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Sources of satisfaction and dissatisfaction with a learning management system in post-adoption stage: A critical incident technique approach

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ABSTRACT

This study investigates the factors that generate user satisfaction and the factors that generate user dissatisfaction during post-adoption usage of an information system. Drawing on the theoretical assumptions from Oliver's expectation–confirmation theory, Herzberg's two-factor theory and Kano's satisfaction model, we propose a generic theoretical framework that argues environmental factors and job-specific outcome factors may generate satisfaction and dissatisfaction. The framework extends our understanding of user satisfaction and dissatisfaction and helps to clarify and categorize the factors that are salient for generating user satisfaction and dissatisfaction. By collecting text data responses using open-ended survey questions following critical incident technique and analyzing them, we identify a list of factors that generate user satisfaction and a list of factors that generate dissatisfaction in a learning management system utilization context. The results of our research are that satisfaction is generated by both environmental and job-specific factors, while dissatisfaction is generated only by environmental factors. Overall, the results suggest that sources of satisfaction and dissatisfaction mostly differ in a particular context.

1. Introduction

The importance of user satisfaction has been illustrated in a wide variety of research including job satisfaction, consumer behavior and information system (IS) success (DeLone & McLean, 1992, 2003; Oliver, 1980). Job satisfaction causes employees to maximize their self-actualization to achieve better job performance, while consumer behavior studies view satisfaction as a pre-requisite for re-purchasing products or services (Oliver, 1980). In IS research user satisfaction has often been linked to at least two important outcomes: information system (IS) success (DeLone & McLean, 2003) and the continued use of an IS (Islam, 2012). As a result, a significant amount of research has been conducted on user satisfaction over the last two decades (Aggelidis & Chatzoglou, 2012; Bailey & Pearson, 1983; Benson, 1983; Doll & Torkzadeh, 1988; Muylle, Moenaert, & Despontin, 2004; Wang & Liao, 2007). Most of these studies presuppose that, to find out how a user feels about a particular system or service, it is enough to analyze his/her satisfaction, which is measured on an ordinal scale (highly dissatisfied–neutral–highly satisfied). However, this approach may not be sufficient for two reasons (Islam, 2011a,b).

Firstly, users are usually asked about a limited number of attributes of a system or service. Specifically, users are asked about attributes that are considered to be positive and which are often associated with the very reason why users use a system. These lists of attributes generally exclude possible negative features about the system or service that are experienced by users during their use of the system. However, after experiencing a negative feature, a user may depend on that feature for their future use of the system, and thus their subsequent overall satisfaction. Such negative features are often ignored in a typical user satisfaction survey.

Secondly, studies on consumer satisfaction indicate that a one-dimensional concept of satisfaction can be insufficient (e.g., Chan & Baum, 2007; Matzler, Bailom, Hinterhuber, Renzl, & Pichler, 2004; Mittal, Ross, & Patrick, 1998). The one-dimensional construct assumes that a single factor can generate both satisfaction (when everything goes well) and dissatisfaction (when things do not go well). However, past studies provide evidence that the presence of certain attributes generates satisfaction, although their absence does not necessarily generate dissatisfaction (e.g., Chan & Baum, 2007). The reverse is also true given that certain factors may generate dissatisfaction but their absence does not affect satisfaction (e.g., Chan & Baum, 2007; Herzberg, Mausner, & Synderman, 1959; Kano, 1984). Marketing researchers have also found that the effect of the performance factors of a product or service on user satisfaction might be asymmetric (Azman & Gomiscek, 2012; Cheung & Lee, 2005; Matzler et al., 2004; Mittal et al., 1998; Zhang & von Dran, 2000).

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As a result, despite the huge amount of research on IS user satisfaction, we are not in a position to pinpoint exactly what attributes of a system are necessary in order to build a high level of satisfaction and which factors generate dissatisfaction during post-adoption stage. Therefore, the purpose of this paper is to explore factors that generate user satisfaction and dissatisfaction utilizing critical incident technique (CIT) (Flanagan, 1954). Consequently, the following three research questions are addressed in this paper:

- What are the sources of satisfaction?
- What are the sources of dissatisfaction?
- Are the sources of dissatisfaction similar to that of satisfaction?

In order to answer these research questions, we have conducted this research by studying a learning management system (LMS) in a university context and by taking into account the viewpoints of both educators and students with the system. First, we develop a general taxonomic framework to categorize factors that generate satisfaction and dissatisfaction with a system by utilizing the assumptions of expectation–confirmation theory (Oliver, 1980), two-factor theory (Herzberg et al., 1959), and Kano's (1984) satisfaction model. Then following the CIT, we collect data from educators and students who use a popular LMS, Moodle and analyze the collected data using content analysis technique in order to verify the proposed framework. The framework aids understanding of the process of how satisfaction and/or dissatisfaction with a system develop.

