	Model		Sum of Squares	df	Mean Square	F	Sig.
H to H	1	Regression	.027	1	.027	.017	.898 ^a
		Residual	95.787	59	1.624		
		Total	95.814	60			
H to C	1	Regression	3.291	1	3.291	1.112	.296 ^a
		Residual	162.751	55	2.959		
		Total	166.042	56			

a. Predictors: (Constant), Actual Interaction

b. Dependent Variable: PI

Coefficients ^a							
Type	Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
			B	Std. Error	Beta	t	
H to H	1	(Constant)	4.203	.170		24.723	.000
		Actual Interaction	-.029	.224	-.017	-.128	.898
H to C	1	(Constant)	4.203	.343		12.247	.000
		Actual Interaction	.036	.035	.141	1.055	.296

a. Dependent Variable: PI

Perceived Interactivity and Consequences - Attitude, Trust Perceptions, Purchase Intention

H6 hypothesized that heightened perceived interactivity will lead to increased positive attitude and increased trust perception among all types of interactivity and all dominant functions. Linear regression was used to examine the relationships between perceived interactivity and consequences, attitude and trust perception. The results of linear regression showed that the effect of perceived interactivity on attitude was significant ($\beta=.768$, $t=12.97$, $p=.000$) among all types of interactivity and all dominant functions. See Table 22. Also, the effect of perceived interactivity on trust perception was significant ($\beta=.751$, $t=12.302$, $p=.000$) among all types of interactivity and all dominant functions. See Table 23. Consequently, H6 was supported.

H6.1 hypothesized that within the H to H type of interactivity, heightened perceived interactivity will lead to increased attitude and increased trust perception. Linear regression was used to examine the relationships between perceived interactivity and consequences, attitude and trust perception. The results of linear regression showed that the effect of perceived interactivity on attitude was significant ($\beta=1.326$, $t=9.175$, $p=.000$) within the H to H type of interactivity. See Table 24. Also, the effect of perceived interactivity on trust perception was significant ($\beta=.91$, $t=8.079$, $p=.000$) within the H to H type of interactivity. See Table 25. Consequently, H6.1 was supported.

H6.2 hypothesized that within the H to C type of interactivity, heightened perceived interactivity will lead to increased attitude and increased trust perception. Linear regression was used to examine the relationships between perceived interactivity and consequences, attitude and trust perception.

Table 22 Perceived Interactivity and Attitude

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138.716	1	138.716	168.216	.000 ^a
	Residual	96.482	117	.825		
	Total	235.197	118			

a. Predictors: (Constant), Perceived Interactivity
b. Dependent Variable: Attitude

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.540	.509		-3.022	.003
	Perceived Interactivity	1.423	.110	.768	12.970	.000

a. Dependent Variable: Attitude

Table 23 Perceived Interactivity and Trust Perception

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.427	1	74.427	151.342	.000 ^a
	Residual	57.538	117	.492		
	Total	131.966	118			

a. Predictors: (Constant), Perceived Interactivity
b. Dependent Variable: Trust

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.306	.393		.778	.438
	Perceived Interactivity	1.042	.085	.751	12.302	.000

a. Dependent Variable: Trust

Table 24 Within H to H and H to C, Perceived Interactivity and Attitude

ANOVA ^b							
Type	Model		Sum of Squares	df	Mean Square	F	Sig.
H to H	1	Regression	57.578	1	57.578	84.177	.000 ^a
		Residual	40.357	59	.684		
		Total	97.934	60			
H to C	1	Regression	81.883	1	81.883	82.826	.000 ^a
		Residual	55.363	56	.989		
		Total	137.246	57			

a. Predictors: (Constant), Perceived Interactivity

b. Dependent Variable: Attitude

Coefficients ^a						
Type	Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
			B	Std. Error	Beta	
H to H	1	(Constant)	-1.131	.673		.098
		Perceived Interactivity	1.326	.145	.767	.000
H to C	1	(Constant)	-1.916	.770		.016
		Perceived Interactivity	1.514	.166	.772	.000

a. Dependent Variable: Attitude

Table 25 Within H to H and H to C, Perceived Interactivity and Trust Perception

ANOVA ^b							
Type	Model		Sum of Squares	df	Mean Square	F	Sig.
H to H	1	Regression	27.131	1	27.131	65.267	.000 ^a
		Residual	24.526	59	.416		
		Total	51.657	60			
H to C	1	Regression	47.993	1	47.993	85.854	.000 ^a
		Residual	31.304	56	.559		
		Total	79.297	57			

a. Predictors: (Constant), Perceived Interactivity

b. Dependent Variable: Trust

Coefficients ^a						
Type	Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
			B	Std. Error	Beta	
H to H	1	(Constant)	.985	.525		.065
		Perceived Interactivity	.910	.113	.725	.000
H to C	1	(Constant)	-.302	.579		.604
		Perceived Interactivity	1.159	.125	.778	.000

a. Dependent Variable: Trust

The results of linear regression showed that the effect of perceived interactivity on attitude was significant ($\beta=1.514$ $t=9.101$, $p=.000$) within the H to C type of interactivity. See Table 24. Also, the effect of perceived interactivity on trust perception was significant ($\beta=1.159$, $t=9.266$, $p=.000$) within the H to C type of interactivity. See Table 25. Consequently, H6.2 was supported.

