The Same, Yet Different: Using Hedonic Systems in Utilitarian Settings

Research-in-Progress

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Abstract

Individuals are increasingly using hedonic systems for utilitarian purposes. While IS research has thoroughly investigated the ability to derive hedonic pleasure from utilitarian systems, the need has arisen to research utilitarian gains from hedonic systems. This study describes the shift from hedonic to utilitarian as a spiritual adaptation, derived from Desanctis and Poole's (1994) Adaptive Structuration Theory. We theorize that the shift from hedonic to utilitarian use of a system occurs when the individual combines a perception of potential cognitive benefit with the existing realization of affectual benefit. These two forces inform our research model, which seeks to predict how and why individuals intend to use hedonic systems for utilitarian purposes. We have developed a method for investigating this model, which will be implemented through a survey comprised of validated measures.

Keywords: Hedonic, Utilitarian, System Use, Spiritual Adaptations, AST, Habit

Introduction

A large amount of research has been conducted investigating the need for individuals to have fun while using computer systems at work (Gerow et al. 2013). It has long been held that intrinsic motivation is vital for system use in work settings (Davis et al. 1992); so researchers have investigated the ability of individuals to discover hedonic benefits while using utilitarian systems. Empirical observation and current trends in the business world note that the opposite phenomenon is just as relevant. As employees within organizations are increasingly utilizing hedonic systems such as social media tools, virtual worlds, and gaming software in the workplace, the call has been raised to understand what motivates individuals to discover utilitarian benefits while using hedonic systems. As users continue to break away from using systems as they were designed (Lyytinen and Newman 2008), it is important to investigate the different ways that users are altering system use. The next evolution in blurring the lines between hedonic and utilitarian systems is to investigate what drives this new form of technology use.

The evolution of research into technology use has given rise to the call for more investigations into post-adoptive system use (Jasperson et al. 2005). As systems have become more modular and individuals more experimental, researchers have turned their eyes toward innovation and appropriation (e.g. Burton-Jones...
and Straub Jr 2006; Nambisan et al. 1999; Sun 2012 among others). One central theme of this line of research is that systems are viewed differently today than in the past, with looser coupling between task and technology: whereas systems were once evaluated by their ability to complete a single task, today computer systems are evaluated by the affordances they allow across a wide variety of tasks (Leonardi 2011). By focusing on the affordances of a system, we begin to evaluate systems based on what they can do, rather than what they are supposed to do.

One interesting aspect of technology affordances lies in the delineation of hedonic systems (which offer intrinsic personal pleasure) and utilitarian systems (which offer extrinsic task-related benefits). Researchers have drawn important distinctions between these two forms of technologies, but the lines are becoming increasingly blurred (Davis et al. 1992; Van der Heijden 2004). Computer systems originally designed for hedonic intent are more frequently being used for utilitarian purposes. For example, virtual worlds were created for individuals to realize the hedonic benefit of alternative social settings (Holsapple and Wu 2007). As these virtual worlds began to grow, businesses identified opportunities to use these new settings to generate revenue and connect with individuals outside of traditional domains (Animesh et al. 2011; Ives and Junglas 2008). These businesses noted the ability of virtual worlds to connect disparate individuals, which opened up a gateway to interact with potential customers. Similar examples have been seen with the recent utilization of social media technologies. Created originally to offer entertainment for individuals, these systems are now being used by employees within organizations for professional purposes (boyd and Ellison 2007). Research into gamification notes the proliferation of hedonic elements into utilitarian contexts (Deterding et al. 2011; Kapp 2012).

Research has clearly established that there are different individual motivations when using hedonic vs. utilitarian systems (Brown and Venkatesh 2005; Van der Heijden 2004; Venkatesh et al. 2012). When individuals use systems for utilitarian purposes, they evaluate the technology based upon utilitarian characteristics such as perceived usefulness and ease of use (Davis et al. 1989). When individuals use systems for hedonic purposes, the criteria change, adding characteristics such as playfulness, enjoyment, and escapism (Van der Heijden 2004). A clear distinction is drawn between intrinsic and extrinsic motivations when using technologies (Ryan and Deci 2000). However, empirical observation tells us that the motivations behind using a technology are not static. An individual may adopt a hedonic technology for enjoyment, but may alter its use for task-related purposes.

