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Jeffrey A. Clements

*Florida State University, jac10f@fsu.edu*

Ashley A. Bush

*Florida State University, abush@fsu.edu*

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# HABITUAL IS USE AND CONTINUANCE

**Jeffrey A. Clements**  
Florida State University  
Jac10f@fsu.edu

**Ashley A. Bush**  
Florida State University  
abush@fsu.edu

## ABSTRACT

Information systems (IS) use literature and research has been extensive, and has been able to explain a significant amount of the variation in IS acceptance and adoption. The majority of this research has focused on technologies we intentionally use in a work type setting. This current proposed study extends this literature by focusing on automatic use that is non-work related. Understanding the factors that influence the continued use of an IS after initial adoption is important because continued use of a system is an appropriate measure for determining whether or not the IS is actually successful. Habitual IS use is presented and explored to contribute to the understanding of IS continuance. An habitual IS continuance (HIC) model is conceptually developed and proposed. The development of an HIC model allows system success to be measured in voluntary use information systems.

Keywords

Habit, Continuance, Post-adoption, Technology Acceptance, System Success

## INTRODUCTION

Much of the extant research on continuing to use information technology, or IS continuance, has focused on how information systems (IS) can be developed so that users will continue to use the IS after initial adoption and acceptance. This notion of continuance extends technology acceptance models by focusing on the long term continued use of the IS. Understanding the factors that influence the continued use of the IS after initial adoption is important because continued use of a system is an appropriate measure for determining whether or not the IS is actually successful (Davis, Bagozzi & Warshaw, 1989). More recently, Limayem, Hirt and Cheung (2007) have extended the traditional conceptualization of technology usage as being an intentional behavior by positing that much technology usage may be a product of *automatized behavior*. This automatic behavior or habitual IS use is an understudied concept in the IS literature as well as what drives users towards habitual technology use.

Take for example the social network gaming company Zynga founded in 2007, whose business model is entirely dependent on users continuing to use their software long after initial adoption. Three years after starting, Zynga's ability to generate high levels of habitual use has resulted in annual revenues above \$600 million and an employee base of over 1100 people. The company sees over 360 million active users per month and over 65 million active users per day (Zynga, n.d.). Arguably, Zynga does not make money from its users during their initial adoption and use of their technology. Rather it is the users who habitually use Zynga's products who generate revenue for the company. This example demonstrates the power and magnitude a successful habitual technology continuance strategy can exhibit in the marketplace.

An important gap in the IS continuance literature is how user experiences can be manipulated to generate habitual continuance. Our primary research question is: *what are the factors that drive habitual IT use?* In essence, finding and understanding the drivers of habit will contribute to our understanding of IS continuance. Despite the more recent research that has been done in this area, automatic habitual IS use is a concept that is not well understood. We propose and conceptually develop a habitual IS continuance (HIC) model.

## RESEARCH MODEL DEVELOPMENT

IS continuance can be viewed from two different perspectives. First, there is use which is involuntary or mandatory such as daily use of an IS as part of your job. There is also use which is voluntary such as use of technology for entertainment or enjoyment or any non-mandated reason. Our focus is on IS continuance as it pertains to voluntary technologies. More specifically, we focus on the users' automatic habitual use of these volitional technologies.

Viewing IS continuance in this light has several important implications. First, the focus on what drives successful IS continuance can shift from an individual and end-user centric view to a more design oriented view. During the initial design

of a technology, certain functionalities can be purposefully incorporated to guide a user's experience to habitual IS use. By shifting the focus to the design of the system, we begin to focus on variables that can readily be accessed, changed, removed and manipulated to ensure continued use. This point also reflects the current push for information systems research that is design science oriented (Hevner, March, Park & Ram, 2004). Second, automatic IS continuance extends extant conceptualizations of IS continuance that assume continuance is an intentional behavior thus leading to our conceptualization of habitual IS use.