H7 hypothesized that heightened attitude and trust perception will lead to increased purchase intention among all types of interactivity and all dominant functions.

Linear regression was used to examine the relationships between attitude and purchase intention and between trust perception and purchase intention. The results of linear regression showed that the effect of attitude on purchase intention was significant ($\beta=.541$, $t=6.958$, $p=.000$) among all types of interactivity and all dominant functions. See Table 26. Also, the effect of trust perception on purchase intention was significant ($\beta=.421$, $t=5.014$, $p=.000$) among all types of interactivity and all dominant functions. See Table 27. Consequently, H7 was supported.

H7.1 hypothesized that within the H to H type of interactivity, heightened attitude and trust perception will lead to increased purchase intention. Linear regression was used to examine the relationships between attitude and purchase intention and between trust perception and purchase intention. The results of linear regression showed that the effect of attitude on purchase intention was significant ($\beta=.293$, $t=2.384$, $p=.000$) within the H to H type of interactivity. See Table 28. Also, the effect of trust perception on purchase intention was significant ($\beta=.323$, $t=1.872$, $p=.066$) within the H to H type of interactivity. See Table 29. Consequently, H7.1 was supported.

Table 26 Attitude and Purchase Intention

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.300	1	77.300	48.413	.000 ^a
	Residual	186.811	117	1.597		
	Total	264.111	118			

a. Predictors: (Constant), Attitude

b. Dependent Variable: PI

Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.476	.426		3.463	.001
	Attitude	.573	.082	.541	6.958	.000

a. Dependent Variable: PI

Table 27 Trust Perceptions and Purchase Intention

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.718	1	46.718	25.143	.000 ^a
	Residual	217.393	117	1.858		
	Total	264.111	118			

a. Predictors: (Constant), Trust

b. Dependent Variable: PI

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.307	.616		2.123	.036
	Trust	.595	.119	.421	5.014	.000

a. Dependent Variable: PI

Table 28 Within H to H and H to C, Attitude and Purchase Intention

ANOVA ^b							
Type	Model		Sum of Squares	df	Mean Square	F	Sig.
H to H	1	Regression	8.419	1	8.419	5.683	.020 ^a
		Residual	87.395	59	1.481		
		Total	95.814	60			
H to C	1	Regression	81.753	1	81.753	54.301	.000 ^a
		Residual	84.310	56	1.506		
		Total	166.063	57			

a. Predictors: (Constant), Attitude

b. Dependent Variable: PI

Coefficients ^a						
Type	Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
			B	Std. Error	Beta	
H to H	1	(Constant)	2.741	.630		.000
		Attitude	.293	.123	.296	.020
H to C	1	(Constant)	.619	.547		.263
		Attitude	.772	.105	.702	.000

a. Dependent Variable: PI

Table 29 Within H to H and H to C, Trust Perceptions and Purchase Intention

ANOVA ^b							
Type	Model		Sum of Squares	df	Mean Square	F	Sig.
H to H	1	Regression	5.373	1	5.373	3.505	.066 ^a
		Residual	90.441	59	1.533		
		Total	95.814	60			
H to C	1	Regression	50.629	1	50.629	24.562	.000 ^a
		Residual	115.434	56	2.061		
		Total	166.063	57			

a. Predictors: (Constant), Trust

b. Dependent Variable: PI

Coefficients ^a						
Type	Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
			B	Std. Error	Beta	
H to H	1	(Constant)	2.529	.905		.007
		Trust	.323	.172	.237	.066
H to C	1	(Constant)	.486	.826		.558
		Trust	.799	.161	.552	.000

a. Dependent Variable: PI

H7.2 hypothesized that within the H to C type of interactivity, heightened attitude and trust perception will lead to increased purchase intention. Linear regression was used to examine the relationships between attitude and purchase intention and between trust perception and purchase intention. The results of linear regression showed that the effect of attitude on purchase intention was significant ($\beta=.772$, $t=7.369$, $p=.000$) within the H to C type of interactivity. See Table 28. Also, the effect of trust perception on purchase intention was significant ($\beta=.799$, $t=.552$, $p=.000$) within the H to C type of interactivity. See Table 29. Consequently, H7.2 was supported.

Test of Models and Summary of Hypotheses Testing

This dissertation research investigated relationships among interactivity as functional features, actual interaction and perception, its moderators (i.e. experience) and its consequences (i.e. attitude, trust and purchase intention) in the context of travel-related Web sites.

First, relationships among types of interactivity (i.e. H to H, H to C) and both actual interaction and perceived interactivity, considering the moderating role of experience were examined. Specifically, H1 and H2 hypothesized that when introduced to types of interactivity - H to H and H to C (H1 and H2, respectively), individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience. The effects of types of interactivity (i.e. H to H and H to C) on actual interaction were supported but the moderating effects of experience on actual interaction and perceived interaction were not supported. The results showed significant main effects of types of interactivity

while the effect of experience as a moderator was not significant. H1 and H2 were not supported.