The increased use of hedonic technologies in utilitarian settings has called for the need to investigate the reasons for this form of innovation. As individuals continue to appropriate hedonic systems for utilitarian purposes, there emerges an important question for study: **What factors influence an individual’s willingness to use a hedonic system for a utilitarian purpose?**

The remainder of this paper is organized as follows. First, we will examine the literature on technology use, specifically calling attention to research on the fit between task and technology. Then, we will discuss the manners in which individuals appropriate technologies to better fit their work-related tasks. From there, hypotheses will be proposed pertaining to the manner in which individuals use hedonic systems in utilitarian settings. An empirical study will be proposed to test these hypotheses. Finally, potential implications will be offered for both research and practice.

**Literature Review**

In order to understand the shift from hedonic to utilitarian use of technology, we first review the literature on task-technology fit and technology appropriation.

Computer systems, in their most basic form, exist to aid individuals and organizations in the completion of tasks (Ackoff 1967). One common tenant in research on information systems is that performance is greatest when there is alignment between the capabilities of a system and the needs of a specific task. Hailed as “Task-Technology Fit,” (hereafter “TTF”) research on this topic centered on the notion that such fit is made possible when requirements and capabilities are in full alignment (Goodhue and Thompson 1995). When faced with a task, individuals create a task profile, comprised of its intricacies and detailed requirements. For performance to be maximized, the technology, or tool, selected for the task should correspond with the profile of the task (Zigurs and Buckland 1998). TTF has been demonstrated to impact performance in group tasks, e-commerce settings (Klopping and McKinney 2004), and everyday workplace situations (Dishaw and Strong 1999).
Accordingly, prior IS researchers have primarily studied utilitarian systems such as word processors, spreadsheet systems, and communication systems such as emails (for utilitarian purposes). One example is the IS Success Model (Delone 2003; DeLone and McLean 1992), which was focused largely on utilitarian objectives of the systems. The individual impact and organizational impact of a computer system center on the system’s ability to complete utilitarian tasks. Technologies were viewed as static entities which varied in their adherence to the needs of given tasks.

Achieving the greatest amount of fit between task and technology is more complicated than simply selecting the appropriate technology, as technologies do not have a static set of capabilities and features. Computer systems can be adjusted according to the needs of the specific situation (Majchrzak et al. 2000). One mechanism for enhancing the fit between task and technology is to customize the technology to most closely align with the requirements of the task. When individuals use technologies, they bring their own experiences and intentions into the situation. As such, it is important to recognize the characteristics and motivations of the individual when conceptualizing technology use (Lamb and Kling 2003). It follows that technologies should not be viewed as static entities, but rather as malleable objects, subject to the user employing the technology.

Evolution in TTF research emerged when researchers and practitioners realized that technologies can be customized to enhance the fit of the technology with a task. Adaptive Structuration Theory (AST) was presented as a means of describing the notion of individuals adapting technologies to better suit their needs. With this theory comes the inherent assumption that the actual use of technologies differs from the original intentions (DeSanctis and Poole 1994). In order to maximize the fit between a task and a technology, individuals will alter the technology (or, more often, the use of the technology) to better align with the requirements of their task (Dennis et al. 2001). The altering of a technology is often referred to as an “appropriation,” as the individual is taking action to incorporate the outside technology into his or her work task (Majchrzak et al. 2000). Appropriations not only include bringing a technology into a work task, but inventing new uses for the technology to account for the needs of the task (Dourish 2003). Such appropriations occur in different time periods, but have been shown to occur most often toward the earlier stages of use, when the technology is first introduced to the individual; and throughout the task, in response to certain disruptive events (Tyre and Orlikowski 1994).

Technology appropriations are divided into two main categories: structure and spirit. Alterations made to the structures of a technology represent changes to the features or the capabilities of the system (DeSanctis and Poole 1994). Structural appropriations enable the individual to maximize the efficiency and performance of the system in a certain task environment (Gupta and Bostrom 2009). Spiritual appropriations, meanwhile, refer to changes made to the goals for which the structural features and capabilities aim to achieve (DeSanctis and Poole 1994). The spirit of the technology represents its desired intention, the intangible reason for its existence (Rüel 2002). Separating these two forms of appropriation is the distinction between the nature of the alterations. While structural appropriations alter what the system does, spiritual appropriations alter why the system does what it does.

The vast majority of extant research on technology appropriations focuses on structural adaptations, with some researchers recommending that this be the only form of permissible adaptation (Dennis et al. 2001; DeSanctis and Poole 1994). However, the recent identification of utilitarian benefits for hedonic technologies has prompted the need to investigate the process of adapting the spirit of technologies.

