

CHAPTER III

HYPOTHESES: PROPOSED FLOW MODEL IN THE CONTEXT OF A VIRTUAL TOUR WEB SITE

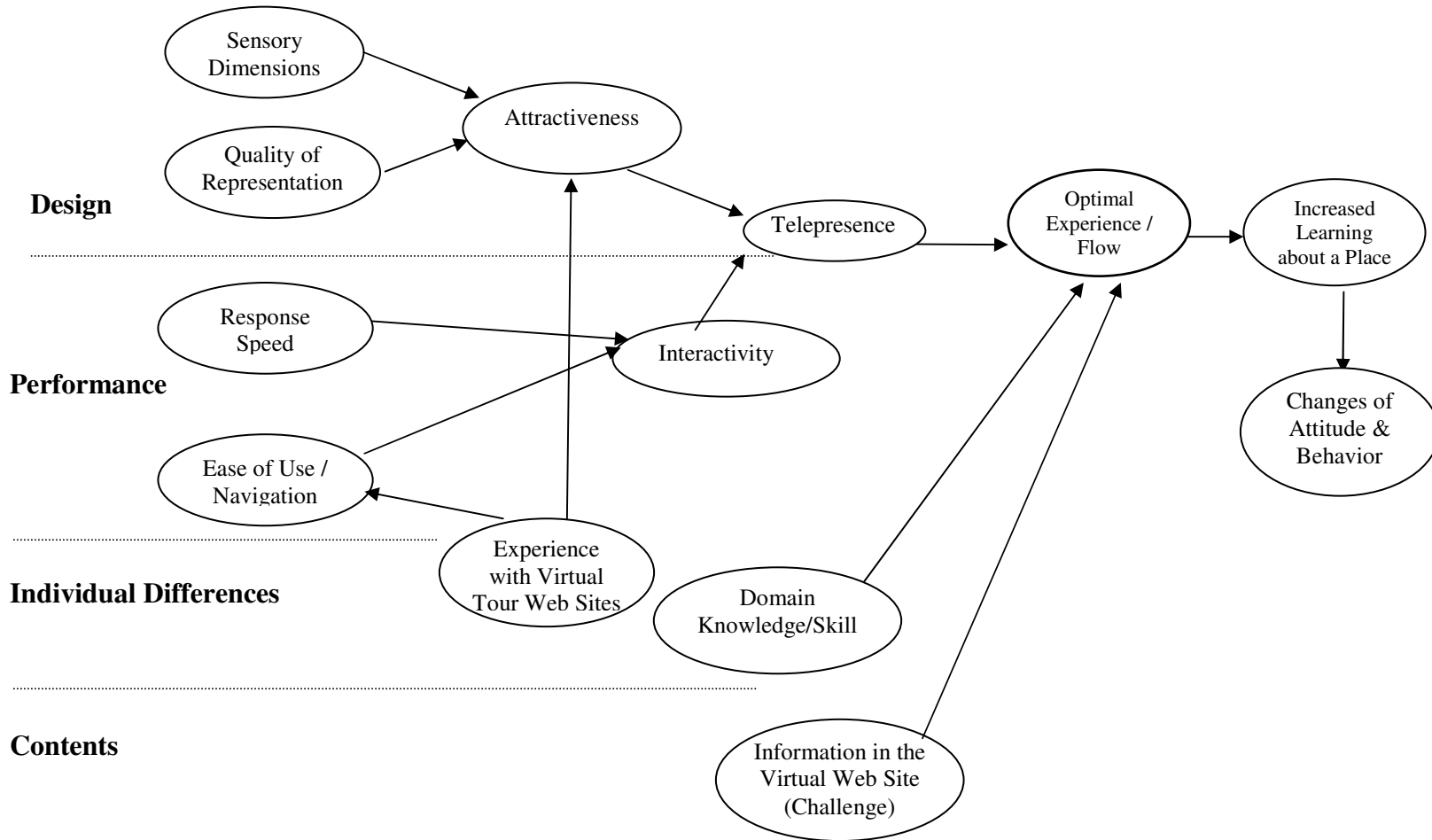
Flow is a multidimensional construct (Csikszentmihalyi 1975) and is used here to characterize the cognitive state during the navigation of a virtual Web site. This cognitive state is characterized as an “optimal experience” (Csikszentmihalyi 1975), as it is experienced by viewers of the virtual Web site (developed for this research) who “are deeply involved, . . . time may seem to stand still and nothing seems to matter while engaged in” browsing the Web site. Thus, time distortion and enjoyment (total absorption) can be used to describe the flow.

Dimensions

The flow model proposed is illustrated in Figure 3.1. The model is based on previous models of flow and adapted to the context of human-computer interaction on the Web. It is unique in two ways. First, it is only concerned with flow on a particular virtual Web site selected for this research, as opposed to flow on the Web in general. Second, it relates flow factors to the development of a virtual tour Web site and visitors’ individual differences. This research considers the following dimensions as the determinants of the optimal experience or flow in the hypermedia Web environment for a virtual Web site:

1. Contents

Figure 3.1. Proposed flow model in the context of a virtual tour Web site for nature tourism interpretation.



2. Design
3. Performance
4. Individual variation

This way of constructing the analysis corresponds with Marchionini's (1989, 1995) model of information seeking in electronic environments. He suggests that seeking information in an electronic environment depends on several factors: the information seeker, search system, domain (field of knowledge), setting (situational context), and search outcomes (feedback). Marchionini (1995) believes that browsing Web pages is dependent on interactions among domain (content), users' characteristics and experience (individual differences), and system content and interface (design and performance).