Second, relationships among all dominant functions and both actual interaction and perceived interactivity, considering the moderating role of experience were examined. The predicted relationships were partially supported. Specifically, H3 hypothesized that when introduced to all dominant functions, individuals with high experience will display higher actual interaction and higher perceived interaction than individuals with low experience. The results showed significant interaction effects of all dominant functions and experience on actual interaction. But, the effects on perceived interactivity were not significant. When introduced to all dominant functions, individuals with high experience displayed higher actual interaction than individuals with low experience. H3 was partially supported. Consequently, the moderating effects of experience on relationships among all dominant functions and actual interaction were supported.

H3.1 examined the notion that H to H type of interactivity that experience is not expected to have a significant moderating effect in actual interaction or perceived interaction between the two dominant functions (individual/individual and organization/individual communication). Within the H to H type of interactivity, experience did not show a significant moderating effect in actual interaction or perceived interaction between the two dominant functions. Consequently, the underlying principle of H3.1 was supported.

H3.2 hypothesized that within the H to C type of interactivity, experience is expected to have a greater moderating effect in actual and perceived interaction for

action/transaction dominant functions than for navigation dominant functions. Within the H to C type of interactivity, the results showed significant interaction effects of two dominant functions and experience on actual interaction. Further, experience showed a greater moderating effect in actual interaction for action/transaction dominant functions than for navigation dominant functions. The moderating effect in Perceived Interactivity was not significant. H3.2 was partially supported.

Finally, potential consequences of interactivity as well as potential relationships among the outcome variables were examined. Predicted relationships between actual interaction and perceived interactivity were partially supported while predicted relationships between actual interaction and purchase intention were not supported. H4 hypothesized that heightened actual interaction will lead to increased perceived interactivity among all types of interactivity and all dominant functions.

H4.1 hypothesized that within the H to H type of interactivity, heightened actual interaction will lead to increased perceived interactivity between the two dominant functions (individual/individual and organization/individual communication). Within the H to H type of interactivity, the results showed that the effect of actual interaction on perceived interactivity was not significant in individual/individual functions and individual/organization. Thus, H4.1 was not supported.

H4.2 hypothesized that within the H to C type of interactivity, heightened actual interaction will lead to increased perceived interactivity between the two dominant functions (action/transaction and navigation functions). Within the H to C type of interactivity, the results showed that the effect of actual interaction on perceived

interactivity was significant in action/transaction functions and the navigation functions. Consequently, H4.2 was supported.

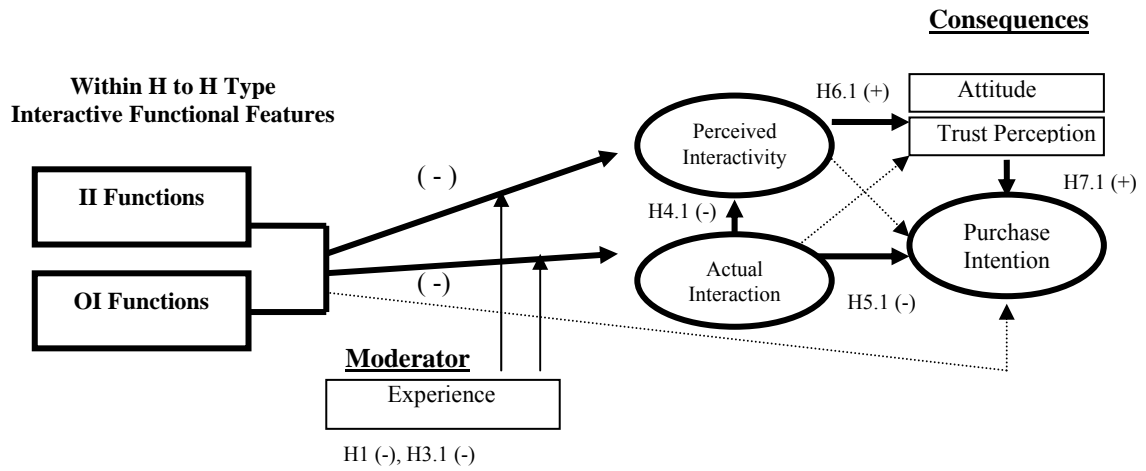
H5 hypothesized that heightened actual interaction will lead to increased purchase intention among all types of interactivity and all dominant functions. The results showed that the effect of actual interaction on purchase intention was not significant.

Consequently, H5 was not supported. H5.1 and H5.2 hypothesized within the H to H and the H to C types of interactivity, heightened actual interaction will lead to increased purchase intention. Linear regression was used to examine the relationships between actual interaction and purchase intention. The results showed that the effect of actual interaction on purchase intention was not significant within the H to H and the H to C types of interactivity. Consequently, H5.1 and H5.2 were not supported.