By its customary definition, the act of appropriation involves the alteration of an object to best fit a specific context. When considering spiritual appropriations, the alteration is not in the mechanics of a system’s use, but in the purpose of its use. Changing how a system behaves would represent a structural appropriation, whereas a spiritual appropriation maintains the system behavior while altering the intention of the behavior. When an individual uses a hedonic system for a utilitarian purpose, the system actions remain consistent while the contextual purpose of use is changed. The primary alteration lies not in the technology, but in the mind of the user. No usage alterations need to be made to be considered a spiritual alteration, only the motivation behind its use. To better understand how individuals alter the motivation behind a system’s use, we must investigate how individuals form attitudes toward technology use.
The Same, Yet Different

There are two processes whereby an individual may voluntarily use a hedonic system for a utilitarian purpose. The first is more straightforward, with initial adoption in a utilitarian manner. The second is more evolutionary, with initial adoption in a hedonic manner, transitioning to utilitarian use. Our study centers on the second process for two key reasons. First, the decision criteria in the first process are not significantly dissimilar to the adoption of utilitarian systems. Because this decision process has been extensively investigated (e.g. Davis et al. 1989 and many more), we believe it is more interesting to investigate the second process, where initial use is hedonic. Second, by centering the study on the change process, we can look at factors which not only influence utilitarian use, but also those which persist from the initial hedonic use. When initial use is hedonic, factors relevant to the initial adoption remain true through the adaptation process.

The adaptation process of using a hedonic system for a utilitarian purpose begins with initial hedonic use. Before the individual can discover utilitarian benefit to using the technology, it must first be used in the manner intended. Because this initial use is of a hedonic nature, it is assumed that the individual’s evaluation of the technology will be primarily comprised of affectual determinants. Many researchers have investigated the factors that influence the initial adoption of hedonic systems (e.g. Gerow et al. 2013; Van der Heijden 2004).

For the user to alter the manner in which he uses the system, a secondary assessment must take place. The secondary assessment serves two purposes. If the user is satisfied with the level of affectual benefit derived from use, he will continue to use the system in a hedonic manner. Satisfaction of prior use is a strong predictor of future use, and this relationship is strengthened even more when concerning affect (Hsieh et al. 2008). If, during this period of secondary evaluation, the user believes there to be utilitarian benefit in addition to the existing affectual benefit, then the manner of his system use will change. Research demonstrates that when affect is the initial determinant of an individual’s beliefs, it will remain the driver of attitude (Edwards 1990). However, the affect can be combined with cognition later to alter both the individual’s attitude and his resulting behavior. When the composition of an individual’s attitude toward system use is comprised of the perception of both affectual and cognitive benefit, then the resulting behavioral intentions will reflect this new attitude.

To answer the research question, the motif of this study is to investigate what occurs during the secondary assessment, specifically what factors influence an individual’s voluntary intention to use a hedonic system for both hedonic and utilitarian purposes. Because behavioral intentions have been widely proven to be an outflow of an individual’s attitude (Bruvold 1972a; Bruvold 1972b; Insko and Schopler 1967), it only makes sense that our investigation into the alteration of behaviors begins with an understanding of how an individual’s attitude toward using a system is altered.
The Changing Nature of Attitude

An individual’s attitude is comprised of three components: affect, cognition, and conation (Breckler 1984; Smith 1947). Two of these components, affect and cognition, are formative components, elements which comprise an individual’s attitude (Triandis 1980). The third component, conation, represents the outcome of the attitude, or the behavior enacted as a result of the attitude (Park et al. 2008). Thus, the manner in which an individual’s attitude is comprised determines the type of behavior executed from that attitude. Individuals often seek to ensure consistency between attitude and behavior (Ajzen 1991).

Affect and cognition are distinctly different, yet interact with one another to form an individual’s contextualized attitude (Edwards 1990; Zajonc and Markus 1982). When considered as components of an attitude toward a future event, both cognition and affect represent behavioral beliefs relevant to that future event. Cognition represents the objective component of the attitude, the reasonable expectation of the effect on an individual’s well-being (Sun and Zhang 2006). Affect, meanwhile, represents the subjective component, the expected impact of the stimulus on the individual’s emotions. Cognition and affect are interdependent components of attitude. The degree to which each of these components comprises an individual’s attitude informs the resulting behavior. Hedonic system use and utilitarian system use will differ in terms of the individual’s attitude composition.

