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Beyond utilitarian factors: User experience and travel company website successes

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Abstract Travel websites are extensively used by travelers for their travel bookings, yet little is known about the hedonic effectiveness of such experiences for the customer. The end users of these websites are customers who may not always be sophisticated information system (IS) users. Further, traditional utility based measures of customer evaluation are dated with respect to the interactive nature of the technology in use and the hedonic benefits that may result from the use of the technology. The evaluation of IS needs to include hedonic measures facilitated by the interactive technology in addition to the traditional utility based measures. We propose and test an evaluation model for retail travel websites that combines the traditional utility based measures with hedonic measures which collectively create a more comprehensive measure for the IS evaluation of consumer focused websites. Thus rooted in theory, the model extends DeLone and McLean's model of IS Success by adding the construct of User Experience. The model was tested on a sample of 255 customers of travel websites targeted at the Indian market. The results indicate that both utility based and hedonic measures are important factors for customer IS (travel website in this study) evaluation. The larger implications for theory and practice of IS evaluation are explained.

Keywords User experience · Travel websites · System success · Information systems · Hedonic benefits · DeLone and McLean models

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1 Introduction

Online travel transactions are the primary driving force behind the Indian e-Commerce industry and account for nearly 71% of the total online transactions by value, according to an Internet and Mobile Association of India (IAMAI) and Indian Market Research Bureau (IMRB) report (IAMAI and IMRB 2013). The online travel industry in India was estimated around USD 7.3 billion and comprised about 20% of the total tourism industry earnings in the year 2013 (Octane Research 2015). Tourism service providers across the world use Information Systems (IS) i.e., the travel website, as a major contact point with their users, often resulting in a service interaction without any human intervention. To date, research on travel websites has focused mainly on the utilitarian aspects and has not captured a combination of both the utilitarian and hedonic aspects into one theoretically integrated framework (Nusair and Parsa 2011). Information Systems like a website have greatly enhanced the offerings of the travel industry by providing the service providers with productivity improvements, competitive advantage and guest service expansion (Berezina et al. 2012). With travel websites incorporating more complex products like vacation packages, the users'

evaluation of websites has evolved into two major orientations namely utilitarian and experiential or hedonic (Nusair and Parsa 2011).

Extant literature on website evaluation in general and travel related website evaluation in particular has emphasized the importance of an effective website to ensure customer engagement and information dissemination among the users of these websites (Law et al. 2010). A number of online travel users are using mobile apps for their travel bookings (Dichter and Seitzman 2015). For the purpose of this paper, we consider travel website and the users' evaluation of the same. The users' evaluation of the IS (travel websites) is critical to the success of travel websites and hence is an important determinant for the success of the tourism industry at large. A user's poor experience with a website may result in lost revenue as the website is the tourists' first interaction with the service in case he/she has not availed of the service in the past (Bilgihan et al. 2014; Law et al. 2010).

A number of studies in the tourism literature have focused on the processes of website evaluation. Studies based on analyzing travel websites have focused on varied dimensions for their evaluation such as employees adoption of technology (Cheng and Cho 2010), customer evaluation of website features (Chiou et al. 2011; Jeong et al. 2012), medical tourism content specific websites (Cormany and Baloglu 2011), social media (Huang et al. 2010; Kang and Schuett 2013), and privacy concerns about travel websites (Lee and Cranage 2011). Very few studies have focused on combining hedonic or experiential variables to evaluate travel websites.

The concept of "flow" can be useful in emphasizing the hedonic or experiential aspects of an activity (such as interacting with a website) that a person undertakes. Flow is described as a state of "optimal experience" that results from an activity (work or leisure) that a person undertakes (Csikszentmihalyi and LeFevre 1989). Flow results in cognitive absorption from an activity that a person perceives as challenging and that which is matched with the ability or skills of the person to act. Nusair and Parsa (2011) used flow theory in the context of online shopping experience in the travel context consider both the utilitarian and experiential to be of significance. Inclusion of experiential variables for travel website evaluation can help firms point out features on their websites that will differentiate them from the competition and also create a compelling experience and thereby help website stickiness (Nusair and Parsa 2011). We suggest that user experience which combines utilitarian and hedonic aspects of a system will result in a better evaluation of the system.

By combining both the utilitarian and hedonic aspects into one evaluation model and also empirically validating the results, this study makes two major contributions to the literature. First, the DeLone and McLean (2004) e-commerce success model has been extended by including the variable of User Experience, which represents a wider conceptualization of system evaluation (travel website in this study) by including hedonics, aesthetics, and contextual variables (Beauregard and Corriveau 2007). The second important contribution is that the relationships between variables in the research model are established based on the strong theoretical foundation of the DeLone and McLean (1992, 2003, and 2004) models and User Experience research derived from Human-Computer Interaction (HCI) literature (Law et al. 2014). The validity of DeLone and McLean models has been established in various prior studies (Halawi et al. 2007). Hence, two major theoretical bases of Information System Success research and HCI research have been used to arrive at a more comprehensive model that explains users' evaluation of travel websites. While prior research has shown that web design is culturally sensitive and users across cultures perceive web usability differently (Faiola and Matei 2005; Kim and Bonk 2002), the type of website used for this study – travel websites – are used by both domestic and international travelers in India. The sites have to be designed to accommodate the needs of travelers from anywhere. Further, the respondents are also likely to have used travel websites from other countries to make arrangements for travel outside India (Khan 2015) and therefore, the cultural underpinnings of travel websites become less a factor. As a result, the respondents being from India does not place a significant limit on the generalizability of the findings.