Relationships between perceived interactivity and attitude as well as trust perception worked well. H6 hypothesized that heightened perceived interactivity will lead to increased attitude and increased trust perception among all types of interactivity and all dominant functions. The results showed that the effect of perceived interactivity on attitude and trust perception were significant among all types of interactivity and all dominant functions. Consequently, H6 was supported. H6.1 and H6.2 hypothesized that heightened perceived interactivity will lead to increased attitude and increased trust perception within the H to H and the H to C types of interactivity. The results showed that the effects of perceived interactivity on attitude and trust perception were significant within the H to H and the H to C types of interactivity. Consequently, H6.1 and H6.2 were supported.

Relationships between attitude as well as trust perception and purchase intention were also supported. H7 hypothesized that heightened attitude and trust perception will lead to increased purchase intention among all types of interactivity and all dominant functions. The results showed that the effects of attitude and trust perception on purchase intention were significant among all types of interactivity and all dominant functions. Thus, H7 was supported. H7.1 and H7.2 hypothesized that heightened attitude and trust perception will lead to increased purchase intention within the H to H and the H to C types of interactivity. Within H to H, the results showed that the effects of attitude on purchase intention were significant while the effects of trust perception on purchase intention were not significant. Within H to C, the results showed that the effects of attitude and trust perception on purchase intention were significant. Thus, H7.1 was partially supported while H7.2 was supported.

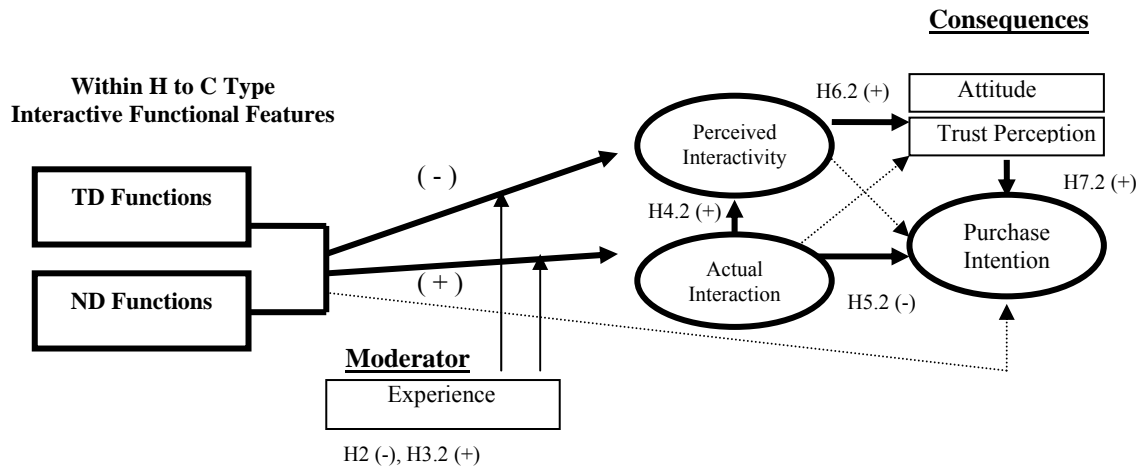
The following frameworks indicate if the hypothesized relationships worked well within H to H and H to C types of interactivity (see Figure 12 and 13). Specifically, Figure 12 indicates a summary of hypotheses testing within H to H type of interactivity. Figure 13 indicates a summary of hypotheses testing within H to C type of interactivity. All the hypotheses testing results were summarized in Appendix 5.



(+): Hypotheses were supported or partially supported.

(-): Hypotheses were not supported

**Figure 12 A Framework for Summary of Hypotheses Testing
within H to H**



(+): Hypotheses were supported or partially supported.

(-): Hypotheses were not supported

**Figure 13 A Framework for Summary of Hypotheses Testing
within H to C**

Chapter Five

Discussion and Conclusion

An integrated model of interactivity was offered as a framework for examining relationships among interactivity as functional features, actual interaction and perception, its moderators (i.e. experience) and its consequences (i.e. attitude, trust and purchase intention) within H to H and H to C types of interactivity. This dissertation study supports the distinctions between functional, actual, and perceived interactivity and the integrated model of interactivity. This dissertation offers similarities and differences in findings within H to H and H to C types of interactivity. Specifically, this study provides different findings for relationships among functional, actual, and perceived interactivity and experience as a moderator while it offered similar findings for consequences of interactivity. In this chapter, considering similarities and differences within H to H and H to C types of interactivity, relationships among functional, actual, and perceived interactivity, experience as a moderator, and consequences of interactivity are further discussed in depth.

Discussion

Functional Features, Actual Interaction and Perceptions within H to H and H to C

Differences between H to H and H to C types of Interactivity

The findings for relationships among functional, actual, and perceived interactivity showed clear differences within H to H and H to C types of interactivity. Within H to H, relationships between functional features and actual interaction were not supported while within H to C, relationships between functional features and actual

interaction were supported. Further, within H to H, relationships between actual interaction and perceived interactivity were not supported while within H to C, relationships between actual interaction and perceived interactivity were supported. Thus, within H to C type, the relationships among functional features, actual interaction and perceived interactivity were supported while within H to H, those relationships were not supported.

