

## **EXTENDING MODELS OF FLOW AND E-LOYALTY**

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*Forthcoming in Journal of Information Science and Technology*

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## ABSTRACT

Flow, a state of mind experienced by those deeply involved in an activity, has become increasingly relevant to online merchants. Flow leads to positive and excited engagement with a website and an increased likelihood of return visits, or e-loyalty. However, researchers have struggled with the definition and measurement of flow in an e-commerce environment. Recent work has examined flow as a function of either user attitudes or cognitive evaluations about a website such as whether or not one is challenged by the site, or is able to control it. However, in other work, a more design-based approach has been used in which the visual design or information design of a website is considered. In this paper, we aim to blend these approaches and to consider dual elements of both cognition and design as antecedents to flow and online loyalty. A five-factor model is presented that defines the antecedents of flow and loyalty. Cognitive-based elements of the model are User Concentration and User Satisfaction, while design-based elements include Internet System Quality, Design Quality, and Content Visibility. The paper concludes with six hypotheses which might guide researchers in testing and validating this model.

Keywords: website design, e-loyalty, online consumer experiences, flow, website success

## 1. Introduction

Online retailers are increasingly challenged to create shopping experiences that entice, engage, and excite the consumer (Chen & Wigand, 2000; Buchanan, 2001; Chevalier, 2003; Pace, 2003; Hsu & Lu, 2004; Ku et al., 2004; Cheung & Lee, 2006). In past (Csikszentmihalyi, 1977; 1990; 1993; 1996; 1997; Ghani & Deshpande, 1994) and more recent work (Koufaris, 2002; 2004; Siekpe, 2005; Wu & Chang, 2005) the concept of flow has been investigated as a key determinant of online customers' subjective enjoyment of website use. Csikszentmihalyi defined flow as a state of mind experienced by individuals who are deeply involved in some event, object or activity (Ghani et al., 1994). In turn, flow leads to a perception of a creative, communicative and interactive environment (Chen et al., 1999). In the case of online environments, flow may occur when cognitive domains and emotions are aroused, curiosity is piqued, and when the technical facilities of a site are seamless. Customers who experience flow while shopping online will likely consider return visits to the site or purchasing from it in the future, or e-loyalty (Chen et al., 1999; Cyr et al., 2005; Reichheld, 1996). Different constructs and models have been proposed and tested that lead to a better understanding of online flow, satisfaction, and customer loyalty (Agarwal and Venkatesh, 2002; Chen et al., 2000; Ghani et al., 1991; Hoffman and Novak, 1996a, 1996b; Koufaris, 2002; Newman et al. 2004; Palmer, 2002; Koufaris & Hampton-Sosa, 2004; Siekpe, 2005; Torkezadeh & Dhillon., 2002; Wu & Chang, 2005; Yoon, 2002). The constructs examined in these models have been varied, spanning both attitudinal and behavioral dimensions.

Siekpe (2005) identified challenges, concentration, curiosity, and control as important constructs resulting in online flow and ultimately online loyalty. All constructs in these models involve a level of cognitive processing. In this sense, cognitive processing refers to an attitude or cognitive evaluation made by the user about a website, rather than to more specific and identifiable website design characteristics. Online user satisfaction is also cognitively based and is expected to be a precursor to flow and loyalty (Anderson and Srinivasan, 2003; Devaraj et al., 2002b).

Alternately, it is proposed that more behaviorally focused and design based constructs such as information design or visual design of the website can contribute to flow and e-loyalty (Chou et al., 2005; Hsu & Lu, 2004; Hu et al., 1999; Hubona and Blanton, 1996; Koufaris and Hampton-Sosa, 2004; Newman et al. 2004; Palmer, 2002; Saade et al., 2005; Shang et al., 2005). Design based constructs which have received previous attention includes information content which Wu and Chang (2005) call machine interactivity, visibility of content (Chau et al., 2000; Lee et al., 2002), Internet system quality, or design quality (Flavian et al., 2005; Ghani et al., 2005; Hsu & Lu, 2004; Ivory & Hearst, 2002; Kim et al., 2003; Luarn et al., 2005; Neilsen, 2000; Subramony, 2002; Zhang & von Dran, 2000).