A number of evaluation frameworks and models have been developed in order to assess the quality of a website such as WebQual (Barnes and Vidgen 2003), NetQual (Bressolles 2006), SiteQual (Yoo and Donthu 2001), E S Qual/E RecSQual (Parasuraman et al. 2005), and the DeLone and McLean (2004) e-Commerce success model. A website is an example of an information system, and the IS literature in general has focused primarily on utility based measures, with a lack of focus on higher order (hedonic) needs of the user (Hasan et al. 2012; Hassenzahl and Tractinsky 2006; Lowry et al. 2013; Petter et al. 2012). If user satisfaction is considered as a continuum, the low end of this continuum represents the utilitarian factors that are now basic quality dimensions; whereas, the high end of this continuum or the higher order needs are represented by hedonic quality dimensions leading to affective fulfillment (Deng et al. 2010). Importantly, the hedonic motivations for IS adoption may have overpowered the utilitarian motivations in the past decade (Lowry et al. 2013). We speculate that users increasingly turn to websites for hedonic rewards as the utilitarian factors are met by most sites today, implying that hedonic quality is of critical competitive advantage for travel site vendors. We posit that users find value in the experience of interacting with websites in addition to the utility gained from carrying out a task using those websites. Sites with richer interfaces are likely to provide a better user experience (Kao et al. 2007; Kim 2002; Kim and Eastin 2011; Deng et al. 2010; Zhang et al. 2001).

In the following sections we first establish the theoretical background for the variables used in this study. We also discuss the rationale behind combining the utilitarian and hedonic measures based on evolution of Information Systems theories and the changing technologies. This is followed by a discussion on the research model and subsequent hypotheses development. Finally, we discuss the results, theoretical and practitioner implications of this research study.

2 Theoretical background

2.1 The construct of user experience

There are two major approaches to understanding user behavior resulting from the interaction with a system (Knijnenburg et al. 2012). The first approach is based on the Theory of Reasoned Action (TRA) suggested by Fishbein and Ajzen (1977) and is echoed in theories like the Technology Acceptance Model (TAM) (Davis 1989); and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003). These theories focus on the usability or pragmatic aspects of system evaluation. The second major approach is that adopted by User Experience researchers, focusing on the hedonic as well as the pragmatic attributes of the IS (Hassenzahl 2004; Deng et al. 2010).

The HCI literature offers a more inclusive evaluation of IS that goes beyond the pure utilitarian focus (Karapanos et al. 2009). In this regard "*User Experience*" is emphasized as a broad concept that defines user's evaluation in terms of the hedonic, temporal, contextual, and aesthetic value above and beyond the usability aspects of a system (Beauregard and Corriveau 2007; Forlizzi and Battarbee 2004; Hassenzahl and Tractinsky 2006). The construct of User Experience is defined as "*private events that occur due to encountering, undergoing or living through the interaction with the system*" (Hassenzahl and Tractinsky 2006). Such interactions affect the user at both the cognitive and affective levels (Rose et al. 2011) and comprise of a large number of smaller experiences that relate to people, products and contexts (Forlizzi and Ford 2000).

A User's Experience with the system is the perception of the user's mental model of the system. Mental models with respect to interaction with a system refer to the user's representation of how a system functions to perform a task at hand (Proctor and Vu 2010). As such the perceptions, emotions, attitudes and behaviors of the users toward the system define the User's Experience of the system. This focus on various facets of evaluation makes user experience a more holistic measure than user satisfaction.

The more traditional view of the performance of technology or information systems was confined to their cognitive and perceptual qualities and the system's ability to perform

efficiently (Hassenzahl 2008). This view was challenged by researchers who contend that information system use is influenced by pleasurable feelings and hedonic experiences evoked by such use (Hassenzahl 2008). Hassenzahl (2008) provides a foundation for a broader evaluation of user experience that presents a holistic view of an information system taking into account both task-fit (utilitarian) and hedonic qualities of a system and propose using User Experience as a measure of evaluation of an information system in place of User Satisfaction.

A simple yet effective model that explains the various components of User Experience and the relationship between these components is described in Fig. 1, which is an adaptation of Beauregard and Corriveau (2007) model.

Adapted from Beauregard and Corriveau (2007). Used with permission of the authors.

Table 1 lists the major dimensions along which the variable of User Experience has been measured. As can be observed from Table 1 the dimensions of cognition, affect, sense and pragmatism have been majorly used to measure the variable of User Experience. Table 2 summarizes the major findings of studies based upon the variable of User Experience. It can be observed from Table 1 and Table 2, that User Experience construct is broader and more encompassing of higher order and evolved needs of the complex evaluation of modern Information Systems.

2.2 IS evaluation literature

Measuring IS success is a critical issue in the IS research (Sabherwal et al. 2006) and has been a widely researched area in the IS literature (Rana et al. 2012). IS success research focuses on the evaluation of a system with regard to the creation, distribution, and use of information through technology (Petter et al. 2012) and this utility based evaluation is also referred to as the "task fit view" of an Information System (Petter et al. 2012). The task-fit view of technology adoption centers on the technical functionality of a technology and its role in helping a user to complete specific technology related tasks (Aiken et al. 2013). Essentially, in the task-fit view, the utilitarian value of the system or technology is emphasized. The "task fit" paradigm has served its purpose well when IS use was restricted to a small set of users within an organization (Petter et al. 2012). We argue that end users of a modern information system such as a travel website may not use technology for more than simply accomplishing a task. Here, we suggest that the traditional task-fit paradigm should additionally incorporate the hedonic qualities of system evaluation in order to create a more comprehensive measure of IS evaluation. Thus, we include the hedonic measure of 'User Experience' within the validated DeLone and McLean (1992, 2003, 2004) models of system evaluation to more

Fig. 1 Conceptual model of user
experience
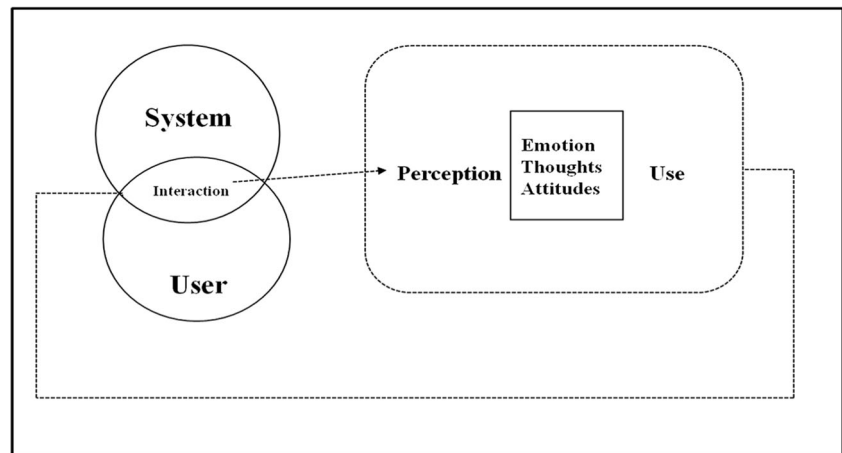
comprehensively measure an end user's evaluation of the IS (travel website).

