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Colin Gabriel Onita

University of Memphis, cgonita@memphis.edu

Jasbir Dhaliwal

University of Memphis, jdhalawl@memphis.edu

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EMOTIONAL AND RATIONAL COMPONENTS OF IS SERVICE SATISFACTION AND THEIR IMPACT ON IS SERVICE CONTINUANCE

Research-in-Progress

Colin Gabriel Onita

University of Memphis
3675 Central Avenue
Memphis, TN 38152-3120
cgonita@memphis.edu

Jasbir Dhaliwal

University of Memphis
3675 Central Avenue
Memphis, TN 38152-3120
jdhaliwl@memphis.edu

Abstract

IS service satisfaction involves assessing both rational and emotional components of the service encounter. Given the extensive prior literature on the rational components of service satisfaction this study explores the mediating role of modal emotions - as the basis for the emotional component of service satisfaction - on IS service continuance. The paper provides a measurement instrument for this purpose and uses it to show the impact of modal emotions on IS service satisfaction measurement. The study tests the emotional and rational components of service satisfaction by way of a survey in a large utilities organization and finds that modal emotions do mediate the influence of the rational component of service satisfaction on an individual's intention to continue using an IS service.

Keywords: Emotions, continuance, IS services, survey

Introduction

Recent developments in the IS literature have highlighted the need to redefine IS output in terms of service. Developments such as software-as-a-service (Spohrer and Riecken 2006) have shown that what traditionally was considered a product or technical artifact has now been refashioned as a service to specific clients. These developments have led to a need to better understand the factors that influence the evaluations of a service by individuals and their intentions to reuse or continue using the service. Literature, particularly from marketing and operations management, has advocated the development of better theories regarding service (Vargo and Lusch 2004; 2008). As a discipline, IS needs to also recognize this “servitization” trend and contribute to the debate with conceptualizations of IS services that lead to the understanding of the place of IS in the service constellation.

An important aspect of a successful IS service is its reuse or continued use (Bhattacharjee 2001; Ortiz de Guinea and Markus 2009; Kettinger et al. 2009; Limayem et al. 2007). Indeed, recent studies have shown that the continued use of an IS artifact is at least “equally important to attaining information technology implementation” (Limayem et al. 2007, pp.706). For an IS service, the continuance behavior is even more essential (as in the case of online service providers) (Parthasarathy and Bhattacharjee 1998; Bhattacharjee 2001) given that the reuse of the IS service is usually the main reason for the existence of many of these IS service providers. In a recent article, Kettinger et al. (2009) specifically investigate continuance of IS services in an internal (intra-organizational) setting and also find that satisfaction, in addition to the perceived IS service value, are important drivers of IS service continuance.

One of the basic assumptions of IS continuance research is that IS continuance is based on a rational and conscious processes of evaluation of past experiences and expected benefits and costs associated with the use of the IS service or artifact (Bhattacharjee 2001; Limayem et al. 2007; Ortiz de Guinea and Markus 2009). This rational evaluation component has been measured in previous research by the use of proxy measures such as perceived usefulness, and satisfaction (e.g. Jaing et al 2002).

Another important dimension of the satisfaction associated with an IS service is the emotional response of an individual to the received service (Limayem et al. 2007; Ortiz de Guinea and Markus 2009). Identifying whether emotions influence the assessment of an IS service and the process through which emotions work to influence the evaluation of a service are important for explaining decisions and biases that do not result from a rational or cognitive evaluation. In Fineman’s (1993) view, organizations are “emotional arenas” where affect and emotion play an important role in decision making. Most important for the present discussion, researchers now further maintain that “the impact of cognitive evaluations on behavior is mediated, at least in part by affective responses (cognitive evaluation gives rise to feelings that in turn affect behavior)” (Loewenstein et al. 2001, p. 271).

In IS too, emotions are starting to be accepted as a potential explanatory variable. For example, Parboteeah et al. (2009) looks at affect to explain the consumers’ urge to buy impulsively in an online environment and Beaudry and Pinssoneault (forthcoming) investigate emotional influences on technology adoption. Even given these new trends in affect research in IS, there still is a need for better understanding the influence of emotions on IS variables (Beaudry and Pinssoneault, forthcoming). Therefore, the research question proposed by this paper is to investigate the rational and emotional components of satisfaction with an IS service and how these components impact the individual’s intentions to continue using the IS service. More specifically, the paper investigates the importance of emotions – and specifically modal emotions – as a mediator of the rational aspects of IS service satisfaction on IS service continuance intentions.