To date, the flow concept has undergone a first generation of understanding and testing. However, there are those who feel a comprehensive understanding of flow remains elusive (Agarwal and Karahanna, 2000; Chen & Wigand, 2000; Hsu & Lu, 2004; Koufaris, 2002; Novak et al., 2003). In this paper, our main goal is to review the literature on flow and loyalty and to highlight a dual nature of the antecedents leading to online flow and loyalty. We achieve this by examining previous research, proposing that work to date has been either cognitive focused or design focused. To our knowledge this is the first time a dual categorization for flow and loyalty has been specifically addressed. A second contribution of this paper is to propose a model for future testing that contains both cognitive and design elements. Specific elements as chosen for the model include design-based elements for Internet System Quality, Content Visibility, and Design Quality, and cognitive-based elements of User Concentration and User Satisfaction.

The paper begins with an introduction and elaboration of the concepts of flow and online loyalty, followed by design and cognitive elements of the model. This paper is conceptual, and concludes with six hypotheses for future testing.

## **2. The Meaning of Flow**

Flow is a state of consciousness experienced by individuals who are deeply involved in an enjoyable activity (Pace, 2004). Csikszentmihalyi (1975), flow's originator, considers it a "holistic experience" in task involvement. Many researchers have studied flow, in a number of varied contexts (Agarwal and Venkatesh, 2000; Chen et al., 1998, 1999; Chen and Wigand, 2000; Csikszentmihalyi, 1977, 1990, 1993, 1996, 1997; Hoffman et al., 1996; Huang, 2003; Koufaris, 2002; Novak et al. 2000, 2003; Trevino et al. 1992; Webster et al. 1992; 1993) including sports (Jackson, 1996), reading (McCuillan & Conde, 1996) or in work environments (Allison et al., 1988). Research on this topic has ascribed flow to be a useful construct in explaining human-computer interactions (Csikszentmihalyi 1990; Ghani et al., 1991; Trevino et al., 1992). Common to all these settings are notions of peak experience and peak performance (Novak & Hoffman, 1997a, 1997b; Pace, 2004; Privette, 1983; Walker et al., 1998).

In an electronic commerce setting, flow occurs when websites lead users to high levels of enjoyment, satisfaction, playfulness and absorption (Csikszentmihalyi, 1977, 1990, 1993, 1996, 1997). Enjoyment exists when an individual is in a concentrated state of website involvement, with a sense of control (Davis et al. 1992; Pace, 2004). Researchers have also studied and measured flow in a shopping medium prior to the advent of the Internet (Trevino & Webster, 1992; Webster et al., 1993; Ghani et al., 1994). Hoffman and Novak (1995; 1996; 1997a; 1997b; 1999; Novak et al., 2003) were the first researchers to apply the flow construct to Web users in an examination of online marketing activities. Flow was measured based on online skills and challenges, confounded by control, arousal and anxiety. Novak and Hoffman (1997) considered flow to be a state occurring during network navigation. To experience flow, they asserted, online consumers must perceive a balance between intrinsically enjoyable tasks and self-reinforcement. Their model proposed that "centering of attention" and "seamless properties" are prerequisite conditions. Although the exploration of flow in the digital medium has been ongoing now for several years, Novak et al. (2000, p. 24) reflected: "[Q]uantitative modeling efforts of the flow construct have been hampered by considerable confusion regarding the exact conceptual definition of flow. Lacking precise definition, it has been difficult to measure flow empirically, let alone apply the concept in practice." Others concur with this assessment (McLennan, 1996; Mithas et al., 2003).

Measuring flow has proven challenging. In the web environment activities are diverse and users are challenged at different levels (Pace, 2004). Challenges faced by an online browser are different from those faced by an online shopper searching for a particular product with price constraints. Therefore, a diversity of Web-based activities should be measured within the context of a particular online activity. Chen et al. (1999) argued the model variables used by Hoffman and Novak (1996, 1999) were "unreliable" and suggested that in a complex Web environment measurement of variables such as flow are "subject to interpretation" (Chen et al. 1999, p. 590).