There is support for our perspective that the measures of success for an IS need to shift over time to reflect the changes in the technologies in use. To that end, the way information systems are evaluated has changed over the past few decades based on the context, function and impact of Information Systems (Petter et al. 2012). The measures of IS success are determined by the technological advances in the field (Kleist 2003). Kleist (2003) suggested three time periods that corresponded to development of technology in the field, that of early IS (1960's-1970's), Personal Computing (1980s) and e-Commerce, Client/Server and Enterprise period (1990's onward). Further, Petter et al. (2012) observe that there are five eras of IS implementation and use (summarized in Table 3). IS user base transitioned from the specialist users in the first era (1950s–1960s); to other employees (other than the specialist IS users) of the organization in the second era (1960s–1980s); personal computing in the third era (1980s–1990s) and the enterprise and networking focus in the fourth era (1990s–2000s). The fifth era started in the 2000s and is called the 'customer focused era.' In the customer focused era, technology is more customizable and users are the customers.

Therefore, the success metrics for the contemporary IS should focus on measures such as hedonic benefits of the system that are more relevant to an end user or the customer (Petter et al. 2012).

Petter et al. (2012) further emphasize that although information systems have evolved over a period of time, the measurement of Information Systems success has fundamentals that are defined by System Quality, Information Quality, Service Quality, and Usage. Hence, the overarching framework developed by DeLone and McLean which is inclusive of System Quality, Information Quality, Service Quality and Usage, stays relevant while the way these dimensions are measured might change.

2.2.1 The DeLone and McLean IS success models

The DeLone and McLean models are the most commonly cited models in task-fit focused IS success research (Crowston et al. 2006; Dorobat 2014; Halawi et al. 2007; Wu and Wang 2006). The DeLone and McLean models provide a well-organized scheme or basis for categorizing the vast number of IS success measures developed in the IS literature (Dorobat 2014). They also propose the temporal and causal

Table 1 Major dimensions of user experience construct

Dimension	Definition	Studies
Cognitive	Deals with the mental process of acquiring information	Beauregard and Corriveau (2007); Berry et al. (2006); Deng et al. (2010); Ding et al. (2011); Hassenzahl (2004); Hassenzahl and Tractinsky (2006); Hassenzahl et al. (2000); Huang (2012); Forlizzi and Ford (2000); Karapanos et al. (2009)
Affective	Deals with feelings, moods and emotions	Beauregard and Corriveau (2007); Hassenzahl (2004); Hassenzahl and Tractinsky (2006); Hassenzahl et al. (2000); Hodza (2009); Huang (2012); Karapanos et al. (2009); Kim (2011)
Sensory	Deals with physical senses of touch, smell, sight	Beauregard and Corriveau (2007); Hassenzahl et al. (2000); Hassenzahl and Tractinsky (2006)
Pragmatic	Deals with practical rather than theoretical consideration	Hassenzahl and Tractinsky (2006); Karapanos et al. (2009); Kohler et al. (2011)

Table 2 Major findings of studies based on user experience variable

Studies	Findings
Ding et al. (2011); Forlizzi and Ford (2000); Hassenzahl et al. (2000); Hassenzahl (2004); Hodza (2009);	• The experiential qualities of an IS are important determinants of its quality • An IS that displays experiential qualities is perceived to be high on task performance
Berry et al. (2006); Hassenzahl et al. (2000); Hassenzahl (2004); Hodza (2009)	• Both qualitative and quantitative methodology should be adopted to measure User's Experience • Multiple evaluation methodologies should be employed to measure User's Experience to ensure rigor in the studies
Ding et al. (2011); Deng et al. (2010); Forlizzi and Ford (2000); Kim (2011); Kohler et al. (2011)	• Modern interactive tools have incorporated human like characteristics in IS • Users of such IS are therefore able to relate to IS at an affective and sensory level
Beauregard and Corriveau (2007); Ding et al. (2011); Hassenzahl and Tractinsky (2006)	• User Experience measurement goes beyond functionality and traditional usability measures • The focus of User Experience measurement is to create outstanding experiences for end users that can serve as a competitive advantage for the IS providers
Beauregard and Corriveau (2007); Karapanos et al. (2009)	• IS development process should incorporate the emphasis on creating an ideal User's Experience right from the development stage of an IS • The focus on User Experience should encompass the adoption, use and continual use stage of a user's lifecycle

interdependencies among the various groups of IS success measures (Dorobat 2014; McGill et al. 2003). The researchers suggest two important contributions of the DeLone and McLean models to understanding of IS success. First, that they provide a logical method of categorizing the numerous IS success measures and second, that they suggest causal and temporal interdependencies among these categories (Dorobat 2014; McGill et al. 2003). Thus, we apply the DeLone and McLean models as the basic framework for travel website evaluation, and then supplement this with the hedonic measure of User Experience in an adapted model to arrive at a comprehensive and theoretically integrated model for evaluating users' perception about the travel website.

3 The research model

The DeLone and McLean IS success model was based on six inter-correlated measures of System Quality, Information Quality, User Satisfaction, Use (System Usage), Individual Impact, and Organizational Impact (DeLone and McLean 1992, 2003, 2004). The original model was updated in 2003 whereby a new dimension of 'Service Quality' was added to the original model. In 2004, DeLone and McLean presented the e-Commerce success model based on their prior studies. The latter has been used in this study as a basic framework for developing a comprehensive measure of travel website evaluation.

