



# Website design quality and usage behavior: Unified Theory of Acceptance and Use of Technology <sup>☆</sup>



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## ARTICLE INFO

### Article history:

Received 1 January 2014

Received in revised form 1 March 2014

Accepted 1 May 2014

Available online 7 July 2014

### Keywords:

Online behavior

Website design quality dimensions

Usage behavior

Technology acceptance

## ABSTRACT

Firms gain many benefits from well-designed websites. But which elements of website design quality really matter, and how do these elements influence usage behavior? With the Unified Theory of Acceptance and Use of Technology (UTAUT) as the theoretical foundation, this paper proposes that website design quality is a multi-dimensional construct with a higher-order structure that, when successfully incorporated into the UTAUT model, outperforms existing models. Results are based on a survey of 216 users of internet banking. Findings indicate that the technical, general content and appearance dimensions of a website are most important for users. These dimensions are significantly related to usage behavior directly and indirectly. A halo effect may influence overall evaluation of a website because the dimensions of website design quality are interrelated. The implication is that improvements to the appearance of a website should enhance the overall evaluation of the site, leading to greater usage intentions.

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## 1. Introduction

Advances in Internet technologies and related applications enable consumers to interact with firms in new ways. Increasingly more organizations are investing heavily in customer-directed online source technologies in an effort to increase their share of the online marketplace. As Vila and Kuster (2011) observe, firms apply a substantial proportion of these efforts to improve the design of their websites and to enhance the quality of customers' interaction experiences. Furthermore, research commonly examines the relationship between website design and consumer behavior (e.g., Kwon, Kim, & Lee, 2002; Moss, Gunn, & Heller, 2006).

Despite the importance of website design, previous research does not provide consistent information on which website attributes influence users' perceptions. Thongpapanl and Ashraf (2011, p. 3) note that "studies to date report conflicting results regarding the amount of information that a website should provide in order to reduce customer

risk perception and enable informed purchase decisions." Similarly, Gounaris, Koritos, and Vassilikopoulou (2010) highlight the importance of atmospherics in the process of an online transaction. Following similar calls for further research into this area (Andrews & Bianchi, 2013; Cortinas, Chocarro, & Villanueva, 2010; Toufaily, Ricard, & Perrien, 2013), this study examines how website design elements and the quality of interaction experience influence consumer behavior by means of the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003).

The context for the inquiry is online banking services. Consumer behavior is task oriented in banking (Lee, Park, Chung, & Blakeney, 2012), and consumers can voluntarily choose between multiple channels to conduct transactions, such as by computer, mobile phone, tablet, or face-to-face banking. However, the majority tends to use more than one channel. The selected channel may also depend on the type of transaction—for example, face-to-face banking for high-involvement transactions (loans) and online channels for low-involvement transactions (balancing checking) (Cortinas et al., 2010). Banks operate in a competitive environment, and to differentiate their online operations, they tend to emphasize different characteristics of website design—either utilitarian (product-related information, navigation) or hedonic (aesthetics) aspects—to facilitate the transaction experience for consumers (Gounaris et al., 2010) and meet the needs of different consumer segments (Floh, Zauner, Koller, & Rusch, 2014).

This study aims to contribute to the literature on website design by using the context of online banking to evaluate and enhance the

<sup>☆</sup> The authors thank Francesca Van Gorp Cooley and Mike Donald for their help in preparing this manuscript for publication and the anonymous reviewers for many helpful suggestions.

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UTAUT. Section 2 provides background information on the theoretical basis of the study and also presents the hypotheses and the conceptual model of the role of website design quality in influencing behavior. Sections 3 and 4 detail the research method, results, and analysis. Section 5 concludes with a discussion of outcomes, and Section 6 presents theoretical and managerial implications, the limitations of the study, and suggested directions for further research.

## 2. Conceptual framework and hypotheses development

Most research on the adoption and continued use of technology is based on the Technology Acceptance Model (TAM) (Davis, 1989). Although the original purpose of the TAM is to model technology use in the workplace, researchers also apply TAM in consumer Internet adoption studies, such as mobile Internet services (Jiang, 2009). TAM helps explain customers' adoption of technology within the financial service context (Proenca & Rodriguez, 2011) and, more specifically, the adoption of online banking (Alsajjan & Dennis, 2010; Gounaris et al., 2010). Theories such as Diffusion of Innovation (Rogers, 1983) tackle technology acceptance from a different perspective—characteristics of innovation that induce adoption and consumers' characteristics associated with adoption stages and rates. Similarly, the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (Ajzen, 1991), two theoretical foundations extensively applied to explain consumer behavior, address technology acceptance from a belief approach. The UTAUT (Venkatesh et al., 2003) is based on and extends TAM in an attempt to integrate the eight most used models in technology acceptance research into one parsimonious model. The UTAUT therefore comprises the framework for the current study on Internet banking adoption.