Recently, research on flow has focused in the context of information technologies (Hsu & Lu, 2004), with the expectation that online consumer behavior can be better assessed by conceptualizing the cognitive stages a consumer adopts during an online shopping experience (Newman et al., 2004). Website evaluation studies have considered dimensions such as entertainment or "informativeness" as predictors of understanding online consumer behavior and interactivity with a website (Newman et al. 2004; Wu & Chang, 2005). A positive online shopping experience depends on Web shoppers reaching a stage of flow (Shang et al. 2005; Siekpe, 2005). Studies about the user experience are focused on online navigation behavior (Straub et al., 2002; Palmer, 2002; Koufaris, 2002, 2004). It is expected further theoretical development of the online flow construct will focus on the role of site information design (Finneran & Zhang, 2003). This includes both content visibility and

design quality, among other website design-based characteristics. Despite the growing attention to Web usability studies, researchers have little understanding of how information design contributes to customer flow and the resulting impact on loyalty (Kim et al. 2003, Teo et al., 2003).

### 3. Loyalty in Online Environments

The concept of e-loyalty extends traditional brand loyalty to online consumer experience where online shopping is technology mediated (Corstjens et al., 2000; Schultz, 2000; Reichheld & Scheffer, 2000). E-loyalty is defined as the “intention to revisit a website” (Corstjens et al., 2000; Gommans et al., 2001). Loyal behavior may also involve repurchasing (Brown, 1952; Dick & Basu, 1994; Kuehn, 1962; Oliver, 1999; Srinivasan et al., 2002). In this study, e-loyalty is defined as perceived loyalty towards an online website, with intent to revisit the site, or to make a purchase from it in the future. Developing loyal customers is important to firm strategy and survival (Gremler & Brown, 1998; Kumar, 1999; Mittal et al., 2001; Taylor and Baker, 1994), and has the potential to increase revenues and profitability (Aaker, 1997; Heskett, 1980, 2001; Reichheld, 1993, 1996; Reichheld & Sasser, 1990; Srinivasan et al., 2002).

In early research, loyalty was identified as a behavioral purchase process (Jacoby, 1971) with psychological components (Churchill, 1942; Dick & Basu, 1994; Frank, 1967; Jacoby & Chesnut, 1978; Oliver, 1999). Loyalty stemmed from ease of ordering, product information and selection, on-time delivery, customer confidence, adequate privacy policies, online resources, and e-commerce quality (Churchill, 1979; Wolfenbarger & Gilly, 2000). More recent studies on consumer attitude and purchase behavior have attempted to measure loyalty as a pattern of repeat purchases, as well as to define the statistical properties of loyalty (Flavian, et al., 2005; Koufaris, 2002; Palmer, 2002; Siekpe, 2005; Taylor & Baker, 1994; Yoon, 2002).

Relating satisfaction to e-loyalty Devaraj et al. (2002, p. 185) claimed that “repeated satisfaction with purchases eventually leads to customer loyalty”. Anderson and Srinivasan (2003) tested whether the impact of customer satisfaction on e-loyalty was moderated by business level factors (i.e. trust, perceived value) and individual factors (i.e. inertia, convenience motivation, and purchase size). As expected, higher levels of satisfaction yielded higher levels of e-loyalty.

In online settings, Lurn and Lin (2003) asserted that “understanding how or why a sense of loyalty develops in customers remains one of the crucial management issues of our day” (p. 156). Delivering value-added services, with easily accessible capabilities related to information design or navigation enables online vendors to build sustaining relationships with customers (de Ruyter et al., 2001).