One limitation of DeLone and McLean (1992) is its focus entirely on the utilitarian aspects of user satisfaction (Adam Mahmood et al. 2000; Petter et al. 2013; Zviran and Erlich 2003). It is, therefore, important that we enrich DeLone and

McLean's models to incorporate features of IS that have become possible due to the interactive nature of technology. We, however, do not wish to de-emphasize the importance of utility based measures. We, argue, that the fulfilment of hedonic quality, is an indicator of the fulfilment of utilitarian quality (Hassenzahl 2008). This is because, unless an IS fulfills the utilitarian quality parameters, it is unable to fulfil the hedonic expectations of the user. This is also apparent when we consider user satisfaction as a continuum (Deng et al. 2010), having utility at the lower end and hedonics at the higher end. The literature indicates that it is appropriate to include hedonic measures along with the utilitarian measures within the DeLone and McLean models to arrive at a more comprehensive measure for IS evaluation (Kim 2011) of travel websites.

In order to fill this entirely utility focused gap in the literature, we proposed a modified model based on the DeLone and McLean, adding the variable of *User Experience* which deals with a user's emotions, perceptions, attitudes, and thoughts evoked as a result of interactions with a system. As such, the antecedent variables of System Quality, Information Quality and Service Quality are hypothesized to affect the User's Experience with a travel website (see Fig. 2). The User's Experience would in turn affect the System Usage of the travel website.

3.1 Hypotheses

3.1.1 IS success model and user experience

The hypothesized relationship between system success and the three independent variables of System Quality, Information Quality and Service Quality is based upon the

Table 3 The IS success research progression

Phase/Era	Period	User Focus	Evaluation Metric for IS success
Data Processing	1950s–1960s	Highly skilled computing professionals	System's technical needs like speed, accuracy
Decision Support and Management Reporting	1960s–1980s	More individuals within the firm who were trained in IT	Human factors in addition to technical factors
Strategic and Personal Computing	1980s–1990s	Front office employees with not much IT skills in addition to trained employees	Strategic goal alignment with IS, productivity, profitability, customer surplus, technology acceptance, Individual evaluation
Enterprise System and Networking Era	1990s–2000s	Groups, organizations and individuals	Success for specific IS like Enterprise Resource Planning(ERP) systems, Team performance, Service Quality and Net Benefits
Customer Focused Era	2000s onwards	Customer	Hedonic and experiential benefits of IS, social impact

Adapted from Petter et al. (2012). Used with permission from the authors

theoretical framework reported in the studies by DeLone and McLean (2003, 2004). The three variables of System Quality, Information Quality and Service Quality have been used as the antecedents to system success in a number of studies based on the DeLone and McLean models (Agourram and Ingham 2007). We proposed that User's Experience should be used as a measure of system success as it deals with higher order needs of the travel website users of today.

System Quality refers to the technical characteristics of a system (Petter et al. 2013). We proposed that System Quality positively influences the User's Experience from a travel website. A number of prior studies based on DeLone and McLean models have empirically tested System Quality as an antecedent variable to system success (which we measure in terms of Users' Experience) and found their hypotheses to be true (Ballantine 2005; Casaló et al. 2008; Childers et al. 2001; Jiang et al. 2010; Iivari 2005; Palmer 2002; Seddon and Kiew 1996; Song and Zahedi 2005; Wang 2008; Wu 2006). Based on these studies and as suggested by the DeLone and McLean models, we hypothesize:

> H1: System Quality positively affects User's Experience with a travel website

A number of studies based on e-Commerce website evaluation, have found Information Quality to be a significant determinant of website success (Aladwani and Palvia 2002; Ballantine 2005; Chong et al. 2010; Iivari 2005; Molla and Licker 2001; Seddon and Kiew 1996). "Information Quality captures the information content of the website and includes all the information produced by the system" (DeLone and McLean 2004). Many customers who shop offline prefer

researching online before buying the products from the traditional stores (Kim et al. 2007). Thus firms using multichannel delivery systems can benefit from providing relevant information to the users through their websites. It can be concluded that good Information Quality enhances the attractiveness of the travel website to its users and therefore, we state the following hypothesis:

> H2: Information Quality positively affects User's Experience with a travel website

Service Quality has been extensively studied in the e-Commerce literature (Lim and Shiode 2011). DeLone and McLean (2003) updated their earlier model proposed in 1992, by including Service Quality as an antecedent variable. Subsequently, a number of studies have employed the variable of Service Quality for e-Commerce evaluation and have found it to be a significant predictor of system success (Chang and Chen 2009; Cho and Park 2001; Chong et al. 2010; Park and Kim 2006; Semeijn et al. 2005; Wang 2008). It is to be noted that Rowley (2006) distinguishes between Service Quality in a brick and mortar channel and an online channel in that the website service is an interactive information service. This online service can be utilized as a basis of customization based on the data gathered about the user via the interface service (Rowley 2006). Using Rowley's (2006) conceptualization of Service Quality we propose that users perceive e-Commerce websites with good Service Quality favorably. Hence, we hypothesize:

> H3: Service Quality positively affects User's Experience with a travel website

Fig. 2 The research model
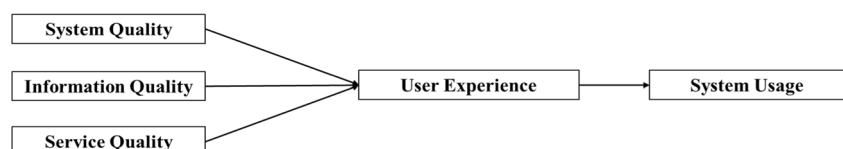
3.1.2 User experience and system usage

The IS literature has focused on an individual's decision for continued System Usage (Deng et al. 2010; Flavia'n et al. 2006; Kim and Steinfield 2004; Thong et al. 2006). System Usage is critical for Internet based services like travel websites as a continual System Usage by the users generates revenues in the long run (Flavia'n et al. 2006).