Thus, the current research supports the substantial different effects of actual interaction on perceived interactivity between dominant functions within H to C (action/transaction functions, the navigation functions) and ones within H to H (individual/individual functions as well as individual/organization functions).

There may be several reasons for this finding. For example, subjects actually may “do” the H to C interactions, but actually “don’t” participate in H to H communication because they aren’t really interested in communicating with either the organization or with other individuals. For example, the two dominant functions (action/transaction functions, the navigation functions) within H to C might be perceived as more useful and more worth the time required for interaction in the travel related website context than are the two H to H dominant functions (individual/individual functions as well as individual/organization functions).

An Integrated Model of Interactivity within H to C

The current research provided support for two key phenomena: (1) when introduced to all dominant functions, individuals with high experience display higher actual interaction than individuals with low experience and (2) within H to C type of

interactivity, in action/transaction functions and the navigation functions, heightened actual interaction leads to increased perceived interactivity.

Within H to C, it is note worthy that relationships between functional features and actual interaction were supported while ones between functional features and perceived interactivity were not supported. Further, it can be highlighted that relationships between actual interaction and perceived interactivity were supported within H to C. This research supports path models within H to C that indicate functional features → actual interaction → perceived interactivity.

Within H to C, the current model as a framework for relationships among functional features, actual interaction and perceived interactivity supports the perspective that a perception of high interactivity can be influenced by how the sites were navigated and interacted with by the users and which of the interactive features were used. As discussed in the chapter 2, McMillan et al (2004) propose that a perception of high interactivity can occur even when the structures necessary for it do not seem to be present. Perception of interactivity can be low even when many interactive features are available if, for whatever reason, subjects are not using them. This conceptual framework may offer useful explanations for the discrepancy and conflicting results from previous studies of interactive features that focused on relationships between perception and presence or absence of features (e.g. Lee et al., 2004). Within H to C, the current model of relationships among functional features, actual interaction and perception provides potential explanations for the critical issues on functional and perceptual interactivity beyond the mere presence or absence of certain features.

Actual Interaction and Perceptions in Action/Transaction and the Navigation Functions within H to C

In action/transaction and the navigation functions, the analyses illuminated the underlying process between actual interaction and perceived interactivity. The current study supports the effect of actual interaction on perceived interactivity in action/transaction functions and the navigation functions while the result does not support the effect in individual/organization interaction. The results supports that the correlations between actual interaction and perceived interactivity in action/transaction functions and the navigation functions while the correlations were not supported in individual/individual functions and individual/organization functions.

In action/transaction functions, heightened actual interaction led to increased perceived interactivity in a positive direction while in the navigation functions, heightened actual interaction led to increased perceived interactivity in a negative direction. Thus, the current research also supports the substantial different effects of actual interaction on perceived interactivity between action/transaction functions and the navigation functions.

There may be several reasons for this finding. For example, navigation alone does not generate perceptions of interactivity. Heightened actual interaction in the action/transaction functional features might help respondents' choice on their action and transaction while heightened actual interaction in the navigation functional features might increase their process and/or flows to search the targeted information that respondents want to find.

Moderating Effects of Experience within H to H and H to C

The current research provided support for the views (1) within the H to H type of interactivity that experience does not have a significant moderating effect in actual interaction or perceived interaction between the two dominant functions (individual/individual and organization/individual communication) and (2) within the H to C type of interactivity, when introduced to two dominant functions, individuals with high experience display higher actual interaction than individuals with low experience.

The findings for experience as moderator showed clear differences within H to H and H to C types of interactivity. Within H to H, experience as a moderator did not work on actual interaction. In contrast, the results support the perspective that within the H to C, when introduced to action/transaction functions, experience as a moderator strongly works on actual interaction. Those results highlight the important role of experience as a moderator within H to C, especially in action/transaction functions.

Within H to C, the moderating role of experience corresponds to the perspective of Fazio and Zanna (1978) that emphasized experience as an important individual difference. Fazio and Zanna (1981) proposed that attitudes developed through direct experience are more enduring, and more resistant than are those developed through indirect experience. The moderating role of experience also correspond to the view from the travel and tourism industry (Jupiter Research, 2004) that direct online experience on travel related Websites is an important factor in the context of online shopping for travel-related products (e.g. airlines, hotels).

There may be several reasons for the important role of experience as a moderator within H to C, especially in action/transaction functions. For example, individuals with

high experience actually might interact more with features within H to C than H to H because individuals with high experience know the usefulness of action/transaction functions within H to C. For example, individuals with high experience actually interact more with action/transaction functions than individuals with low experience because individuals with high experience may have higher familiarity and knowledge about how to interact in the context of action/transaction functions. For example, Individuals with high experience actually may conduct transactions on travel related websites. In contrast, individuals with low experience actually might interact more with navigation functions than individuals with high experience because individuals with low experience may do not know how to search the targeted information in the travel related website context.