Gommans et al. (2001) offered a conceptual framework for e-loyalty (which remains untested), in which the authors suggest five elements that contribute to an online consumer’s choice to revisit or repeat purchase at the site of an online vendor. Attitudes, behaviors, and behavioral intentions are proposed to underpin e-loyalty. More specifically, the e-loyalty framework includes: the *value proposition* (i.e. product customization, product quality and choice, pricing, and brand recognition); *brand building* (i.e. brand building and community building); *trust and security* (i.e. evidence of third party approval, privacy, company reputation, and reliability); *customer service* (i.e. quick response to customer enquiries, ease of making contacts, easy payment options, or fast delivery); and finally *website and technology* (i.e. ease of navigation, personalized features, design for targeted customers segments, language options, effective search functions). It is within this final domain that the current research is found.

### 4. Establishing a Taxonomy for Antecedents to Flow and Loyalty

Various models of flow and loyalty concerning users’ website experience have emerged. We suggest they might be loosely categorized as either design-based or cognitive-based depending on their inherent emphases. Both components are important for a comprehensive model of flow and loyalty. To explore this distinction further, in the next sections earlier work on design-based models is outlined, followed by antecedent constructs in the realm of usability and design that are proposed as variables for a new model identified in the present paper. These variables are: Internet system quality, Content Visibility, and Design Quality. Following this, a section outlines earlier work on cognitive-based models. Two more variables that are cognition based are then elaborated. These are User Satisfaction and User Concentration (see Figure 1).

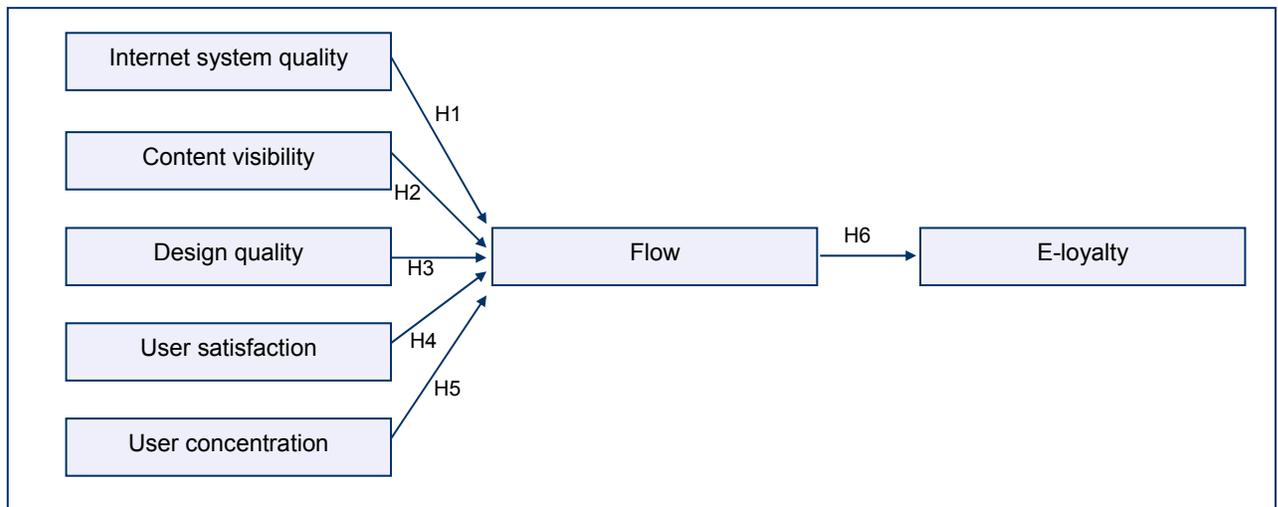


Figure I: A Comprehensive Model of Flow and E-loyalty

#### 4.1 Design-Based Models

Yoon (2002) attempted to measure website properties and search functionality in generating purchase intention or e-loyalty. In his model, site properties included consumer attributes such as adequacy of product description and width of product selections. Yoon also included a number of variables for assessing website trust. These included familiarity with electronic commerce, previous satisfaction with e-commerce, and receptivity to new technological innovation. Personal variables and website properties were predicted as antecedents to the formation of trust. The model uncovered that trust and satisfaction were highly correlated, and further that “website trust, satisfaction, and awareness all would have a significant causal impact on online purchase intention” (p. 60). This research was successful in measuring e-loyalty, although it is noteworthy that certain design elements such as the aesthetics of the site and overall design quality were not investigated.