Users evaluate systems based upon their direct experiences with the system and such experiences lead to behavioral intentions like System Usage. Studies have found hedonic or experiential goals to be important determinants of the User Satisfaction and System Usage in the organizational user context (Igbaria et al. 1994) as well as in the individual user context (Deng et al. 2010). Deng et al. (2010) emphasized the importance of investigating the impact of User Experience on System Usage. Reflecting upon this idea of behaviors and experience and with our more hedonic approach to measurement, we thus substituted the User Satisfaction variable with User Experience variable. Hence, we arrive at the following hypothesis:

> H4: User's Experience positively affects the System Usage of a travel website

We therefore presented a research model based on DeLone and McLeans models by hypothesizing that the antecedent variables of System Quality, Information Quality and Service Quality positively affect Users' Experience with a travel website. In turn a positive Users Experience will lead to higher System Usage.

4 Research design

4.1 Operationalization

All the variables were operationalized based on specific and appropriate studies found in the IS and the e-Commerce disciplines, albeit with minor or insignificant modifications as necessary, as indicated by the studies found in Table 4. The constructs were measured using multiple items based on a Likert type scale (1 to 7) and are explained in the following sections. All of the items measuring the variables discussed below were refined and subjected to a pre-test with experts and pilot study with users before being finalized to ensure construct validity.

It must be noted that Service Quality in this study refers to the interface based Service Quality that can be delivered via the interface (Rowley 2006; Wang 2008) and hence does not cover the service elements beyond of what can be delivered through the interface. The Service Quality in this study was operationalized as the interface Service Quality dealing with empathy, reliability, responsiveness, and assurance based

upon studies by Rowley (2006), Wang and Tang (2003), and Wang (2008). Table 4 below defines the variables used in this study and the scale items used to operationalize them.

In addition to basing our variables in prior theoretical work, pretesting and pilot testing the instrument, certain demographic characteristics were used as control variables in this study. These included controlling for the age, gender and the educational level of the respondents. These control variables further allowed us to examine the effects of demographics on the User Experience variable.

We also used facilitating factors as a control variable for System Usage. Venkatesh et al. (2003) note that facilitating factors have a direct influence on system usage. In fact when the system usage increases, the facilitating factors become more important as users try to seek multiple avenues for support for using the system. Prior studies have found facilitating factors to be a direct determinant of system usage (e.g., Sykes et al. 2009) facilitating factors is the other direct determinants of system usage. Facilitating factors include the concepts of self-efficacy, resource facilitating conditions and technology facilitating conditions (Ajzen 1991; Taylor and Todd 1995). Self-efficacy is measured in terms of knowledge and skills of the user for using the travel website. Technology facilitating factors are measured in terms of access to Internet and the speed of the network. Resource facilitating factors like fulfillment are not necessary for our research model as we are only measuring the engagement and interaction with the system i.e., the travel website. The measures dealing with the delivery of the final product was not measured with the study.

4.2 Data collection

For this research study of user experience, system usage and information systems success with a hedonic focus, the targeted population was Internet aware users of travel websites who lived in an urban environment. We selected urban, travel website users as our focus because these users are typically internet savvy, tend to be more sophisticated users and are more likely to be users without technology access barriers or usage concerns. We contacted members of two India-based residential websites (www.apnacomplex.com and www.commonfloor.com). These websites provide online communication facilities to a large group of residents of several housing developments. The sample was selected from the users of these websites and therefore from a pool of Internet users who had used travel websites earlier (e.g., Celik and Yilmaz 2011). Ascertaining prior travel website usage was done by asking the sample pool a screening question. Urban users dominate the Internet use in India with the top eight cities accounting for 31% of the total users according to an Internet and Mobile Association of India (IAMAI) and Indian Market Research Bureau (IMRB) report (IAMAI and IMRB 2014). Thus, the users of travel websites are primarily

Table 4   Operationalization of variables

Variable	Definition	Items	Studies
System Quality	"*Desirable characteristics of the system* e.g., *ease of use, privacy and security, reliability, customization etc*" (Petter et al. 2013)	• Ease Of Use • Design Elements • Search Features • Interactive Features • Customization • Reliability • Privacy And Security	DeLone and McLean (2004); Merrilees and Fry (2002); Tarafdar and Zhang (2005); Wang (2008)
Information Quality	"*Information Quality captures the information content of the website and includes all the information produced by the system*" (DeLone and McLean 2004).	• Usefulness • Clarity • Completeness • Recency • Conciseness • Accuracy	Aladwani and Palvia (2002); Molla and Licker (2001); Iivari (2005); Wang (2008)
Service Quality	Website Service Quality is a "*multidimensional construct, which includes the dimensions of reliability, responsiveness, assurance and empathy*" (Wang 2008)	• Empathy • Reliability • Responsiveness • Assurance	Rowley (2006); Wang and Tang (2003); Wang (2008)
User Experience	"*private events that occur due to encountering, undergoing or living through the interaction with the system*" (Hassenzahl and Tractinsky 2006)	• Cognition • Affect • Sense	Beauregard and Corriveau (2007); Deng et al. (2010); Hassenzahl et al. (2000); Hsu and Tsou (2011); Rose et al. (2012)
System Usage	"*the degree or manner in which the user utilizes an Information System*" (Petter et al. 2013)	• Usage • Intention To Reuse • Recommendation	Bhattacherjee (2001a, 2001b); Wang (2008); and Lee and Koubek (2010)

urban users. Further, according to the 15th National census survey of India (http://www.census2011.co.in 2011), the top eight cities in terms of internet usage that of Mumbai, Delhi, Kolkata, Bangalore, Chennai, Hyderabad, Pune, and Ahmedabad, comprise only about 3.7% of the country's total population (considering that 70% of the country's population reside in rural areas) and yet 31% of the total Internet users reside in these top cities. Therefore, members of these two websites, the majority of who are urban Internet users, are representative of the target population for this study.

This study used data collected from the Bangalore based registered users of these two websites. Bangalore is among the top four cities in India in terms of the Internet penetration (IAMAI and IMRB 2014). We received a total of 255 usable survey forms from the total 1835 online and paper survey forms indicating a response rate of 13.9%. Two follow up reminders were sent to the survey respondents. The response rate reported in similar studies varies from low (Deng et al. 2010 reported 2.8%) to high (Eom et al. 2012 reported 37.5%).