Literature Review

Continuance

We define continuance of an IS service as a pattern of repeating behavior that involves the reuse of a previously consumed IS service. For the purpose of this research, we define IS service use as an IS service consumption activity which takes place when an IS service provider supplies an IS service to an IS service recipient. Prior literature has shown that the significant antecedent variables for IS continuance differ from the antecedents relevant to IS adoption (Limayem et al. 2007). Indeed, much of the IS adoption research shows that for continued use, the salient adoption antecedents are no longer significant (e.g. Karahanna et al. 1999, Venkatesh et al. 2002). Salient aspects that set continuance apart from initial use of an IS service are the recurring nature of continuance (Limayem et al. 2007), and the importance of prior-usage (Venkatesh et al. 2002).

To mitigate the explanatory shortcomings of acceptance models, IS research turned to a related theory from psychology and consumer behavior research, namely expectation – confirmation theory (ECT) (Oliver 1980). ECT was initially proposed for the consumer and service industries (e.g. Patterson et al. 1997; Swan and Trawick 1981) and holds that reuse intentions are based primarily on the satisfaction with the prior use of the service or product (Oliver 1980). Based on ECT, Bhattacharjee (2001) proposes a model of IS continuance that links satisfaction and perceived usefulness to the intention of an IS user to continue using the IS. In concordance with ECT, satisfaction is central to Bhattacharjee’s (2001) model of IS continuance. This satisfaction is based on the expected outcome an IS service user expects from the service encounter. This expected outcome is then confirmed or disconfirmed by the actual outcome of the service encounter. The more positive the outcome and evaluation of the service encounter, the more satisfied the service consumer will be and the more likely he or she is to continue using the service (Bhattacharjee 2001).

Service Satisfaction

Literature on service satisfaction has been developed primarily in marketing, but also has been investigated in IS contexts (Jiang et al. 2002; Westbrook 1980) and has dealt with some of the satisfaction components and various dimensions of the service received. For example, Jiang et al. (2002) looked at aspects such as the relationship between recipients of IS service and IS staff, the attitude IS staff has towards those requesting service from them, and the quality of information provided. The satisfaction with an IS product, be it technology, information or process, has been an important IS success factor (DeLone and McLean 1992, 2003) and is usually one of the dependent variables investigated in many IS studies (e.g. Ives et al. 1993; Jiang et al 2002; Kettinger and Lee 1995; Rai et al. 2002; Saarinen 1993). This is an important success factor especially for a service oriented function since the satisfaction of recipients with the service is a clear measure of how the service provider performs.

Satisfaction has been defined as a “psychological or affective state related to and resulting from a cognitive appraisal of the expectation-performance discrepancy (confirmation)” (Bhattacharjee 2001, pp 354) where lower expectation and higher performance can lead to higher satisfaction through the mechanisms of confirmation/disconfirmation. This definition stresses both the affective/emotional state and the rational appraisal of the components of the service as described by Jiang et al. (2002). The rational component of satisfaction is defined as a rational appraisal of the level to which certain expectations about an IS service have been fulfilled. The emotional component of satisfaction investigates the emotional response to the IS service encounter. To our knowledge, the literature has not investigated both of these components of satisfaction in the same model, or indeed, made the distinction between these components of satisfaction. The one notable exception is Ortiz de Guinea and Markus’s (2009) paper that calls for better theorizing about how rational and emotional components of satisfaction contribute to intentions to continue using an IS.

While the rational component of satisfaction has been investigated extensively in IS literature (Jiang et al. 2002; Karahanna et al. 1999; Ortiz de Guinea and Markus 2009; Venkatesh and Davis 2000), the emotional component of satisfaction has suffered from an endemic confusion about what emotions are and how they should be classified. This confusion is not specific to the IS field. In the psychology literature, “defining `emotions` is a notorious problem” (Scherer 2005, pp. 695) which is still under debate (Niedenthal et al. 2005). What is required is a better understanding of the types of emotions, or more generally valenced affective states (Frijda 1986), that are important to IS research.