Agarwal and Venkatesh (2002) considered a “heuristic approach” to measurement. To determine usability, the researchers considered variables such as content, ease of use, and promotion. Using Microsoft Usability Guidelines, Agarwal and Venkatesh examined a number of websites including airlines, bookstores, car rental companies, and auto manufacturers. User experiences were measured by task and product orientations to determine users’ experience of the sites. The outcome of the study was to devise a “metric procedure” capable of assessing the quality of Web presence for a company. Measurement was grounded in the “total user experience” represented by appeal of the website. Concerning design, it is noteworthy that the model parameters did not quantify site design deficiency variables. Rather, the study represented a usability study.

A model proposed by Torkzadeh and Dhillon (2002) aimed to measure factors that influenced perceived Internet value for customers by examining means of online payment, Internet product choice, Internet vendor trust, and shopping travel. To further validate their model, the authors considered patterns of Internet shopping convenience, Internet customer relations, and Internet product value. The role of technology in augmenting customer perceptions was also considered a key finding. Of interest, Torkzadeh and Dhillon used a two-step content validation procedure that relied on Keeney’s (1992, 1994, 1999) work concerning item generation. Final factor patterns of the Torkzadeh and Dhillon study were clustered into the following areas: online product choice, online payment, Internet vendor trust, shopping travel, and Internet shipping errors. The study did not consider customer satisfaction, flow or e-loyalty.

Palmer (2002) focused on design and website usability with an aim to model website performance metrics. Palmer’s model included: download delay, navigation and organization, interactivity, information content, and website responsiveness as they influenced perceptions of website success. Navigation and organization encompassed a number of sub-constructs grounded in previous research completed by the design community (Nielsen, 1993, 2000; Shneiderman, 1998) such as: arrangement, sequence, links, and layout. Information content included the amount of information, variety of information, word count, and content quality. Navigation, interactivity and content quality factors were all significant (with loading coefficients ranging from a low of .46 to a high of .95), and resulted in a positive and enjoyable shopping experience. These findings

indicate that users care about site information quality, content richness and navigation as they shop online. Palmer acknowledged that website design is important to enhanced Web success. With reference to the current work Palmer's model did not consider e-loyalty.

Most recently, Flavian et al. (2005) examined website usability related to ease of use of the site. Usability referred to ease of understanding and navigating the site, and ease of finding information. The researchers predicted and confirmed that greater perceived website usability would positively influence trust, satisfaction, and loyalty toward the website. In sum, all the above studies emphasize website characteristics as part of the model, including the importance of quality of the, content, and quality of design.

#### **4.1.1 Internet system quality**

The online experience is different from that of a more conventional, physical sales experience. The lack of physical content requires compensation with "heavy reliance on technology" and "system quality" (Armstrong & Hagel, 1996; McKinney et al., 2002; Roman et al. 1997). Internet system quality is important (Hsu and Lu, 2004) and refers to the presence of a fast, reliable connection for navigating a website. Others refer to quality of the Internet system as "attributive service satisfaction", indicating that a customer's engagement with a website is a cumulative satisfaction that encompasses site service quality, customer engagement and a desirable e-store environment (Chiou, 2005).

Kim et al. (2002) compare site quality to "architectural quality" and propose the Internet must provide user-convenient information processing and information functions. However, current research has not well validated the measurement items which lead to overall system and site quality, and system usage (Hsu & Lu, 2004; Novak et al., 2000; Sautter et al., 2004; Straub et al., 1995). Measurement items have included system response time, transaction speed, and consistent image. The problem with such itemization is that the real measurement construct of "system quality" (Rose et al., 2005) is clouded with multivariate measurement items based on specific websites. This approach limits generalizability, and introduces further challenges in measuring flow.