The data analysis was performed using the software SmartPLS 2.0 M3 (Ringle et al. 2005). DeLone and McLean (2004) contend that the constructs used in their Information Systems success models are inter-correlated. Therefore, a data analysis technique like Multiple Regression is inappropriate for models based on the DeLone and McLean's because multicollinearity among constructs may produce spurious results (Hair et al. 2011). To test the model, data analysis was conducted, using the Partial Least Squares (PLS) method, which is a Structural Equation Modeling (SEM) technique, and is a variance-based approach rather than the covariance based approach used in SEM (Wong 2013). Appropriately, PLS was used for this study because PLS is a prediction based method (Barclay et al. 1995; Khalifa and Liu 2004), is less restrictive about sample size (Khalifa and Liu 2004), and does not require normality of data (Fornell and Bookstein 1982).

5 Results

5.1 Reliability and validity

The study's discriminant validity was assessed by the Fornell-Larcker criterion (Fornell and Larcker 1981) which checks if the construct shares more variance with its corresponding indicators as opposed to other constructs. Table 5 below confirms that discriminant validity of the study is established as the square root of each construct exceeds the inter-construct

Table 5 The Fornell-larker criterion for discriminant validity

	Composite Reliability	AVE	Information Quality	Service Quality	System Quality	System Usage	User Experience
Information Quality	0.9425	0.7322	0.855687*				
Service Quality	0.924	0.6702	0.6286	0.818657*			
System Quality	0.8815	0.5551	0.7403	0.6709	0.74505*		
System Usage	0.8838	0.6563	0.5304	0.4828	0.5498	0.810123*	
User Experience	0.9392	0.5649	0.5835	0.6707	0.6476	0.5762	0.751598*

*Sqrt of AVE

correlations involving other constructs in the study and thus establishes discriminant validity. The results also display the convergent validity of the model as all AVE values are greater than 0.5 (Wong 2013).

The indicator reliability of the model was checked by analyzing the square of outer loadings all of which were above the threshold value of 0.4 and above (Hulland 1999; Wong 2013). The reliability of the scale was established by composite score for each latent variable being above the threshold 0.7 (Nunnally and Bernstein 1994), with all values being above 0.88.

Common method bias was checked by using Harman's one factor test (Podsakoff et al. 2012) which revealed that the common method bias was not a threat as the explained variance by a single factor is 40.01% and is less than 50%. Further, we looked at the correlation between latent variables and found the correlation to be less than the threshold value of 0.9 (Bagozzi et al. 1991; Pavlou et al. 2007).

Content validity was established by using well specified constructs from literature (e.g., Nunnally and Bernstein 1994; Podsakoff et al. 2012). Additional work was done with respect to validating the constructs with academic experts, industry experts and representatives of relevant population (Yaghmaie 2003) which is the travel website users in this case (please refer to Table 6 for a complete list of validity and reliability considerations used in the study).

The outer model loadings for all the indicator variables are greater than 0.6 (Chin 1998; Wong 2013). This was done by deleting SYS_2, SYS_7 as their loadings were less than 0.6. The results suggest that the algorithm converged after 5 iterations, well below the maximum of 300, which indicates good estimation (Wong 2013). The validity and reliability measures used in this study are summarized in Table 6.

5.2 PLS-SEM results

The value of R-squared i.e., the coefficient of determination, for User Experience (endogenous latent variable) is 0.526 (see Fig. 3). This implies that the latent variables System Quality (SYS), Information Quality (INF) and Service Quality (SER) explain 52.6% of the variance in User Experience (UX) variable. It should be noted that User Experience acts as both dependent and independent and is placed at the middle of the model. Chin (1998) suggests that R^2 values of 0.67 can be considered substantial and the R^2 value of User Experience reflects a moderate value of R^2. The R^2 value of endogenous latent variable System Usage (USG) is 0.332.

To generate the T-statistic for testing the significance of both the inner and outer model, the bootstrapping procedure was used. 500 subsamples were used to replace the original sample of 255 to give bootstrap standard errors, which in turn gives the T-values for significance testing of the structural path (Table 7). It can be observed that all the path coefficients but Information Quality is statistically significant. Information Quality is moderately significant at p value 0.10.

5.3 Model with controls

All the variables, including the control items (Age, Gender, Occupation, and Facilitating factors (FAC_F)) explain 0.530 of the variance in the dependent variable User Experience. Table 8 shows the research model with the control variables. It was observed that the control variables of age, gender, and education had no significant effect on the latent variable of User Experience. The facilitating factors were used as control variables for System Usage and a significant impact was found.

6 Conclusions

6.1 Conclusions and implications

The study found travel website System Quality to be a significant predictor of User Experience. This finding is in keeping with various empirical studies that have established the positive effect of System Quality on overall system success factors

