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A model of consumer web navigational behavior: conceptual development and application

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Abstract

Despite recent success by companies using the Internet to deal with their customers, one of the major remaining problems concerns understanding navigation on the Web and its relationship with Internet marketing. This study looks at the factors that can affect customers' prepurchase intentions by surveying visitors to a real pharmaceutical web site, and it models the behavior of consumers when they are confronted with the navigational characteristics of an Internet site. The model of flow designed by Hoffman and Novak and previous findings and theories about several relevant behavioral variables are taken into account to propose and empirically test a model of consumers' web navigational behavior. We use structural equations modeling to test 10 major hypotheses and more than two third of the 28 subhypotheses are supported. The findings contribute to theoretical and managerial understanding of the web navigation behavior of visitors.
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1. Introduction

As Internet usage increases worldwide, the focus is shifting from establishing a presence to strategic aspects. One important objective of firms on the web remains effective communications with consumers. The attention given to online retailing notwithstanding, most firms on the Internet use web sites as a communication tool, rather than for transactions. This emphasizes the importance of developing and testing systematic models of the web as a communication tool.

Most research on online communication is in the context of online retailing. This study seeks to expand the scope of models of consumer responses to web site and interface characteristics. Where previous models have primarily focused on developing theoretical frameworks for web atmospherics in a retail setting, this study tests a more general model of consumer responses to web site characteristics based on the theory of flow (Hoffman and Novak, 1996; Csikszentmihalyi, 1990), which remains a cornerstone in our understanding of web site–human interactions. Several studies (Smith and Sivakumar, 2004; Novak et al., 2000) have applied this theory to develop models of consumer responses to site characteristics.

Our paper extends the literature in several ways: first, unlike most previous research, our model is in the general context of online communications, rather than online retailing. Second, in the spirit of Eroglu et al. (2001), we provide a broader, more comprehensive model integrating research on web site navigational characteristics, user characteristics, internal states, consumer responses, approach/avoidance behavior, and outcomes. Third, our empirical testing is performed in the context of a real-world pharmaceutical web site.

The next section reviews the literature and develops all the hypotheses. Our model draws from a broad range of

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literature, to which it would be impossible to do justice. Therefore, it is necessarily a brief review highlighting the most relevant literature. The following section describes the empirical approach and the data used. We conclude with discussions of the findings and implications.

2. Conceptual background and model

The organization of the literature review and the proposed model (Fig. 1) can be divided into three main parts: personal factors, situational factors and outcomes, together with the theory of flow, which we cover first.

2.1. Theory of flow

Flow is a central construct for the study of the navigation of web sites (Hoffman and Novak, 1996) and it is a useful construct for describing human–computer interactions (Csikszentmihalyi, 1990; Ghani et al., 1991; Trevino and Webster, 1992; Webster et al., 1993). Novak et al. (2000) define flow as "the state occurring during network navigation which is: 1) characterized by a seamless sequence of responses facilitated by machine interactivity, 2) intrinsically enjoyable, 3) accompanied by a loss of self-consciousness, and 4) self-reinforcing" (Hoffman and Novak, 1996). Among inhibitors of flow, we can mention long downloading time, delays to download plug-ins, failure of navigation links, long registration forms, boring or not intuitive sites, slow responses,

challenge greater than skills, phone line, internet at work, and usage costs. To improve the likelihood of flow, firms should try to maximize the interactivity and the user control of web sites. The literature suggests three variables essential to the creation of the flow experience among users: challenge, skills, and interactivity.

2.1.1. Challenge

Ghani et al. (1991) showed that the level of perceived challenge in human–computer interactions is positively associated with the achievement of flow, which in turn predicts exploratory use (Ghani and Deshpande, 1994). Furthermore, Luna et al. (2002) show that a web site that offers optimal challenge results in a more positive attitude in the surfer. Finally, people who have the skills at using the web and who find it challenging are more likely to experience flow, search for and purchase online a wide range of products; hence, skills and challenge would predict the online consumers' search and their purchase behavior (Novak and Hoffman, 1997; Novak et al., 2000). Therefore:

H1. When consumers surf the web, challenge is positively related to: (a) site interactivity, (b) exploratory behavior, (c) attitude toward the web site, (d) site involvement, and (e) prepurchase intentions.

2.1.2. Skills

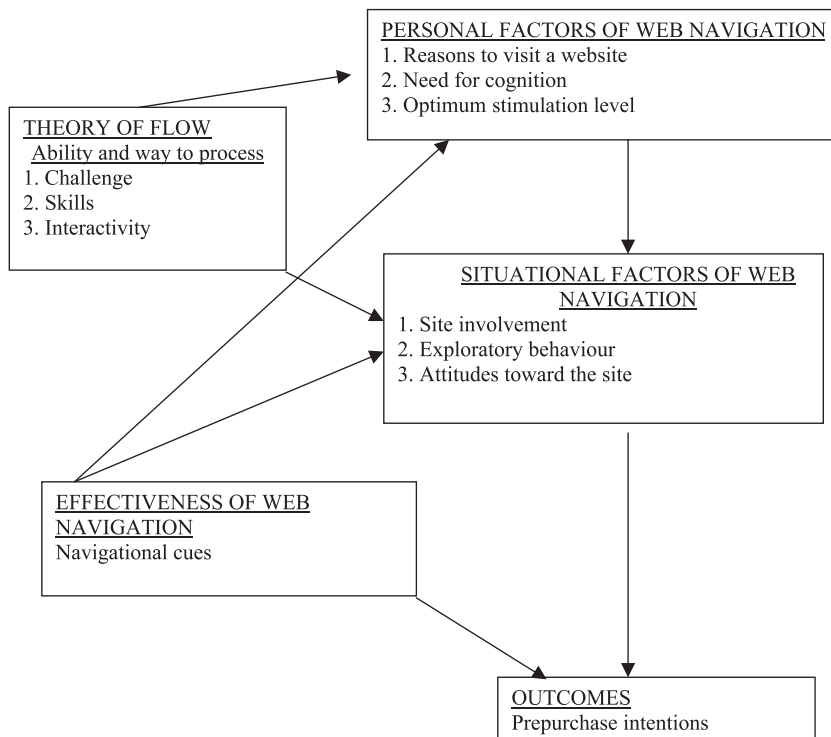Ghani and Deshpande (1994) reported a positive correlation between skills and flow, and hence, with

Fig. 1. Conceptual model of web navigation behavior.