The hedonic use of a computer system is the result of an attitude that is weighted heavily toward affect. Hedonic systems are motivated by personal pleasure and delight (Venkatesh 2000). Factors influence hedonic system use are more emotional, such as enjoyment and playfulness (Van der Heijden 2004). When individuals discover hedonic benefits from utilitarian systems, the cognitive predictors of attitude are infused with affect. The individual’s attitude is altered due to the new composition of affect and cognition. When these two elements are weighted in relative equality, the behavior induced through the individual’s attitude changes from purely hedonic to include utilitarian use.

For the purposes of this study, we must more closely define the affective and cognitive influences on behavioral intention. Regarding affect, the belief at play is the belief, on the part of the individual, that the system has the potential to influence the core affect (Zhang and Li 2004). The greater this perception, the more likely the individual’s attitude will be influenced positively by affectual components. The cognitive dimension is best approximated by perceived usefulness, which reflects the belief, on the part of the individual, that the system can provide work-related benefit (Davis et al. 1989). The composition of attitude, relative to these two dimensions, determines the resulting behavioral intent on the part of the individual.

H1: Perceived affective quality has a positive influence on both continued hedonic and novel utilitarian intentions of a hedonic system.

H2: Perceived usefulness has a positive influence on novel utilitarian intentions of a hedonic system.

While usefulness is primarily determined by cognitive forces, recent studies have shown that, even for utilitarian systems, intrinsic factors influence the perceived usefulness of the system (Yi and Hwang 2003). Intrinsic motivation is important across all settings of system use (Davis et al. 1992; Gerow et al. 2013). When considering hedonic systems, not only are these intrinsic factors important, but they have shown to override, or influence, cognitive determinants of attitude (Edwards 1990). Emotions will remain consistent throughout the life of the system use, altering the degree to which the user evaluates cognitive influences (Al-Gahtani and King 1999).
**H3:** Perceived affective quality has a positive influence on the system’s perceived usefulness when using a hedonic system for a utilitarian purpose.

The determinants of affect and cognition will differ due to the nature of the transition of use. Because, in this context, prior use was primarily hedonic, the determinants of affect will be based on the satisfaction of prior use. In other words, an individual will believe there to be affectual benefit in using the system if prior use of the system provided such benefit (Hsieh et al. 2008). Especially when prior use of a system is for hedonic purposes, satisfaction is the result of affectual elements (Mano and Oliver 1993).

Satisfaction is, in itself, an attitude, though an attitude toward a prior behavior. We expect the impact of satisfaction to rest solely on future affectual belief due to the hedonic nature of prior use. Researchers surmise that users who enjoy using a system in one context will presume to enjoy that system in all contexts, as enjoyment is context-independent (Hassenzahl et al. 2000). Similar emotional characteristics such as aesthetic quality have also proved to be reliable in both personal and work settings (van Schaik and Ling 2009). When an individual enjoys using a system, not only will the individual enjoy using it in all contexts, but he will seek out new uses for the system in an effort to continue enjoying it (Zhang and Li 2005). Emotional influences are long-lasting, and should be expected to influence future behavior (Edwards 1990). Thus, because prior use of the hedonic system was for hedonic purposes, the satisfaction felt toward prior system use should influence future considerations of the emotional aspect of attitude.

**H4:** System satisfaction has a positive influence on the user’s perceived affective quality of the system.

We expect that satisfaction of the system’s prior hedonic use are influenced by three factors – pleasantness and arousal (Mano and Oliver 1993; Russell 1980; Xu et al. 2012) as well as positive disconfirmation of prior expectations (Bhattacherjee 2001).

**H5:** Pleasantness has a positive influence on the user’s satisfaction with prior system use.

**H6:** Arousal has a positive influence on the user’s satisfaction with prior system use.

**H7:** Positive disconfirmation of prior expectations has a positive influence on the user’s satisfaction with prior system use.

The addition of cognitive elements into attitude formation comes not from satisfaction of prior use, but from the novel realization of cognitive benefit. Primarily, cognition is added to attitude when the individual discovers compatibility between the system and the individual’s work needs (Sun et al. 2009). Perceived work compatibility is an object-related belief, an objective evaluation of the computer system. The object-related belief of compatibility will lead to a behavioral belief of usefulness, which represents the cognitive dimension of attitude formation (Wixom and Todd 2005). When an individual considers the usefulness of a system, he must evaluate the compatibility between the system’s capabilities and the needs of the task (Zigurs and Buckland 1998). The more a user perceives there to be compatibility between the system and the work assignment, the more favorably the user will view the usefulness of the system (Sun et al. 2009).