Table 6 Validity and reliability measures of the study

Measure	What does it Measure?	Type of Test	Test	Criteria	Reference	Results of this Study
Common Method Bias	The variance attributable to the measurement model rather than the latent variables (LV) that represent the measures	Qualitative	i. Construct Validity	All measures should be based on prior literature	Conway and Lance (2010)	Literature support provided for all the measures used in this study
		Statistical	i. Construct Validity via convergent and discriminant validity (see measurement validity below) ii. Harman's one factor test iii. Correlation among LVs	i. Discriminant and convergent validity of this study ii. Harman's factor < 0.5 of the variance iii. Correlation <0.9	Conway and Lance (2010) Podsakoff et al. (2003) Bagozzi et al. (1991) Pavlou et al. (2007)	No evidence of Common Method Bias was found and hence Common Method Bias was not a threat to the study
Content Validity	The degree to which elements of an assessment instrument are relevant to and representative of the targeted LV for a particular assessment purpose	Qualitative	i. Literature review, Expert review, and review with the representatives of the population	N/A	Yaghmaie (2003)	All the criteria applied for this study establish content validity during pre-test of the survey instrument
Scale Reliability	The dependability of the survey instrument	Statistical	i. Cronbach's Alpha ii. Composite Reliability	Cronbach's α > 0.70 Composite Reliability >0.7	Nunnally and Bernstein (1994)Bagozzi et al. (1991)	Scale Reliability is established as Cronbach's α and Composite Reliability for all LVs are >0.70
Target endogenous variable	The value of R squared i.e., the coefficient of determination	Statistical	N/A	N/A		R squared for User Experience =52.6% and Usage =33.2%
Hypotheses Testing	The statistical significance of hypotheses formulated in a study	Statistical	The PLS bootstrapping Method	p-value <0.05 for each T-statistic	Efron and Tibshirani (1994)	p-values for all the hypothesized paths are < 0.05 and statistically significant
Outer Model Loadings	The indicator loadings on the assigned LV	Statistical	The PLS outer model loadings	Outer model loadings >0.6	Chin (1998)	All the indicators have loadings >0.60 and therefore conform to the quality criteria
Internal Consistency Reliability	Reliability of the scale (for the final study)	Statistical	Composite Reliability	Composite Reliability >0.70	Wong (2013) Nunnally and Bernstein (1994)	All the Composite reliability scores are >0.87 and hence reliability of the scale is established
Measurement Validity	Convergent Validity- extent to which indicators of a specific LV converge or share a high portion of variance in common	Statistical	Convergent Validity- extent to which indicators of a specific LV converge or share a high portion of variance in common	AVE > .50	Wong (2013)	The AVE values for all LVs are > 0.5
		Statistical	Discriminant Validity- extent to which a construct is truly distinct from other constructs	i. $\sqrt{AVE}$ > LV correlation ii. Items load higher on assigned LV than any other LV	Hair et al. (2011) Fornell and Larcker (1981) Geffen and Straub (2005)	All the criteria are satisfied and therefore Discriminant Validity of this study is established

Fig. 3 PLS results
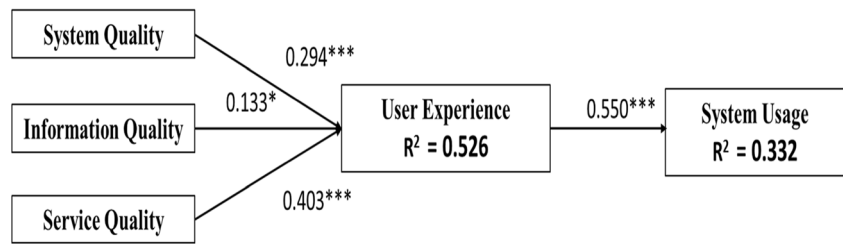
like continued usage, intention to use and overall satisfaction in general (Casaló et al. 2008; Chen and Cheng 2009; Flavia'n et al. 2006; Iivari 2005; Mun et al. 2010; Palmer 2002; Seddon and Kiew 1996; Wang 2008). Of course, we know that System Quality was found to be a significant determinant of User Experience in some studies (Jiang et al. 2010). These prior studies were did not refer to DeLone and McLean model and our work differs from Jiang et al. (2010) in that sense.

Additionally, we found Information Quality to be only a marginally significant predictor of User Experience (p value <0.10). This finding is in line with the mixed results from prior studies that found Information Quality to significantly influence system success factors (Chen and Cheng 2009; Iivari 2005; Mun et al. 2010; Palmer 2002; Seddon and Kiew 1996; Wang and Liao 2008) in some cases, and, insignificant in other cases (Koo et al. 2013; Landrum et al. 2008; Schaupp et al. 2009). The moderate influence of Information Quality on User Experience, is significant in light of our substitution of the User Satisfaction variable with the User Experience variable in this study. It reinforces our argument of using higher order measures for contemporary information systems enriched with interactive features. It points to the fact that Information Quality has become a basic expectation rather than a higher order construct that could predict User's Experience. The absence of Information Quality might lead to dissatisfaction, however, the mere presence of Information Quality is not by itself sufficient to evoke a high degree of positive User's Experience. Some prior studies also indicate that as industries evolve over time, augmented features tend to become basic expectations

with time (Teece 2007). Another point to consider when interpreting our study results is that most studies have used Information Quality as an antecedent for User Satisfaction which represents a utilitarian dimension whereas we used User Experience as the dependent variable. Further, website evaluation may depend on website context (Schaupp et al. 2009) and hence factors found insignificant for travel websites may be significant for other website categories and so on.

We found that Service Quality has a significant positive effect on User's Experience with a system. Service Quality has the largest impact on User's Experience from among the three independent variables and this finding supports the prior studies in the literature (Chang and Chen 2009; Chong et al. 2010; Ding et al. 2011; Wang 2008; Yilmazsoy et al. 2009).

We found User Experience to have a significant positive effect on the System Usage variable. This finding is in agreement with prior research which had established a positive effect of experiential variables, such as, cognitive absorption, hedonic value on the measures of Satisfaction, Loyalty and Intention to Reuse the system (Deng et al. 2010; Ding et al. 2011; Huang 2012; Jiang et al. 2010). Our findings also support prior studies that model online customer experiences based on the Flow Theory and which found hedonic features to be significant determinants of a positive online experience (Bilgihan et al. 2014).

This study provides a theoretical and empirical argument to measure travel website evaluation from a holistic point of view whereby the hedonic and utilitarian aspects of a user's evaluation of the travel website are included

Table 7 T-Statistic of path coefficients (inner model)

Hypothesis	Path Coefficient	T-statistic	P-Value	Support
H1: System Quality positively influences the User's Experience of an e-Commerce system	0.294	3.7022***	<0.0001	Yes
H2: Information Quality positively influences the User's Experience of an e-Commerce system	0.113	1.700*	< 0.10	Moderately significant
H3: Service Quality positively influences the User's Experience of an e-Commerce system	0.403	5.955***	<0.0001	Yes
H4: User's Experience positively influences the System Usage of an e-Commerce system	0.570	11.3243***	<0.0001	Yes

Table 8 Results with control variables

Variables	Without Controls	With Controls	Support
UX➔USG	0.570***	0.516***	Yes
INF➔UX	0.113*	0.108*	Yes
SYS➔UX	0.2619***	0.297***	Yes
SER➔UX	0.403***	0.406***	Yes
R Squared for UX	**0.526**	**0.530**	Not Applicable
R Squared for USG	**0.332**	**0.375**	Not Applicable
AGE➔UX		**0.027**	Not significant
GEN➔UX		**0.028**	Not significant
EDU➔UX		**-0.041**	Not Significant
FAC_F➔USG		0.223***	Yes

R Squared values are in bold

and empirically validated in a comprehensive framework. This study has established a significant link between the utilitarian system characteristics and the resulting Users' Experience, in the context of travel websites. In doing so, this study has achieved the research objective of offering a more holistic and comprehensive model compared to the prior studies in the literature.