Valenced Affective States

Valenced affective states, describe the intrinsic attractiveness (positive valence) or aversiveness (negative valence) of an event, person, object, or situation (Frijda 1986).

In psychology research, valenced states are now accepted as an explanatory mechanism through which either cognition influences valenced states, or the reverse; the existence of these effects is regarded as eliciting little debate in the research literature (Loewenstein et al. 2001). Most importantly, research now posits that “the impact of cognitive evaluations on behavior is mediated, at least in part, by affective responses (cognitive evaluation gives rise to feelings that in turn affect behavior)” (Loewenstein et al. 2001, p. 271).

Given the modern interest in emotions research (Izard 1991), many new theories and knowledge about emotions have recently been developed. Most of the research defines emotion as a complex phenomenon involving many components and subsystems such as cognitive and physiological components, motor and facial expression, behavioral tendencies, and subjective feeling (Izard 1991; Scherer 1984). All these taken together are grouped under the term of the componential model of emotion (Scherer 2005).

The componential theories of emotion (Ellsworth and Scherer 2003; Frijda 1987; Lazarus 1991; Scherer 1984; Scherer 2005; Smith and Ellsworth 1985) represent a body of research that focuses on the cognitive components of emotion. Research in this stream shows that cognition and emotion are interdependent in that emotional responses are a result of an individual’s subjective evaluation of a goal or need centered event. Emotions are a direct result of the appraisal process elicited by an individual’s exposure to a stimuli represented by an event, object, person, etc. Each of these exposures and subsequent appraisals lead to a different emotional response from the individual. This can potentially lead to a very large number of emotional responses (Scherer 1984, 1994). Even so, all of these different emotional responses can be categorized in general families of emotions that are commonly exhibited by individuals (Scherer 2000). Scherer (2000) groups the different families of emotions under the generic term of modal emotions.

Modal emotions are defined as the prototypical outcomes of frequently occurring combinations or patterns of appraisal (Scherer 1994, Scherer 2000). Modal emotions are to be distinguished from mood and affect due to their more dynamic and integral nature (Scherer 2000). Modal emotions are episodic and dynamic. They have a beginning and an end, and are of a relatively brief duration (Scherer 2005). Modal emotions are also integral to a stimulus (i.e. event/person/object specific) (Lazarus 1991), and usually have a clear cause and a cognitive component (Forgas 1991). Modal emotions have specific and focused impacts on actions and behaviors (Frijda 1986). Scherer (2000, 2005) proposes a categorization of emotions based on

Affect, as distinguished from modal emotions is incidental in nature (i.e. not event/person/object specific) (Bodehausen 1993) and can refer to feelings implying pleasantness or unpleasantness in a broad sense (Frijda 1994), a personality trait (Watson et al. 1988), or an attitude (Scherer 2000).

Finally, mood is also an incidental (i.e. no particular object of focus of the emotions, sometimes even with an unknown cause) type of valenced state which is low in intensity, diffuse and relatively long-lasting (Izard 1991; Forgas 1991; Frijda 1994). In comparison with modal emotions, mood is less intense, and longer lasting (Kelly and Barsade 2001).

Modal emotions are well suited to describe the emotions elicited by a service encounter given that service encounters are usually of a relatively short duration and they require an assessment of information and results and require the recipient to take some action based on how the service encounter is developing. Also, the goal of a service encounter is usually salient to the recipient and can result in intense responses (especially in the case of a negative service outcome).

Positive modal emotions, when related to an IS service encounter, are favorable, beneficial or positively valenced affective responses to an appraisal process that has as object the IS service encounter. Negative modal emotions, on the other hand are un-favorable, detrimental, or negatively valenced affective responses to an appraisal process focused on an IS service encounter.