**H8:** Perceived work compatibility has a positive influence on the system’s perceived usefulness when using a hedonic system for a utilitarian purpose.

This discovery is not formed by accident, but triggered through the use of the system. Research into mindfulness indicates that individuals who are more mindful with their use of a system are more apt to discover novel uses of that system (Langer 1997; Langer and Moldoveanu 2000; Roberts et al. 2007). Mindfulness feeds the cognition of an individual through increasing the awareness of potential use in new contexts (Butler and Gray 2006; Chanowitz and Langer 1980). Thus, we expect individuals who use the system more mindfully to be more likely to discover compatibility between the system and their work needs (Sun and Fang 2010).

**H9:** Mindfulness has a positive influence on the perceived work compatibility of the system.
Method

In order to investigate the proposed hypotheses, a student sample will be surveyed regarding their intentions to use Facebook for both hedonic and utilitarian purposes. Facebook is becoming an increasingly popular tool for school-related use (Mazer et al. 2007), and is vastly popular in personal use (Chui et al. 2012). Therefore, we expect to be able to find a large enough sample of students with intentions to use Facebook for one or both purposes.

The nature of the study provides two key constraints to our data analysis. First, because we are looking at an alteration of use, we must ensure that those users in our sample frame have experience using Facebook hedonically. Secondly, we must ensure that the users are not currently using the system in a utilitarian manner. The goal is to predict future intentions, not to determine current use.

Each of the constructs used in our study is derived from prior research. Table 1 summarizes the constructs that will be used, as well as the source for each of the items that will comprise the survey.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>Operationalization</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasantness</td>
<td>“the degree to which a person feels good, joyful or happy in a situation...”</td>
<td>Six Item Semantic Differential Scale</td>
<td>Russell, 1980</td>
</tr>
<tr>
<td>Arousal</td>
<td>“the extent to which a person feels stimulated and active...”</td>
<td>Four Item Semantic Differential Scale</td>
<td>Russell, 1980</td>
</tr>
<tr>
<td>System Satisfaction</td>
<td>“Users’ affect with (feelings about) prior [system] use.”</td>
<td>Four Item Likert Scale</td>
<td>Bhattacherjee, 2001</td>
</tr>
<tr>
<td>Confirmation of Expectation</td>
<td>“Users’ perception of the congruence between expectation of [system] use and its actual performance.”</td>
<td>Three Item Likert Scale</td>
<td>Bhattacherjee, 2001</td>
</tr>
<tr>
<td>Perceived Work Compatibility</td>
<td>“the perception of fit between IT and work that motivates employees to use the system, irrespective of the actual extent of fit.”</td>
<td>Three Item Likert Scale</td>
<td>Sun et. al, 2009</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>“continuous refinement of expectations based on new experiences, appreciation”</td>
<td>Sixteen Item Likert Scale</td>
<td>Roberts et al., 2007</td>
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Perceived Affective Quality  | “an individual’s perception of an object’s ability to change his or her core affect.” | Eighteen Item Likert Scale | Zhang & Li, 2004
Usefulness  | “the prospective user’s subjective probability that using a specific application system will increase his or her job performance within an organizational context.” | Four Item Likert Scale | Davis et. al, 1989
Behavioral Intention  | User’s intention to use the system for a purpose | Three Item Likert Scale | Wixom & Todd, 2005

### Potential Impacts

The greatest impact for this study will derive from our nuanced explanation as to what happens when individuals alter their intentions and begin to use hedonic systems for utilitarian purposes. From a practitioner perspective, this research will illuminate not only why this change occurs, but what factors influence this change as users experience a system. The results of our study should aid managers who wish to encourage their employees to discover novel methods to solve work-related tasks through the use of hedonic systems.

From a research perspective, this paper offers fresh insights into the decomposition of attitude and the nuanced effects of affect and cognition on behavioral intentions. Through separating these two key elements, we hope to demonstrate how each element impacts intentions in a different way. Additionally, we hope to offer insights into what factors influence each of the two elements.

When individuals use hedonic systems for utilitarian purposes, a number of worlds are colliding. Affectual factors are infusing with cognitive factors. Continued use factors are integrating with adoption factors. Personal use contexts are incorporating with work use contexts. One aim of this study is to describe how these worlds combine together, and how, through these combinations, we can better understand how individuals use hedonic systems for utilitarian purposes.
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