The conceptual foundation of the User Experience variable is also further enhanced in this study by empirically establishing its validity within the DeLone and McLean models. To that point, the empirical evidence provided in this study suggests that the User's Experience is influenced by the more nuanced system characteristics suggested by the DeLone and McLean Models. Our findings about the impact of User Experience leads us to draw some supported conclusions. The user base of Information Systems has shifted from the organizational user to the more sophisticated home user (Petter et al. 2012), with travel websites being a case in point. This shift to the experienced home user necessitates a focus on website aspects that look beyond utility alone; towards a more experiential and hedonic focus (Hassenzahl and Tractinsky 2006). Thus, a key outcome of our work has been to contribute to furthering and deepening our understanding of the construct of User Experience.

Our findings strengthen the argument that IS providers should focus on creating outstanding experiences rather than avoiding usability issues alone. These findings have important theoretical implications and help us enrich IS theory. The IS research should focus on including constructs that do not merely modify theories, but also enrich the theories by adapting it to the IS context (Grover and Lyytinen 2015). We believe using the construct of User Experience to extend the DeLone and McLeans models, incorporates the context in which the IS (i.e., travel website in this study) is used by contemporary end users.

The research model presented in this study provides an understanding of the *whole* of the human need rather than

focusing on only one aspect. Here, we make the point that the hedonic quality of Information Systems like a travel website is important because it fulfils an intrinsic human need of growth, perfecting one's own skills and of being stimulated (Hassenzahl and Tractinsky 2006). Contemporary travel website providers should therefore, understand the importance of focusing on all these elements of a user's needs and thus provide a means to fulfilling the whole of the user's needs.

6.2 Limitations and future research

One limitation of this study is that it focusses only on the experience of existing users of the travel websites and ignores non-users or past users who might have abandoned the websites. Given this potential issue, there may be a possibility of bias in the study. A comparative study evaluating the User's Experience of users versus non-users or earlier users who have now abandoned the website might be a possible area to explore in future.

A second limitation is that this study focused only on travel websites. With increasing usage of mobile apps, future studies need to focus on the holistic evaluation of other IS used for the same purpose, such as, including mobile apps for online travel. Even though the medium is different, we do not expect much change in the evaluation measures as Users' Experience is also relevant for the mobile apps.

Additionally, there might be other extrinsic or intrinsic motivations that determine system usage. Therefore, inclusion of additional factors apart from user experience as was done in this study could improve the understanding of system usage and might also lead to an improvement in the explanatory power of the model developed in this study.

Future research on user experience may employ both an experimental and a post hoc evaluation to understand if the respondents significantly differ in their evaluation of experience when provided with an experimental setup versus a post hoc survey evaluation. Specifically research needs to focus on specific features that a specific type of website users desire (Law et al. 2014).

In conclusion, this study provides a valuable and empirically tested research model to evaluate a travel website. By adding the user experience variable to extend the DeLone and McLean model, this study tested and evaluated a research model for measuring the user's evaluation of a travel website. The research model developed in this study focuses on both the utilitarian and hedonic aspects of a travel website and provides a more comprehensive measure of user's evaluation of an IS compared to previous studies.

Appendix

Table 9 Operationalization of survey questions and items

Variable Items	
System Quality	
SYS 1	The website is easy to use
SYS 2	The website provides interactive features like videos, surveys, games, subscribe/unsubscribe to mailing list for newsletters etc
SYS 3	The website provides appropriate design for the service it provides
SYS4	The websites provides fast responses to search requests
SYS 5	The website provides secure transactions
SYS 6	I believe that the website keeps personal information safe
SYS 7	The website provides customized features (search history of the user, previous preferences etc)
SYS 8	The website works seamlessly across browsers, Operating Systems, and devices (mobile phones, tablets etc)
Information Quality	
INF 1	The information provided by the website is useful
INF 2	The information provided by the website is clear
INF 3	The information provided by the website is complete
INF 4	The information provided by the website is up-to-date
INF 5	The information provided by the website is to the point
INF 6	The information provided by the website is accurate
Service Quality	
SER1	The web-interface service indicates that the firm (owning the travel website) has a sincere interest in solving my problems
SER 2	The web-interface service indicates that the firm is always willing to help me
SER 3	The web-interface service indicates that the firm understands my specific needs
SER 4	The web-interface service indicates that the firm has the knowledge to answer my questions
SER 5	The web-interface service indicates that the firm intends to give me individual attention
SER 6	The web-interface service indicates that the firm does not care about me[R]
User Experience	
UX 1	The website design is engaging (in terms of its graphics, videos etc)
UX 2	The website design is appealing
UX 3	The website design looks stylish
UX 4	The website design is not appealing[R]
UX 5	The website makes me feel pleased
UX 6	The website makes me feel contented
UX 7	The website makes me feel happy
UX 7	The website does not make me feel pleased[R]
UX 9	The website keeps me focused on the task at hand
UX 10	The website stimulates my curiosity
UX 11	The website appeals to my creative thinking
UX 12	The website does not stimulate my curiosity[R]
System Usage	
USG 1	I will reuse the website to check on offers/promotions on travel
USG 2	I will reuse the website to check on new services/products (new destinations)
USG 3	I intend to reuse the website for my travel bookings
USG 4	I will recommend the website to my friends
Facilitating Factors	
FAC 1	I have access to the Internet whenever I need to book via travel websites

Table 9 (continued)

Variable Items	
FAC 2	I have access to a speedy Internet connection whenever I need to book via travel websites
FAC 3	I have the knowledge necessary to use the travel website
FAC 4	I have the skills necessary to use the travel website

R – Reverse coded

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