### HABITUAL IS CONTINUANCE

Figure 1 presents our model of HIC. Habitual IS use is defined as the extent to which people tend to perform behaviors (use IS) automatically because of learning (Limayen, Hirt & Cheung, 2007). This definition which incorporates habit as a moderator of intention posits that conscious intent to continue to use decreases when IS use behavior becomes habitual (Limayen et al., 2007). When IS use is habitual it is no longer a conscious decision whether or not to continue to use it and it ceases to be guided by an individual's intentions. Habitual IS use is conceptualized as repeated behavioral sequences automatically triggered by environmental cues (de Guinea & Markus, 2009).

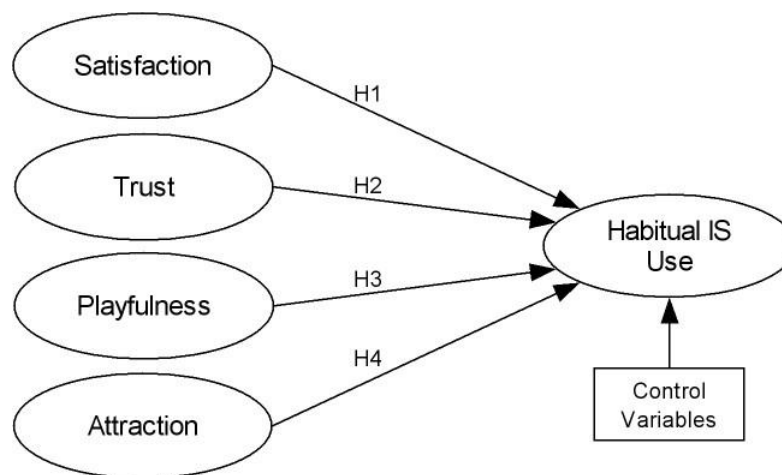


Figure 1. Conceptual Model of Habitual IS Continuance

Most of the literature on IS use has focused on individual users' behavioral reactions to the use of technology. In this regard IS use is generally seen as an intentional behavior, specifically behaviors caused by beliefs about technology and behaviors which are affective responses to technology. The most prominent theoretical perspective in this stream of research is the Technology Acceptance Model (TAM) (Davis et al., 1989; Venkatesh & Davis, 1996). TAM focuses on the beliefs a user holds about the perceived usefulness of a technology and the perceived ease of use of the technology. These two key belief constructs have been repeatedly shown to influence users' behavioral intention to use a technology. A variety of acceptance models have extended this model with beliefs informing the user of the outcomes of use, thereby influencing their behavioral intent.

In an effort to combine and synthesize the various research and models proposed in the TAM literature, Venkatesh, Morris, Davis & Davis (2003) offered the Unified Theory of Acceptance and Use of Technology (UTAUT). In this theory, the authors assessed the similarities and differences of eight competing technology acceptance models, and developed and validated this all encompassing model of acceptance and use. The UTAUT was shown to significantly outperform the competing models, namely: the Technology Acceptance Model, the Theory of Planned Behavior, the Model of PC Utilization, Innovation Diffusion Theory and Social Cognitive Theory (Venkatesh, Morris, Davis & Davis, 2003). With the development of UTAUT and other acceptance models we begin to see a shift in focus from IS acceptance to IS continuance.

IS continuance is viewed as a series of intentional decisions to continue using an information system (Bhattacharjee, 2001). These decisions occur at the individual level and stem from a users perception of the ease of use of the information system as well as its usefulness. If the users' expectations, which arise from their perceptions and beliefs about using the technology are confirmed, they will feel satisfied and will choose to continue using the technology (Bhattacharjee, 2001; Venkatesh, Brown, Maruping & Bala, 2008). Heightened perceptions of usefulness and satisfaction have been shown to increase intentional IS

continuance. Satisfaction has been repeatedly shown to influence IT continuance (Tiwana & Bush, 2005, Bhattacharjee, 2001). Similarly, we propose that satisfaction is a driver of habitual IT use; thus high levels of satisfaction with an IS directly influence habitual use of the technology. This leads to our first hypothesis:

*Hypothesis 1: Satisfaction will positively influence habitual IS use.*

TAM's extension into the electronic market place found significant support for the concept of trust users have when dealing with an online technology (Kim & Ferrin, 2009). Trust has been shown to critically impact online consumer behavior (Ba & Pavlou, 2002). While not looking specifically at habit, research has shown that with experienced repeat online shoppers, trust is as important to online commerce as are the other widely accepted variables – perceived ease of use, and perceived usefulness (Gefen, Karahanna & Straub, 2003). As a result, we believe trust will be a driver of habitual IS use since use of volitional technologies inherently carries a higher perceived risk. This leads to our second hypothesis:

*Hypothesis 2: Trust will positively influence habitual IS use.*

Other IS usage research has looked at intrinsic motivation and how favorable user perceptions are influenced by the role intrinsic motivation plays when using a technology. Research in this area views intrinsic motivation as a key driver of behavioral intention to use (Davis, Bagozzi & Warshaw, 1992). This intrinsic motivation has been conceptualized as playfulness (Venkatesh, 1999), and refers to the inherent satisfaction and pleasure derived from a specific activity. Playfulness with technology can be regarded as unproductive play (unproductive, pleasant and involving) or productive play (productive, pleasant and involving) (Venkatesh, 2000). We believe that playfulness will be a driver of habitual IS use when voluntarily using a technology. This leads to our third hypothesis:

*Hypothesis 3: Playfulness will positively influence habitual IS use.*

It has been suggested that to better understand usage behaviors, we must study the relationships that develop between users and IT artifacts from their repeated interactions (Al-Natour & Benbasat, 2009). This research stream suggests that the relationships a user forms with technology are similar to interpersonal relationships. Users tend to attribute a number of human-like characteristics towards technology and view technology as a social actor. Adopting this of view of technology helps explain a user's level of attraction to a technology. The more positive beliefs a user holds from their interactive relationship with a technology, the higher their level of attraction will be for that technology. This leads to our final hypothesis:

*Hypothesis 4: Attraction will positively influence habitual IS use.*

Table 1 summarizes the constructs and definitions underlying our proposed research model.

<b>Construct</b>	<b>Definition</b>	<b>Representative Citations</b>
Habitual IS Use	Repeated behavioral sequences automatically triggered by environmental cues	(de Guinea & Markus, 2009)
Playfulness	Extent to which autotelic play is unproductive, pleasant and involving	(Venkatesh, 2000)
Attraction	Positive beliefs a user holds from their interactive relationship with technology concerning the technology's qualities and features; overall evaluation or attitude toward a potential relationship with a technology	(Campbell, Wells & Valacich, 2009)
Satisfaction	Positive emotions of pleasure and satiety resulting from the interaction with and use of an IS	(Bhattacharjee 2001, Limayen et al., 2007)
Trust	Willingness to depend based on beliefs in ability, benevolence and integrity	(Gefen et al., 2003, Kim & Ferrin, 2009)

**Table 1. Construct Definitions**

## ANTICIPATED RESEARCH METHODOLOGY

To test the proposed research model, data will be collected via a survey of users of voluntary use systems (e.g., Facebook). This sample is appropriate to test our model for two primary reasons. First, a system such as Facebook is a system used by individuals of their own volition and not in the context of their job. Second, systems such as Facebook provide a variety of mechanisms such as games designed to engage users by creating stickiness around the user experience.

The survey instrument will be developed by adapting existing measures of the drivers of habitual IS use – trust, satisfaction, playfulness, and attraction. The measures for habitual IS use will be newly developed. The instrument will be pilot tested with a group of users to ensure both face validity and content validity. The model will be tested using multiple regression.

## ANTICIPATED CONTRIBUTIONS

IS use research has been extensive and has been able to explain a significant amount of the variation in IS acceptance and adoption. The majority of this research has focused on technologies we intentionally use in a work type setting. This proposed study contributes to research on IS use by focusing on automatic use that is non-work related. With the increasing use of technology and systems outside of one's employment, this study will potentially contribute to our understanding of this use.

This research will also contribute to the stream of research on IS continuance by incorporating the notion of automatic behaviors. Current research has not focused on use behaviors that are automatic and habitual but rather has focused on intentional behavior.

Finally, by conceptually developing a model of Habitual IS continuance, we are contributing to the research on IS success by proposing and testing a dependent variable to measure continued use and ultimately success of voluntary use information systems.

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