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# ASSESSING MOTIVATION IN ECOMMERCE

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## ABSTRACT

This research-in-progress paper examines factors that affect ecommerce. The design of ecommerce web sites has offered many challenges and opportunities for organizations throughout the world. There has been a rich stream in the information systems research on the antecedents of good web design. This has included ideas of how the size of the web site (e.g. the download delay) affects users' perceptions or even how interactive components affect consumer behavior. The contributions of this paper are two-fold. First, a conceptual model of the factors influencing online consumer motivation is presented. This model draws on Self-Determination Theory (SDT) as well as the current practices used in web design. The model adapts concepts from SDT, and references components of use of motivation in design. Second, this paper presents an instrument that has been validated in laboratory and field tests.

## Keywords

Ecommerce, Motivation Theory, EBusiness, EDT, Intrinsic Motivation

## INTRODUCTION

The design of ecommerce web sites has offered many challenges and opportunities for organizations throughout the world. There has been a rich stream in the information systems research on the antecedents of good web design. This has included ideas of how the size of the web site (e.g., the download delay) affects users' perceptions (Galletta, Henry, McCoy, & Polak, 2006) or even how interactive components affect consumer behavior (Campbell & Wright, 2008; Palmer, 2002). In this paper, we will go a step beyond examining which components of a web site affects consumer behavior and evaluate the possibility that there are psychological needs that can inform ecommerce web design. Specifically, Self-Determination Theory (SDT) will be presented as a framework to understand how psychological needs can inform web design elements in an ecommerce context.

At the center of SDT is motivation (Deci, 1975; Deci & Ryan, 1985; Ryan & Deci, 2000). Motivation, "concerns energy, direction, persistence and equifinality – all aspects of activation and intention." (Ryan & Deci, 2000). Motivation in ecommerce can be highly valued as it offers insight into the consequences of behavior (e.g. consumer behavior). In other words, by understanding ones motivation in certain contexts we can determine the design factors that affect their consumer behavior.

The contributions of this paper are two-fold. First a conceptual model of the factors influencing online consumer motivation is presented. This model draws on SDT as well as the current practices used in web design. The model adapts concepts from SDT and references several components of use of motivation in design (Fang & Salvendy, 2000; Galletta et al., 2006; Palmer, 2002; Zhang, 2008). Second, this paper presents an instrument that has been validated in laboratory and field tests.

## PAST RESEARCH

Most ecommerce systems have unique objectives, features and structures that are based on certain organizational goals. Although there are many different types of systems, web designer have argued that consumers expect certain features in certain locations and therefore standard design must be used in ecommerce web sites. Unfortunately, the extant literature on the use of standards by organizations in their ecommerce web site has suggested that the design of ecommerce web sites has not exactly been standardized. This includes the attributes offered, the layout and so on.

The literature shows that different organizations use their ecommerce web sites in very different ways that may or may not include standards in design. We argue that this lack of congruence in the literature and in practice is due to the under-utilization of human behavior factors that affect a user's perception of certain web design components. As stated above, using the motivations in human behavior may offer insight into how a user's perceptions are formed about web design components. Next we examine the extant motivation literature to explain in detail the linkage of motivation to a user's perception of a web site.

## Motivation Literature

Recently there has been a call to study motivation in the context of information and communication technology (ICT) (Zhang, 2008). There are two basic questions that the motivation literature, in general, attempts to answer. First is what causes certain behavior and second why does behavior vary in intensity (Reeves, 2005). By examining these issues within an ecommerce context we have the opportunity to study the factors that positively affect certain desirable online consumer behaviors (e.g. satisfaction, intent to return, and so on). The significance of studying motivation is clear as it offers a valuable association: motivation produces. Although many times motivation is treated as a single or first-order construct, it is evident that people are moved to act by very different factors. We define motivation, similar to Deci (1975), as a state that is influenced. Further, it must be pointed out that there is a clear distinction between motivation and personality and emotion (Deci & Ryan, 1985). SDT posits that motivation can be formed by external factors (e.g. strong external coercion) and by internalized factors (e.g. value an activity), these are called extrinsic and intrinsic factor respectively.

Extrinsic and intrinsic are two fundamental types of motivation that have been used extensively in the information systems literature. For example, Davis and colleagues (1992) examined motivation in the context of computer use in the workplace. This research suggests that perceived usefulness is a proxy for extrinsic motivation when using a system, whereas enjoyment is a proxy for intrinsic motivation.

Intrinsic motivation has been linked to adoption and information system success. Venkatesh (1999) found that intrinsically motivated individuals (in the form of computer playfulness) positively affected acceptance of technologies. In this study, Venkatesh also demonstrated that specific training techniques aimed at increasing ones computer playfulness created a positive experience for the user and therefore increased the user's satisfaction.

We advance the online consumer motivation research by offering a possible way to measure motivation based on interplay between the two factors (e.g. extrinsic and intrinsic motivation). True to SDT we view this interplay as a behavior continuum where one could be highly extrinsically motivated or highly intrinsically motivated. Clearly these two motivations factors are linked. For example, one could be highly extrinsically motivated and highly extrinsically motivated.