Consequences of Interactivity within H to H and H to C

The current study offers similar findings for consequences of interactivity within H to H and H to C. The current study supports the view that (1) heightened perceived interactivity leads to increased attitude and increased trust perception among dominant functions within both H to H and H to C types of interactivity and (2) heightened attitude and trust perception lead to increased purchase intention between dominant functions within H to C. Within H to H, this study does not support the view that heightened trust perception leads to increased purchase intention.

The significant effects of perceived interactivity on attitude and trust perception correspond to the view that “perceptual variables seem to be stronger predictors of [attitude toward the site] than structural variables” (McMillan et al. 2003, p. 406). The effects of attitude and trust perception on purchase intention were also found within H to C although the effects of trust perception on purchase intention were not supported within

H to H. While most previous studies supported the relationships between perceptions of interactivity and attitude, there is little research on the relationships between perceptions of interactivity and trust perception. Within H to C, this dissertation research highlights the important mediating role of perceived interactivity on trust perception as well as on attitude.

Implications

For researchers, this study offers distinctions among H to H and H to C types of interactivity. Within H to H and H to C, this study offers differences in findings within H to H and H to C types of interactivity. This study provides different findings for relationships among functional, actual, and perceived interactivity and experience as a moderator while it offered similar findings for consequences of interactivity within H to H and H to C.

Within H to C, this study offers the concept of interactivity that interrelates among functional, actual, and perceived interactivity by illuminating the underlying processes between functional features and actual interaction and between actual interaction and perceived interactivity. They may utilize the multifaceted concept of interactivity considering the clarified path between functional features and actual interaction and between actual interaction and perceived interactivity. This interrelated concept of interactivity among functional, actual, and perceived interactivity illuminates “why” a perception of high interactivity can occur even when the structures necessary for it do not seem to be present while perception of interactivity can be low even when many interactive features are available if subjects are not using them or does not find them to be

helpful even when they are used.

For researchers, this study also offers important insights how to operationalize functional features of interactivity by considering different types of interactivity.

Researchers may utilize different types and functions of interactivity in their study. The current study supports the view that individual/individual communication functions and individual/organization communication functions can be employed for H to H type sites and action/transaction functions can be employed for H to C type sites. For researchers, this study provides the perspective that the model of interactivity would be best revealed by designs where each type and function of interactivity is measured.

For researchers, this study offers how to measure actual interaction. While the most direct and precise operationalization for the interactivity-as-process conceptualization will be direct measurement of user interactions with the interactive features, several researchers (Cho & Leckenby, 1999) have used an indirect method, using a self-reported measure of intention to interact, because it was more practical. In this dissertation, actual interaction was measured by actual clicking behaviors during first five minutes on the targeted interactive features. The measured actual interaction worked well with significant effects in the integrated model. The current study offers a specific new way to measure actual interaction.

For practitioners, this study provides insights into different types and functions of interactivity. Practitioners may need to note distinctions of H to H and H to C types of interactivity provided in this study. Specifically, within H to C, the different effects of actual interaction on perceived interactivity between action/transaction functions and the navigation functions are noteworthy. In action/transaction functions, heightened actual

interaction led to increased perceived interactivity in a positive direction while in the navigation functions, heightened actual interaction led to increased perceived interactivity in a negative direction. This suggests that the ability to actively engage in activities is far more important than additional navigational schemes. In fact, the study suggests that navigational tools might actually be a distraction and hindrance if they aren't directly relevant to the task the individual is trying to accomplish.

Different effects of actual interaction on perceived interactivity between action/transaction functions and the navigation functions highlight the importance of the usefulness of functional features rather than mere quantity of features. Practitioners need to carefully design their website considering what functional features are useful to visitors in the website. When introduced different functions, practitioners might need to consider different strategies for employing features. This study might suggest that practitioners may need to shorten the searching process and/or the flow in the navigation features while they may need to increase choices in action/transaction functions.

For practitioners, this study may highlight the multifaceted interactivity and the mediating role of perceived interactivity on attitude and trust perception in the travel related Website context. This study strongly supports the mediating role of perceived interactivity on trust perception as well as attitude and the effects of trust perception as well as attitude on purchase intention. In the travel and tourism industry, practitioners may need to note the relationships among functional features, actual interaction and perceptions as well as the mediating role of perceived interactivity to increase the outcomes (i.e. attitude, trust perception, purchase intention) within H to H and H to C.

Especially, practitioners may need to note the mediating role of perceived interactivity within H to C to increase trust perception and purchase intention.

For practitioners, a moderating role of experience is noteworthy. As expected, experience played a significant moderating role—particularly in action/transaction function within the context of H to C interaction. Web site designers need to carefully consider how much interactivity their users are prepared to use. In particular, they may need to limit action/transaction features if their audience is relatively inexperienced. This could be particularly important at travel-related sites that often depend on user actions and transactions.