Quality measures have been used to assess a variety of selling and non-selling environments (Kim et al. 2002; Kim & Choi, 2003; Kim & Stoel, 2004). Without efficient system quality, provision of quality services is difficult which in turn diminishes online customer shopping experiences (Aladwani & Palvia, 2002) including flow. Thus, our first hypothesis:

**H<sub>1</sub>:** Internet system quality is positively related to online customer flow experience.

#### **4.1.2 Content Visibility**

Straub (1989) considered content and visibility of content to be prime determinants in generating a positive consumer experience. Prior research of online content and information considered various measures of online success. This included the degree of user satisfaction with product information, information search strategies, and information quality (Gelderman, 1998). Despite this, Schlosser and Kanfer (1999) point out that many websites do not incorporate good information design features (Briones, 1999).

Content visibility on the Web continues to be a critical concern for potential customers and businesses (Lee et al., 2002). The continued growth of data warehouses for a variety of consumer products, and the demand for quality content on the Web has increased the need for accuracy, timeliness, and relevance of information (Delone & McLennan, 1992; Lee et al., 2002). Chau et al. (2000) argue that the modes of information presented on the Internet have a significant impact on the user experience. Information visibility on the Web impacts consumers' pre- and post-buy behavior, which in turn places pressure on the quality of Web design (Chen et al. 2000; Staples et al., 2002).

Torkzadeh and Doll (1999) and Torkzadeh and Dhillon (2002) developed an instrument for measuring website interaction that consisted of five dimensions of user satisfaction: satisfaction with content, accuracy, format, timeliness of information, and satisfaction with the system's ease of use.. Factor patterns used by Torkzadeh and Dhillon considered the need for development of reliable information content related to online success. Given the importance of content visibility to the online customer the second hypothesis is proposed.

**H<sub>2</sub>:** Content visibility is positively related to online customer flow experience.

#### **4.1.3 Quality of Design**

Usability studies have examined the importance of website design features in generating customer satisfaction (Agarwal & Venkatesh, 2002; Flavian et al., 2005; Newman et al. 2004; Palmer, 2002; Yoon,

2002). Website elements such as content, functionality, structure, and aesthetics play a significant role in shaping customer loyalty (Mithas et al., 2002; Palmer, 2002) and whether or not online consumers will use a site (Cuffaro et al., 2002).

There is an ongoing debate regarding elements of effective Web design (Ivory et al., 2002; Nielsen et al., 2000; Robbins et al., 2003; Zhang et al., 2000). Many design guidelines have been developed for user interface and page design quality (Huizingh, 2000). However, these guidelines are at an abstract level making implementation difficult or at best idiosyncratic. Some practical guidelines developed for ease of implementation focus on page layout or color (Nielsen, 1999, 2000), and often consider design issues based on anecdotal feedback. Fleming's (1998) principles of successful design (clear visual images, easy navigation facilities, clear visual messaging, and consistent design) are mostly ignored.

Website design will be manifested in "orderly and clear design", effective user interfaces, and design aesthetics (Davis, 1989; Ivory & Hearst, 2002; Lavie et al., 2003; Nielsen et al., 2000). Neale and McCombe (1997) described a requirement for "usable and visually appealing website" experiences. Nielsen (2000) confirms that effective websites should enable customers to perform useful tasks while enjoying the "beauty" of the site.

Website design factors that evoke an emotionally appealing site experience are becoming important site quality issues (Kim et al., 2003). McClellan (1996) suggests the role of website quality in generating a "peak customer flow experience" should be examined. Such factors may be powerful in stimulating appropriate customer emotions while contributing to an optimal online customer experience (Pace, 2003). Some studies have attempted to assess the dimensions of "visual aesthetics of websites" and their impact in generating an online customer experience (Finneran et al., 2003). As computer-mediated technologies allow website designers to construct good graphical user interfaces, the role of website aesthetics in shaping flow and e-loyal consumer behavior will become an increasingly important research area (Flavian et al., 2005; Narayanan et al., 2002). This suggests the following hypothesis.