#### **ONLINE MOTIVATION**

Online consumer motivation is an emerging area of research that has received more and more attention recently. A review of online consumer motivation literature (C. M. Cheung, Chan, & Limayem, 2005; C. M. K. Cheung, Zhu, Kwong, Chan, & Limayem, 2003) has shown that online consumer motivation research draws heavily from the consumer behavior research including in an ecommerce context. This includes seminal research such as personality research (Folkes, 1988) and information processing (Bettman, 1979).

All of the above seminal theories have been used to describe or decompose online consumer behavior with some success. However, the application of these theories is not as simple of borrowing the respective components and applying them. It is clear, from this literature review that there are significant differences between online consumers' motivations. We suggest, as does Malhotra, Zhang and others (Malhotra, Galletta, & Kirsch, 2008; Zhang, 2008), that IDT offers a simplistic parsimonious lens for understanding what consumers are looking for in an ecommerce transaction. Our conceptualization looks at the interplay between the intrinsic and extrinsic factors that may form a reasonable amount of influence over a consumer's overall motivation when in an ecommerce context. For this reason it is important to investigate ways to measure this motivation.

#### **ONLINE CONSUMER MOTIVATION MODEL DEVELOPMENT**

As discussed above, we conceptualize that online consumer motivation can be measured by measuring the interplay between extrinsic and intrinsic motivation on a continuum. What is unclear is what specifically affects the extrinsic and intrinsic motivation in an ecommerce context. For this reason we must look at the past literature on individual/consumer characteristics.

In information systems the affect of individual or consumer characteristics have been identified as an important research perspective for quite some time (Zmud, 1979). These factors have included behavioral and motivation characteristics. In the case of our research there are two significant factors that we believe have significant impacts on motivation. The antecedents of online consumer motivation include the task (extrinsic forces / intrinsic forces) and individual difference in web use (extrinsic / intrinsic forces). These motivating factors have an obvious effect during the online experience. The following section outlines the antecedents and outcomes that are derivatives from the motivational factors in an ecommerce environment.

First we will look at how online tasks can be influenced by and also influence one's motivation. This will include an introduction to past ecommerce studies on online tasks. Second, computer playfulness, a heavily studied motivational factor will be introduced and integrated into the online consumer motivation model.

### Research on Online Tasks

In ecommerce consumers can have very different intentions and act different with different intentions. Some consumers have a general idea of what they are looking for while others have specific goals. For example, one user could be looking for cars without any specific requirement where another consumer could be searching for the best price for a certain used car that is located in her general vicinity. The extant ecommerce literature has identified two types of shopping tasks: 1) goal-directed and 2) experiential (Shang, Chen, & Shen, 2005; van der Heijden, 2004; van der Heijden, Verhagen, & Creemers, 2001; Wells, Palmer, & Fuerst, 2005). Unfortunately, there is no agreement for the terminology used in the consumer behavior and ecommerce literature.

As such, online ecommerce tasks can take many forms. Prior research has created online task categories (Hargittai, 2004; Kau, Tang, & Ghose, 2003; Rohm & Swaminathan, 2004). Further, the naming convention for these tasks has been somewhat inconsistent. Some researchers suggest that we differentiate tasks as "programmed" and "non-programmed" in an online environment (S. J. Simon, Grover, Teng, & Whitcomb, 1996), where programmed tasks are repetitive and routine and the non-programmed tasks are novel and unstructured. Other researchers identify the task on a continuum as "goal-directed" and "experiential" (Wells et al., 2005). Clearly, searching and browsing are deemed to be distinct activities in ecommerce, researchers also recognized that they represent two ends of a continuum rather than a strict dichotomy. There are several conventions used to describe the anchors on task continuum. Table 1 summarizes the task characteristics.

Experiential Task Types	Goal-Directed Task Types	Key Work
Experiential attributes	Search attributes	Alba et al. [1997]
Hedonic	Utilitarian	van der Heijden [2004],
Unstructured Non-directed search Non-linear navigation	Structured Directed search Linear navigation	Hoffman & Novak [1997]
Perceptual attributes	Analytic processing	Mathwick et al. [2002]

**Table 1: Task Characteristics: Experiential vs. Goal-Directed Directed (adapted from Wells 2005)**

Next, we will introduce how individual differences, in the form of computer playfulness, can impact a consumer's online motivations.

### RESEARCH ON INDIVIDUAL DIFFERENCES

There are many different way of examining how individual differences relate to ecommerce outcomes. Specific individual differences examined in the consumer behavior and ecommerce literature include privacy beliefs (Sheng, Nah, & Siau, 2008), usability preferences (Palmer, 2002), interactivity preferences (Campbell & Wright, 2008), cognitive load (Shang et al., 2005), stimulation preferences (Hirschman & Holbrook, 1982) and so on.