Limitations and Future Research Directions

For studying relationships among functional features, actual interaction and perceptions, there are limitations and future research opportunities. The current research supports the substantial different effects of actual interaction on perceived interactivity between dominant functions within H to C (action/transaction functions, the navigation functions) and ones within H to H (individual/individual functions as well as individual/organization functions). This study indicates support that the effect of actual interaction on perceived interactivity in action/transaction functions and the navigation functions while the result does not support the effects in individual/individual functions and individual/organization.

In addition, the current research also supports the substantial different effects of actual interaction on perceived interactivity between action/transaction functions and as the navigation functions. In action/transaction functions, heightened actual interaction led

to increased perceived interactivity in a positive direction while in the navigation functions, heightened actual interaction led to increased perceived interactivity in a negative direction.

While there may be many reasons (e.g. navigation alone does not generate perceptions of interactivity), the current study could not clarify the primary reasons. It would be an interesting future research opportunity to investigate “why” there are different effects of actual interaction on perceived interactivity between dominant functions within H to C (action/transaction functions, the navigation functions) and ones within H to H and “why” there are different effects of actual interaction on perceived interactivity between dominant functions in action/transaction functions and the navigation functions.

Further, considering types of interactivity and contexts, there are limitations and future research opportunities. This study focused on certain types of interactivity – H to H and H to C and the travel related Website context. There are many possibilities to extend the findings of the current studies and enrich our knowledge about interactivity. Future research that investigates other multiple types of interactivity (i.e. Human to Content) and different contexts may help to extend the integrated perspectives on interactivity.

For studying experience as a moderator, there are limitations and future research opportunities. This study focused primarily on the moderating effects of individual experience difference. Future research that investigates other individual difference factors (i.e. motivations, anxiety) and/or other moderating factors (i.e. situational factors) may help to extend the integrated perspectives on interactivity.

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APPENDIX

Appendix 1 Experience

I am familiar with travel related sites.
 I have substantial knowledge about travel related sites.
 Overall, I am experienced with travel related sites.
 I am familiar with travel related online shopping.
 I have substantial knowledge about travel related online shopping.
 Overall, I am experienced with travel related online shopping.

Rotated Component Matrix^a

	Component		
	1	2	3
1) I am familiar with travel related sites.	.324	.469	.813
2) I have substantial knowledge about travel related sites.	.343	.866	.286
3) Overall, I am experienced with travel related sites.	.383	.750	.441
1) I am familiar with travel related online shopping.	.895	.196	.328
2) I have substantial knowledge about travel related online shopping.	.867	.421	.170
3) Overall, I am experienced with travel related online shopping.	.866	.373	.218

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Component Transformation Matrix

Component	1	2	3
1	.701	.577	.419
2	-.713	.566	.414
3	.002	-.589	.808

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Appendix 2 Perceived Interactivity

Enables two-way communication
Loads fast
Variety of content
Enables concurrent communication
Keeps my attention
Passive
Non-concurrent communication
Operates at high speed
Easy to find my way through the site
Is interactive
Immediate answers to questions
Primarily one-way communication
Unmanageable
Lacks content
Is interpersonal
Doesn't keep my attention
Loads slow
Enables conversation

Appendix 3 Trust Perception

Benevolence

This web seemed to care about me.

This web made me feel good.

This web responded to my needs in a caring way.

Competence

This web knew enough to give me a good advice.

I trusted this web expertise in products.

I had confidence in this web's expertise in products.

I was confident in this web's knowledge about products.

Information Credibility

I believed this web site was honest with me.

I believed this web site did not make false claims.

I believed the information provided this web site was accurate.

I believed this web site provided trustworthy information.

Appendix 4 Scenario

Please read the following scenario and imagine yourself in this situation.

Let's imagine you have a friend who lives in another state, has never been to Tennessee, and doesn't know anything about Tennessee. That friend will visit Tennessee during Spring break and has asked you to help plan the trip. There are no budget restrictions on the trip.

You will recommend to this friend the top-three places in the state to visit. You will guide your friend's travel in Tennessee including, but not limited to, what he or she will do and where he or she will stay.

Now, you are going to look at a Tennessee tourism site. You should use whatever tools you can find at the site to help pick places for your friend to visit. Spend a minimum of 10 minutes, more if you need it, to try to plan your friend's visit. As you explore the site, also try to identify at least three interactive tools that help you with your task.