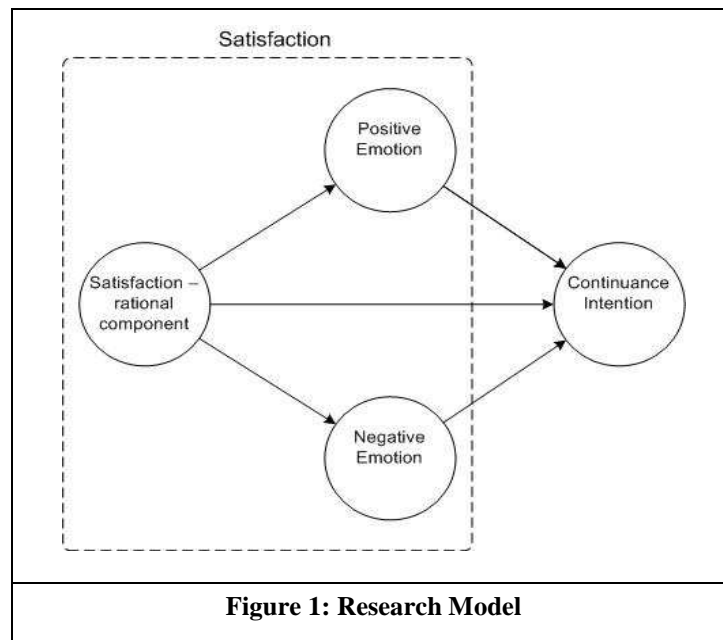
To measure modal emotions, a convergent measurement of all emotional components is required to provide the researcher with a clear and pragmatic understanding of the emotion elicited by an event (Scherer 2005). Based on Russell’s (1983) division of emotions by valance (positive and negative) and arousal (active/passive), Scherer (2005) proposes a modal emotion framework that maps on the salient characteristics of modal emotions. This framework exhibits 16-20 distinct emotions labels usable in a measurement inventory that covers all of the components and facets of modal emotions (Scherer 2005).

Research Model and Hypotheses Generation

Expectation-confirmation theory (Oliver 1980) extended by Bhattacharjee (2001) suggests that IS continuance intentions are driven primarily by the satisfaction experienced by an individual in a current/prior service encounter. This argument is built on the finding that current or prior evaluations of IS service encounters lead an individual to form certain opinions or assessments of the service provided which, in turn will affect his or her intention to reuse the IS service (Bhattacharjee 2001; Limayem et al. 2007; Oliver 1980). These opinions that are formed based on the confirmation or disconfirmation of an expected outcome are driven by multiple factors which include a rational decision based on rational calculations of benefits and costs (such usefulness of the IS service) and an emotional component that is influence by emotional responses to past and current encounters, coupled with long standing attitudes and personality traits (Bhattacharjee 2001; Oliver 1980; Ortiz de Guinea and Markus 2009). The rational component of satisfaction is based on the assessment of the quality of the service encounter (such as accuracy of information provided, promptness of the service, participation in the service decision making, etc.) (Jiang et al. 2002). The higher the perceived quality of this service the more likely a service recipient is to continue using that service. Thus we posit:

H1: Higher levels of the rational component of satisfaction positively influences IS service continuance intentions.

These rational components of satisfaction are mediated in part by the emotional response a service recipient has to a service encounter (Lowenstein et al. 2001). These emotions can be of a positive or negative nature (Scherer 1984, 2005) depending on the quality and outcome of the service encounter. Given the nature of satisfaction, which increases with positive experiences and decreases with negative experiences (Westbrook and Oliver, 1991) we posit that a positive assessment of the service encounter will positively influence the emotions felt in relation to the service encounter (will give rise to positive emotions) whereas a negative assessment of the service encounter will negatively influence the emotions related to the service encounter (give rise to negative emotions).



H2a. Higher levels of the rational component of satisfaction positively influences the positive emotions associated with the IS service encounter.

H2b. Higher levels of the rational component of satisfaction negatively influences the negative emotions associated with the IS service encounter.

Finally, given the link between satisfaction and continued use of a service or artifact (Bhattacharjee 2001, Limayem et al. 2007) where higher (positive) satisfaction leads to intentions to continue using an IS service/artifact, we posit

that the emotional component of satisfaction will significantly influence the decision of an individual to continue using an IS service. More specifically, positive emotions associated with the service encounter will positively influence the intentions to continue the use of an IS service, while negative emotions will negatively influence the continuance intentions.

H3a: Positive emotions associated with the IS service encounter positively influence IS service continuance intentions.

H3b: Negative emotions associated with the IS service encounter negatively influence IS service continuance intentions.