**H<sub>3</sub>**: Design quality is positively related to online customer flow experience.

#### **4.2 Cognitive-Based Models**

Ghani et al. (1991) developed a model of flow that suggested control and site challenges could be used to predict enjoyment, concentration, and exploratory use. Hoffman and Novak (1996) conducted the first empirical study of flow by surveying 1,600 Web users. They created a structured equation model grounded in specific Web activities. Flow on the Web was conceptualized as a "cognitive state experienced during online navigation experience" (Novak et al. 2000, p. 24)). The authors further claimed high levels of arousal and control, focused attention, interactivity, and telepresence determined flow. The large sample size provided good validity however the study was criticized for problems in defining measurement variables (Pace, 2003). Novak (2000) confirmed that further research should be directed toward "distinguishing between task-oriented and experiential navigation behavior" of flow (p. 30). Later, Novak and Hoffman (1997a, 1997b) included high skills, challenges, focused attention, all enhanced by interactivity and telepresence as independent variables causing flow. Novak et al. (2000; 2003) introduced a structured model of customer flow that included a number of latent factors: arousal, challenges, exploratory behavior, focused attention, importance, play, positive affect, skill, speed, telepresence, and time distortion. The model was tested with good model fit results although the relationship of satisfaction and flow was not considered.

Koufaris (2002) developed a model for e-loyalty using a modified technology acceptance model (TAM). Dependent variables in the model were unplanned purchases and intention to return to the website (like e-loyalty). After testing numerous linear models, Koufaris was able to validate his loyalty model, and found that product involvement, Web skills, value-added search mechanisms, and challenges resulted in shopping enjoyment and concentration which ultimately led to intention to return to a site. Although Koufaris' model is useful to explain how online customers could experience satisfaction and control while e-shopping, the role of website design and the level of flow was not included in the design of the study. Koufaris notes: "[S]pecifically, we examine how emotional and cognitive responses to visiting a Web-based store for the first time can influence online consumers' intention to return and their likelihood to make unplanned purchases." (p. 205)

Following on the work by Koufaris (2002), Siekpe (2005) likewise used concentration, along with challenges, curiosity and control as antecedents to flow, and then to intention to purchase and intention to return to the website. In this work, specific elements of design are not incorporated into the research model. In other

work, satisfaction has been considered related to customer value and loyalty (Anderson & Srinivasan, 2003; Lam et al. 2004; Luarn & Lin, 2003; Shankar et al, 2003; Szymanski & Hise, 2000), but not to flow.

It appears that previous work has already been conducted to map users' experience of a website based on cognitive models. More specifically, satisfaction has been considered in earlier work as noted above. Further, it appears that user concentration is prominent in previous models (i.e. Ghani et al., 1991; Koufaris, 2002; Siekpe, 2005). As such, we selected user satisfaction and user concentration as the cognitive components our model.

#### **4.2.1 User Satisfaction**

Satisfaction is the “summary of psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with a consumer’s prior feelings about the consumer experience” (Anderson & Srinivasan, 2003). An ongoing evaluation of customer satisfaction is important for safeguarding customer loyalty (Deveraj et al., 2002). Online satisfaction motivates online shoppers to stay at the site and return to the site in the future (Bhattacharjee, 2001a; Flavian et al., 2005; McKinney et al., 2002; Torkzadeh & Doll, 1999) thus yielding an e-loyal customer outcome. Further, customer satisfaction is affected by the context of the website (Robbins et al., 2003). Dekimpe (1997) found that emotions as invoked in the “consumption process” had a direct influence on satisfaction, especially in product areas such as automobiles.

Studies suggest that a higher level of consumer arousal and challenge (Jee & Lee, 2002) help to generate a satisfying online experience (Ellis et al., 2002; Massimini & Carli, 1988). In an e-service setting, and using what they term a “cognition-affect-behavior” model, Lam et al. (2004) examine perceived customer value related to satisfaction, and ultimately e-loyalty. Findings indicate the importance of customer satisfaction in the model. Also in a service setting, a construct for service encounter satisfaction (that includes a number both website and web user attributes) is proposed to result in overall satisfaction and loyalty (Shankar et al., 2003). A key finding is that a relationship between satisfaction and loyalty exists, and is further strengthened in online environments. Based on the preceding, the following hypothesis is posed.