The UTAUT has four key constructs that influence behavioral intention and actual use of technology: performance expectancy, effort expectancy, social influence, and facilitating conditions. This study adapts constructs and definitions from the UTAUT to the consumer technology acceptance and use context. *Performance expectancy* is the degree to which the use of technology helps consumers perform certain activities; *effort expectancy* is the ease with which consumers use technology; *social influence* is the extent to which consumers believe that important others (e.g., family and friends) think they should use a particular technology; and *facilitating conditions* refer to consumers' perceptions of the resources and support available to perform a behavior (Brown & Venkatesh, 2005; Venkatesh et al., 2003). According to the UTAUT, performance expectancy, effort expectancy, and social norms influence behavioral intention to use technology, while behavioral intention and facilitating conditions determine technology use. This study treats “effort expectancy” in the UTAUT as conceptually equivalent to “ease of use” in TAM. Similarly, “performance expectancy” (in the UTAUT) is conceptually equivalent to “usefulness” (in TAM). In addition, individual difference variables, including age, gender, and experience (as well as voluntariness, which is part of the original UTAUT) moderate various UTAUT relationships.

This study aims to extend the UTAUT by exploring the relationships among performance expectancy, effort expectancy, and social influence. In their inquiry into the relationship between performance expectancy and effort expectancy, Brown and Venkatesh (2005) opine that performance expectancy is the degree to which using an online banking website aids consumers in performing banking activities. With this definition, performance expectancy can also influence effort expectancy, or the ease with which consumers believe that they can execute online banking activities. Support for this reasoning derives from studies reporting that when consumers perceive technology as easy to use (higher effort expectancy), they also believe that the technology is more useful (higher performance expectancy); higher performance expectancy leads to stronger intentions to use (Davis, Bagozzi, & Warshaw, 1989). Ha and Stoel (2009) and Smith et al. (2013) apply this model to Internet shopping, and McKechnie,

Winklhofer, and Ennew (2006) apply the model to online financial services. Therefore:

### H1. Effort expectancy has a positive effect on performance expectancy.

Regarding the relationship between social influence and performance expectancy, Brown and Venkatesh (2005) identify the former as the extent to which consumers believe that important others (family, friends, and other peers) think they should use online banking. The current study thus suggests that social influence is positively related to performance expectancy. That is, important others' beliefs influence people's assessments of whether an action is useful, in line with Fishbein and Ajzen's (1975, p. 302) notion of *subjective norms*, defined as a “person's perception that most people who are important to [her/him] think [s/he] should or should not perform the behavior in question.” Given the proximity of the definitions, social influence is similar in conceptual foundation to subjective norm. Venkatesh and Davis (2000) elaborate on this argument by suggesting that consumers generally know that using online banking website technology will garner benefits, even if they themselves are not favorable toward the behavior or its consequences, if they believe that one or more important referents think they should. This perception may make them sufficiently motivated to comply with the referents. In addition, the stronger the social influence, the sooner a consumer will adopt a new technology (Kim & Park, 2011). Therefore, stronger social influences cause consumers to perceive a technology as more useful (higher performance expectancy), resulting in stronger usage intentions (Venkatesh, 2000; Venkatesh et al., 2003). Thus:

### H2. Social influence has a positive effect on performance expectancy.

In summary, greater effort expectancy and social influence have positive effects on performance expectancy. In turn, these effects lead to stronger usage intentions because consumers' satisfaction with a service depends on their expectations of the performance of the service (Choi, Kim, & Kim, 2011). Thus:

### H3. Performance expectancy mediates the relationships between usage and (a) effort expectancy and (b) social influence.

The UTAUT model identifies *facilitating conditions* as a construct that reflects a person's perception of his or her control over behavior (Venkatesh, Brown, Maruping, & Bala, 2008). As noted previously, facilitating conditions refer to perceptions of the resources and support available to perform a behavior. This study promotes the notion that website design quality encapsulates the meaning of facilitating conditions.

Research extensively examines the relationship between website elements and their influence on usage intentions, online behavior, and overall system satisfaction (e.g., Bauer, Falk, & Hammerschmidt, 2006; Bauer, Hammerschmidt, & Falk, 2005; Blake, Neuendorf, & Valdiserri, 2005; Dickinger & Stangl, 2013; Floh & Treiblmaier, 2006; Gan, Clemes, Limsombunchai, & Weng, 2006; Torkzadeh & Dhillon, 2002). Dennis, Merrilees, Jayawardhena, and Wright (2009) introduce the term “web atmospherics” to describe the web design elements that constitute the primary drivers of online behavior. Jayawardhena and Wright (2009) demonstrate that web attributes influence online behavior. Aladwani and Palvia (2002) examine the key characteristics of website design quality from the user's perspective. The current research adopts Aladwani and Palvia's definition of perceived web quality as users' evaluations of a website's features that meet their needs and reflect the overall excellence of the website.

Aladwani (2006) proposes a model that examines the influence of four sub-dimensions of a website on attitudes and purchase intentions of web consumers. The first component of this model is the *technical dimension*, which refers to website characteristics such as security, ease of navigation, search facilities, site availability, valid links, personalization or customization, speed of page loading, interactivity, and ease

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