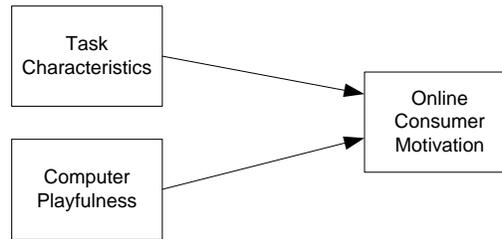
As stated above it is our contention that task is an important component that affects motivation, be it intrinsic or extrinsic. Independent of task, the consumers interaction with an ecommerce web site seemed to be influenced by the inherent nature of the user (Goodhue, 1995; Goodhue & Thompson, 1995).

We believe that similar to differences in tasks (experiential and search), users can also have intrinsic or extrinsic preferences for online experiences. More specifically, we believe that online shopping motivations can vary from person-to-person in general. Zhou (2007) agrees by stating, "(intrinsic) shoppers always find more enjoyment in interactivity environments than in pure test environments." (Pg. 41). On the other hand, research has shown that extrinsic shoppers are concerned with the shopping experience being timely, quick and efficient (Childers, Carr, Peck, & Carson, 2001).

It is obvious that the influence of computer playfulness will account for a different degree of effect on motivation when the task changes. The literature has posited that aspects of the task will account for more variance in outcomes than some individual differences (H. A. Simon, 1996). What is not certain, and will be studied here, is how computer playfulness and the task will influence overall online motivation in an ecommerce environment.

For this reason we conceptualize online consumer motivation as a second order factor that is influenced by both task type (search or experiential) and computer playfulness (intrinsic and extrinsic). Figure 1 depicts our

conceptualization of how online consumer motivation is formed. This includes the effects of both task and computer playfulness.



**Figure 1. Online consumer motivation**

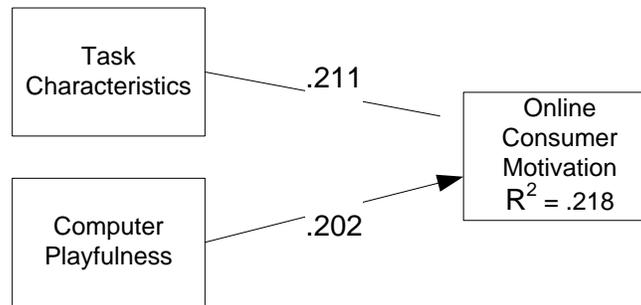
In order to measure the constructs developed in this paper, instrumental validation should precede any empirical validation of the hypothesis (Cook & Campbell, 1979). The instrument vetting process refers to the adequacy with which items (e.g. questions) address the and are related to the construct for which they represent (Straub, Bourdreau, & Gefen, 2004). The information system literature offers explicit guidance on validation guidelines for measurement instruments (Gefen, Straub, & Boudreau, 2000; Straub, 1989; Straub et al., 2004).

### Final Research Model

A measurement model was tested and the 3 factors were discriminant and convergent based on the current methods. Due to space limitations much of the methods section had to be removed in this research-in-progress paper. The structural model was also tested. As stated above we are testing to see if the perceptions of the task and an individual's computer playfulness affect online consumer motivation. As before, AMOS 16.0 was used to test the model. As seen in Figure 2 below the model produced good fit for each indices. Further, all paths in the model were significant. Below is recommended instrument (See Table 2).

OCM1	I am likely to play while using this web site.
OCM2	I would like to enjoy myself while interacting with this web site.
OCM3	I am inclined to explore this web site.
OCM4	I am likely to tinker while interacting with this web site.
OCM5	I am inclined to spend some time and look around this web site.
TT1	Directed/Meandering
TT2	Well-Organized/Unordered
TT3	To-the-Point/ Browsing
TT4	Direct/Not Direct
TT5	In-and-out/ Look around
CP1	. . . unimaginative
CP2	. . . creative
CP3	. . . playful
CP4	. . . unoriginal
CP5	. . . uninventive

**Table 2: Scales**



$\chi^2 / df (129.9 / 62)$  CFI .978 GFI .964 RMSEA .045 (Both paths significant at  $P < .0001$ )

**Figure 2. Online consumer motivation results**

## DISCUSSION & CONCLUSION

This paper provides insight into the critical psychological factors that affect online consumer behavior. Further, this paper develops and validates an instrument to measure the factors that are attributed to online consumer motivation in an ecommerce context. The development of an online consumer motivation instrument is useful as it will allow researchers and practitioners alike to be able to measure and therefore predict which web design tools will but suit the consumer.

The contributions of this paper are two-fold. First a conceptual model of the factors influencing online consumer motivation is presented. This model draws on SDT as well as the current practices used in web design. The model adapts concepts from SDT (Deci, 1975; Deci & Ryan, 1985; Ryan & Deci, 2000), and references several components of use of motivation in design (Fang & Salvendy, 2000; Galletta et al., 2006; Palmer, 2002; Zhang, 2008). Second, this paper presents an instrument that has been validated in a laboratory tests. The results show both discriminate and convergent validity for the measurement instrument based on both an exploratory and independent confirmatory sample. One limitation of this study is that subjects used in the analysis. Student subjects were used in the initial sample. This limitation was controlled somewhat as the task that was executed mapped to the subjects' everyday experience. In other words, using student subjects to research online shopping and online consumer behavior can be seen as acceptable, as they are part of the core online shopping demographic.

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