Appendix 5 Summary of Hypotheses Testing

	Independent Variables	Dependent Variables	Result	Analysis
H1	Type, Experience Moderation	Action, Perceived Interactivity	Not Supported	MANOVA One way- ANNOVA
H2	Type, Experience Moderation	Action, Perceived Interactivity	Not Supported Type (+) Experience(-)	
H3	All Functions, Experience Moderation	Action, Perceived Interactivity	Partially Supported Function (+) Experience (-) Function*Experience(+) Action (+) Perceived Interactivity (-)	MANOVA One way- ANNOVA
H3.1	H-H Function*Experience	Action, Perceived Interactivity	Not Supported Function*Experience(-)	MANOVA One way- ANNOVA
H3.2	H-C Function*Experience	Action, Perceived Interactivity	Partially Supported Function*Experience (+) Action (+) Perceived Interactivity (-)	
H4	Action	Perceived Interactivity	Not Supported	Regression
H4.1	H-H Action	Perceived Interactivity	Not Supported II(-), OI(-)	Correlation Regression
H4.2	H-C Action		Supported TD(+), ND(+)	
H5	Action	Purchase Intention	Not Supported	Regression
H5.1	H-H Action	Purchase Intention	Not Supported	Regression
H5.2	H-C Action		Not Supported	
H6	Perceived Interactivity	Attitude Trust Perceptions	Supported Attitude(+),Trust(+)	Regression
H6.1	H-H Perceived Interactivity	Attitude Trust Perceptions	Supported	Regression
H6.2	H-C Perceived Interactivity		Supported Attitude(+),Trust(+)	
H7	Attitude Trust Perceptions	Purchase Intention	Supported Attitude(+),Trust(+) PI(+)	Regression
H7.1	H-H Attitude, Trust Perceptions	Purchase Intention	Partially Supported Attitude(+),Trust(-)	Regression
H7.2	H-C Attitude, Trust Perceptions		Supported Attitude(+),Trust(+)	

Appendix 6 Online Survey Questionnaire

Dear participants

You are about to participate in a study on travel-related Websites. You are being asked to look at a Web site and briefly give us your answers to a survey questionnaire that provides feedback on that site and your opinions of it.

By completing this information you are giving your informed consent to take part in the study. You will not be identified in any way in reports of this study. Confidentiality will be maintained throughout the whole process.

You will be receiving extra credit for your participation in this study. If you have any question, please contact Juran Kim.

Thank you for participating in this important study on travel related websites.

Juran Kim, Doctoral Candidate
School of Advertising and Public Relations
University of Tennessee
Email: jkim18@utk.edu

Please briefly give us your experience on travel related Websites.

What kinds of travel related Web sites have you ever visited? (Multiple answers)

- 1) Travel related online shopping sites (e.g. Expedia, Travelocity)
- 2) Hotel sites
- 3) Airline sites
- 4) Tourist sites for a specific location (e.g. city, state)
- 5) Other (Please specify _____).
- 6) None

Please rate your overall past experience with visiting travel related Web sites.

- 1) I am familiar with travel related sites.
- 2) I have substantial knowledge about travel related sites.
- 3) Overall, I am experienced with travel related sites.

Strongly Disagree						Strongly Agree

Please rate your overall past online shopping experience with travel related products (e.g. book a hotel room, book a flight) through travel related Web sites.

- 1) I am familiar with travel related online shopping.
- 2) I have substantial knowledge about travel related online shopping.
- 3) Overall, I am experienced with travel related online shopping.

Strongly Disagree						Strongly Agree

Please read the following scenario and imagine yourself in this situation.

Let' imagine you have a friend who lives in another state, has never been to Tennessee, and doesn't know anything about Tennessee. That friend will visit Tennessee during Spring break and has asked you to help plan the trip. There are no budget restrictions on the trip.

You will recommend to this friend the top-three places in the state to visit. You will guide your friend's travel in Tennessee including, but not limited to, what he or she will do and where he or she will stay.

Now, you are going to look at a Tennessee tourism site. You should use whatever tools you can find at the site to help pick places for your friend to visit. Spend a minimum of 10 minutes, more if you need it, to try to plan your friend's visit. As you explore the site, also try to identify at least three interactive tools that help you with your task.

Please look at a Tennessee sites and then answer a survey questionnaire that provides feedback on that site and your opinions of it.

Please mark the appropriate circle that indicates how well you believe each of the following words or phrases describes the Web site you viewed.

	Not at all Descriptive						Very Descriptive	
Enables two-way communication								
Loads fast								
Variety of content								
Enables concurrent communication								
Keeps my attention								
Passive								
Non-concurrent communication								
Operates at high speed								
Easy to find my way through the site								
Is interactive								
Immediate answers to questions								
Primarily one-way communication								
Unmanageable								
Lacks content								
Is interpersonal								
Doesn't keep my attention								
Loads slow								
Enables conversation								

Please mark the appropriate circle that represents your thought and feelings toward the Website.

	<div>Not at all</div> <div>Descriptive</div> <div>Very</div> <div>Descriptive</div>						
I liked this site							
I had a favorable attitude toward this site							
This web seemed to care about me.							
This web made me feel good.							
This web responded to my needs in a caring way.							
This web knew enough to give me a good advice.							
I trusted this web <i>site to have</i> expertise in the products/services presented.							
I had confidence in this web 's expertise in the products/services presented.							
I was confident in this web site's knowledge about the products/services presented.							
I believed this web site was honest with me.							
I believed this web site did not make false claims.							
I believed the information provided this web site was accurate.							
I believed this web site provided trustworthy information.							

Please mark the appropriate circle that indicates how you would like to make a purchase on the Web site.

Likely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unlikely
Probable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Improbable
Possible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Impossible

VITA

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