Studying dissatisfaction is particularly important as IS literature often argues that dissatisfaction with an IS results in discontinued use (Bhattacherjee, 2001). However, prior IS continuance research falls short in explaining why users discontinue their usage of a system after accepting it (Li, 2010). Thus, a dissatisfaction-based evaluation might answer the adoption-discontinuance anomalies. Especially, the inclusion of dissatisfaction-based evaluations may provide practitioners valuable information that can be used to avoid users discontinued use.

The paper proceeds as follows. In Section 2 we present the theoretical background. Section 3 develops the generic satisfaction–dissatisfaction model. In Section 4 we discuss the research context. Section 5 presents the research method. Section 6 presents the data analysis results and discusses the findings. In Section 7 we describe the implications of our findings for theory and practice. Section 8 concludes the paper.

2. Theoretical background

2.1. Prior IS user satisfaction research

The concept of IS user satisfaction can be traced to the work of Cyert and March (1963) who proposed that an IS which met the needs of its users would reinforce satisfaction with the system. User satisfaction in IS has received considerable research attention in IS literature (Aggelidis & Chatzoglou, 2012; Aladwani, 2003; Bailey & Pearson, 1983; Benson, 1983; Harrison & Rainer, 1996; Ives, Olson, & Baraoudi, 1983). It is an important measure of IS success, often regarded as the easiest and the most useful way to evaluate an IS. Bailey and Pearson (1983, p. 531) define user satisfaction as the "sum of one's positive and negative reactions to a set of factors." Doll and Torkzadeh (1988, p. 261) describe it as "the affective attitude toward a specific computer application by someone who interacts with the application directly." Eagly and Chaiken (1998, p. 296) regard user satisfaction as a "psychological tendency expressed by evaluating a particular entity with some degree of favor and disfavor". From these definitions, one can conclude that users develop satisfaction after having hands-on experience with an IS.

The most notable End User Computing Satisfaction (EUCS) instrument was developed by Bailey and Pearson (1983). They identified 39 items to measure user satisfaction of data processing personnel. Several studies assessed and refined the models in the 1980s (Baroudi & Orlikowski, 1988; Ives et al., 1983). This resulted a new shortened model comprising 13 items for measuring user satisfaction. Later, Doll and Torkzadeh (1988) developed a 12 items EUCS instrument, comprising content, accuracy, format, ease of use, and timeliness factors. EUCS is very comprehensive and addresses the limitations of the previously developed instruments. After the exploratory study was completed in 1988, confirmatory studies with different samples concluded the instrument was valid and reliable (Doll, Deng, Raghunathan, Torkzadeh, & Xia, 2004; Doll & Xia, 1997; Doll, Xia, & Torkzadeh, 1994). Many researchers have adapted and extended these satisfaction models for specific research contexts (e.g., Aggelidis & Chatzoglou, 2012; Bargas-Avila, Lötscher, Orsini, & Opwis, 2009; Huang, Yang, Jin, & Chiu, 2004; Muylle et al., 2004; Palvia, 1996; Wang & Liao, 2007).

The commonly adopted methodology for user satisfaction survey consists of first identifying the most important attributes of a system, and then asking the users to rate them on a symmetrical one-dimensional scale. The lowest value on the scale indicates the highest dissatisfaction with an attribute, and the highest value represents the greatest satisfaction, while the midpoint indicates neutrality. Most prior models and instruments have been developed from that methodology (e.g., Aggelidis & Chatzoglou, 2012; Bailey & Pearson, 1983; Bargas-Avila et al., 2009; Doll & Torkzadeh, 1988; Huang et al., 2004; Muylle et al., 2004; Palvia, 1996). Such models help to clarify the different factors behind user satisfaction. However, these models lack in explaining how user satisfaction is developed with a particular IS. Many current measures of user satisfaction have been criticized for lacking a strong theoretical underpinning (Aladwani, 2003; Au, Ngai, & Cheng, 2008; Goodhue & Thompson, 1995; Melone, 1990). In addition, Bhattacherjee (2001) argued that the psychological motivation for IS use during initial adoption and post-adoption are different. With this line of argument, it becomes necessary to consider the adoption stage in order to build IS satisfaction theory. The use of Oliver's (1980) expectation–confirmation theory (ECT) has been suggested a good initial step toward the development of an IS satisfaction theory after IS implementation (Au et al., 2008). The ECT helps to understand the process of how satisfaction with a product/service develops.

2.2. Expectation–confirmation theory and its adaptation in IS

ECT hypothesizes that the level of satisfaction a consumer has with a product or service determines their repurchase intention (Oliver, 1980). In turn, consumer satisfaction is determined by two major constructs: initial expectations (pre-purchase expectations) about a product/service, and discrepancies between expectations and product/service performance (disconfirmation). According to this theory, buyers first develop expectations about a product/service before purchase. Second, their experiences while using it build perceptions about its performance. This leads to the buyer either confirming or disconfirming the pre-purchase expectations; after they have assessed the perceived performance against the earlier frame of reference (the pre-purchase expectations). A buyer's expectations are confirmed when the product/service performs as expected, but are negatively disconfirmed when the performance is worse than expected and positively disconfirmed when the performance is better than expected (Churchill & Surprenant, 1982). The expectation-confirmation model is shown in Fig. 1.