Factors in the Proposed Flow Model for a Virtual Tour Web Site

Elements that contribute to flow for this research include: (1) Telepresence, (2) visitors knowledge about birds, or the place depicted and of birding ability (skills) and (3) content of Web pages (challenges). These elements are affected by factors in the design and performance of a nature tourism Web site and individual characteristics of visitors to the Web site.

Telepresence

Telepresence is a media-induced experience. It refers to the perceived experience of presence in an environment that can be a spatially distant, real environment, or a virtual world (Steuer 1992). Steuer (1992) defines telepresence as "the mediated perception of an environment." Unlike traditional ways of learning about places -- such

as brochures, slides, books, etc. the Internet audiences are provided with sensual experiences. The significance of telepresence is that when a person is surfing Web pages in a virtual tour site, he/she will not only perceive the “real” environment where he/she is physically present, but also the environment defined by hypermedia. The advantage of telepresence is that it increases the realism of virtual reality (Hoffman and Novak 1996). According to Steuer (1992), telepresence is determined by two variables – *vividness* or attractiveness and *interactivity*. These variables represent the characteristics of the design of a virtual tour Web site.

Attractiveness

According to Steuer (1992), the intensity of telepresence is partially dependent upon the vividness or the attractiveness of a virtual tour Web site. Although the designer of a Web site establishes these sensory dimensions, as Steuer (1992) suggests, a visitor’s evaluation of attractiveness is also subjective. An individual’s experience with virtual tour Web sites affects the subjectivity. I anticipate experienced visitors to give a lower evaluation of the attractiveness of a virtual tour Web site than less experienced visitors. Use of multiple senses can improve the effectiveness of interpretation (Beck and Cable 1998). For this research I consider the sensory dimensions and their qualities as constant for a particular virtual tour Web site,

The attractiveness of a virtual tour Web site reflects the representation’s richness and quality. It can contribute to a visitor’s focused attention. Virtual tour Web developers constantly have to choose between attractiveness of representation and response speed.

Interactivity

Interactivity is an important issue for research about interpretation, communication, and human-computer interaction. According to Steuer (1992), three variables contribute to interactivity: response speed, number of possibilities for action at any given time, and a system's ability to adapt to changes of platforms (Steuer 1992). Of these three variables, only response speed varies between individuals for a given virtual tour Web site.

Ease of Use

Ease of use is the final factor that contributes to interactivity (Beck and Cable 1998). Ease of use refers to the navigational characteristics of the Web site. For a particular virtual tour Web site, a visitor's evaluation of ease of use is subjective.

In summary, in the context of a particular virtual tour Web site, an evaluation of the attractiveness is determined by the number of sensory dimensions involved, the quality of the presentation, and the subjectivity of individual users. Subjectivity is affected by each individual's experience with virtual tour Web sites. The interactivity of a virtual tour Web site is determined by the response speed, dependability, and ease of use for the individual.

Skill and Challenge

A critical factor that affects the experience of flow is a sense of control over the environment. Research on human-computer interaction indicates that the captivating power of computer games is related to the sense of control the games give the players

(Lepper and Malone 1987). Control in this research refers to visitors' perception of being able to understand the information of the virtual tour Web site and be exposed to something new.

Csikszentmihalyi (1990, 3) argues that the "best moments usually occur when a person's body or mind is stretched to its limits in a voluntary effort to accomplish something difficult or worthwhile." In a study of individuals using computers in the workplace, Ghani and Deshpande (1994) have found that a higher level of flow is a result of a higher level of skill and challenge. Influenced by the flow theory, Beck and Cable (1998) suggest that while using the Internet, the technology must be challenging enough to be interesting, yet not too difficult that it frustrates its audience. The content should also reveal something new - new facts, new perspectives, new ideas, new information or new experiences.

Skill in this research refers to the knowledge a person has about birding and the place (the Texas coast). Previous research on human-computer interaction uses a person's computer skill as a variable. However, in the hypermedia environment of the Web, the skill required to browse the Web pages is not very critical because a person can master the necessary skills easily. Marchionini (1995) believes that each information seeker possesses particular experiences, abilities, and preferences. Therefore, an individual's personal knowledge affects overall performance.

As mentioned before, this research considers visiting virtual tour Web pages as an information-seeking behavior. Information that is available on the Web about nature tourism has no ceiling. Challenge comes from the information that is the content of the virtual tour Web site. This relationship is derived from the common definition of flow

that it occurs when challenges and skills are above a certain level and are in balance (Csikszentmihalyi 1988).

Flow and its Measurement

A related consequence of flow is that users lose their sense of time (Csikszentmihalyi 1990). Most Internet users are well aware of this problem. Thus, we can link flow to the time distortion an individual experienced in browsing the Web site. Flow is characterized by focused attention, complete involvement, and an intrinsically enjoyable experience (Csikszentmihalyi 1975; Privette and Bundrick 1987; Ghani and Deshpande 1994). Focused attention and complete involvement results in time distortion. Therefore, this research uses time distortion and enjoyment to measure the state of flow.

Consequences of Flow

Flow has been found to correspond to increased learning and changes in attitudes and behavior (Ghani 1991; Wester, Trevino, and Ryan 1993; Ghani and Deshpande 1994). In the context of a nature tourism Web site, the content of learning is related to the natural features of a place. The “hoped for” impact on users’ attitudes and behavior is to stimulate an interest to acquire more information and to visit.