**H<sub>4</sub>:** User satisfaction is positively related to online customer flow experience.

#### **4.2.2 User Concentration**

When users are in a concentrated state, there is a sense of intense involvement and focused attention with the website (Koufaris, 2002; Mathwick, 2002; Siekpe, 2005; Trevino & Webster, 1992; Webster et al., 1993). Related to this, a customer can have concentration to information pertaining to online products or services which is expected to appeal to a customer’s hedonic needs (Zaichkowsky, 1985; 1986) and emotional and cognitive responses (Chevalier & Ivory, 2003; Koufaris, 2002). Further, concentration as a measure of flow has also been found to positively influence the overall experience of computer use (Novak, et al., 2000; 2003). Concentration has been noted as a ‘significant correlate’ or measure of flow (Koufaris, 2002).

According to Siekpe (2005) concentration is “the extent to which the individual’s attention is completely absorbed by the activity to the extent that nothing else matters” (p. 33). Siekpe considered the multidimensionality of the flow construct both as reflective and formative constructs. In this work, reflective and formative conceptualizations of flow included challenges, concentration, curiosity, and control as independent variables of flow. Siekpe (2005) differentiated the reflective and formative dimensions of the flow construct by way of a covariance structure and path analysis. The composite flow model yielded fit indices greater than .90, indicating a model with a good fit. Relevant to the current research, the formative model confirmed that concentration is an antecedent of flow. This results in the following hypothesis.

**H<sub>5</sub>:** User concentration is positively related to online customer flow experience.

In a study of online tourism Wu and Chang (2005) confirmed that “flow was positively related to transaction intentions” (p. 942). Siekpe (2005) investigated “intention to purchase” and “intention to return” as the measurement outcomes of flow, which is essentially e-loyalty. Based on this work, and the earlier elaboration of flow and e-loyalty, the final hypothesis is offered.

**H<sub>6</sub>:** Customer flow experience is positively related to e-loyalty.

## **5. Conclusion and Direction for Future Research**

The widespread and growing use of the Internet for business transactions continues to motivate both researchers and website merchants to better understand how to better attract and retain online customers. E-loyalty has not only been shown to drive revenues, it also decreases expenses to an organization by reducing customer acquisition costs. How to create a positive, enjoyable, and stimulating website experience is expected to result in flow as the heightened state of mental arousal that ensues from deep involvement in an activity. If flow is present for online users, then we posit that e-loyalty will ensue.

For many years researchers have attempted to measure flow and loyalty – with varied success. Early measurement views of loyalty extend back to 1952, when Brown examined purchase patterns of consumers, and attempted to classify loyalty. Subsequently, Kuehn (1962) considered loyalty rather simply as the outcome of repeat purchases, and researchers were able to validate loyal customer behavior by capturing data on repeat purchasing. Other models of loyalty considered both attitudinal and behavioral dimensions of measurement (Malhotra, 2002). Engel and Blackwell (1982) referred to loyalty as “preferential, attitudinal and behavioral dimensions”.

We propose that both cognitive and design elements of websites are critical for flow. However, extant models of flow do not consider these dual paths. This paper presents a summary of the literature and a new model which combines both cognitive and design elements. The merit of this approach lies in combining key elements from contemporary research, and in including elements from the website design literature (i.e. Internet system quality, Content visibility, and design quality) that appear to be important in previous studies. This design approach is coupled with more cognitive elements such as satisfaction and user concentration which have appeared recently as important to flow. It is expected that both design and cognitive elements will present a comprehensive picture related to flow, and ultimately to e-loyalty. The six hypotheses presented offer researchers fertile ground for future empirical testing and validation of our model.

For practitioners, this comprehensive model can potentially provide the cornerstone for determining antecedents of flow and e-loyalty. As the pre-requisites to flow emerge, then designers and marketers are in a better position to develop successful and profitable websites. Further, while flow has a history dating back over 30 years, it has received relatively little attention. This research builds on earlier work by Csikszentmihalyi (1975), and more recently that of Siekpe (2005) and Wu and Chang (2005) to place flow as a central construct in the quest for uncovering the secrets of loyalty in online environments

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