Research Methodology

To empirically test the relationships proposed in Figure 1, we employ a field study using survey methodologies. Following Straub (1989), who advocates the use of established measurement scales, satisfaction and continuance were measured using previously validated scales proposed by Jiang et al. (2002) for satisfaction (9 items) and Bhattacharjee (2001) and Limayem et al. (2007) for continuance intentions (3 items). To measure the emotional response to the IS service encounter, we have employed an adapted version of Scherer's (2005) Geneva Emotion Wheel with 16 emotional items (8 for positive emotions and 8 for negative emotions) as follows. Positive emotion items used were enjoyment, amusement, pride, joy, interest, hope, satisfaction and relief, while negative emotion items were sadness, worry, embarrassment, disappointment, envy, repulsion, contempt and irritation. Respondents were presented with an introductory text stating that they should think about their recent IS service encounter, go through each label depicting an emotion and indicate the strength with which they felt that emotion related to the IS service encounter. The emotions were measured on a scale of 1 to 7, with 1 being labeled as "Emotion not felt", while 7 being labeled as "Emotion strongly felt". To establish content validity an extensive literature review was conducted. The results of the literature review were presented to a panel comprised of domain experts from academia and industry. In addition to the constructs of interest, we have added three control variables which have been recognized as potentially important when investigating issues related to satisfaction and emotional responses to a stimulus (e.g. Abraham 2000; Berbner 2003; Herzog and Rogers 1981). These three control variables are age, gender and tenure with the organization.

The survey was administered to the employees of a large mid-south utility company that relies heavily on IS to conduct its business. Participants were drawn from employees that have used the internal IS services of the IS department of the organization. The IS department of the organization was divided into multiple IS service provisioning sub-units. There were three main service types provided by these subunits. The first of these service types, with 35% of performed services dealt with access to IS resources such as providing and resetting passwords and rights to users. The second type of IS service, with 33% of IS services focused on software issues such as updates, installations, patches and software error resolution. The third service type with 32% of service provisioning, pertained to hardware issues such as hardware upgrades, installations, network connections and error resolution. The differences between these three services on satisfaction, emotional response and continuance were not statistically different ($p=.05$) which permitted us to pool all services together and obtain a stable solution for our model. In order to ensure the voluntariness of continuance, we stressed in the questionnaire the fact that the individual has a choice in whether to continue receiving the service from their current service provider or switch to a different service provider (another internal unit). Survey questions for continuance (Appendix 1) as well as the introduction to the continuance section of the questionnaire clearly stated that respondents should answer these questions for a scenario where their use of the IS service is voluntary. The survey was hosted online on the intranet of the target organization. A total of 450 emails were sent to individuals who have received a service from an internal provider in the two months prior to conducting this research. 211 responses were received of which 157 contained usable data for all constructs of interest (for a response rate of 34%).

Data Analysis

To test the measurement model and the structural relationships proposed in Figure 1, we used partial least squares (PLS) data analysis technique. SmartPLS (Ringle, Wende and Will, 2005) was chosen because of its robustness in regard to assumptions and requirements for data analysis. To validate our measurement model, we followed the recommendations of Straub (1989) and Straub, Boudreau, and Gefen (2004), particularly as they pertain to validity of the constructs and measures.

To examine construct validity - how well measures correlate with a theoretical construct they purport to measure we inspected two specific aspects: convergent and discriminant validity. Convergent validity is achieved when measurement items exhibit significant loadings on their respective latent constructs (Gefen and Straub, 2005). The t-values were estimated using a nonparametric bootstrapping procedure using 500 samples (Chin, 1998) and the results showed significant loadings for all items and constructs (loadings uniformly over .7 at a significance level of $\alpha = 0.05$). Further, each construct should be investigated in relation to its reliability of measures. To investigate reliability, both composite reliability and Cronbach's Alpha can be used (Chin 1998, Gefen and Straub 2005). Table 1 shows that both composite reliability and Cronbach's Alpha are well above accepted limits for reliability (Nunnally 1978, Chin 1998). Table 1 also exhibits the variance explained (R squared) by the proposed model in each of the endogenous constructs.

	Composite Reliability	R Square	Cronbach's Alpha
Continuance	0.98	0.35	0.97
Negative Emotions	0.98	0.10	0.97
Positive Emotions	0.93	0.30	0.92
Satisfaction	0.95		0.95

	Cont.	Negative Emotions	Positive Emotions	Sat.
Cont.	.97			
Neg.	-0.41	.92		
Pos.	0.24	-0.14	.81	
Sat.	0.52	-0.31	0.55	.80

Note: Bolded numbers on diagonal represent the square root of the AVEs for each construct

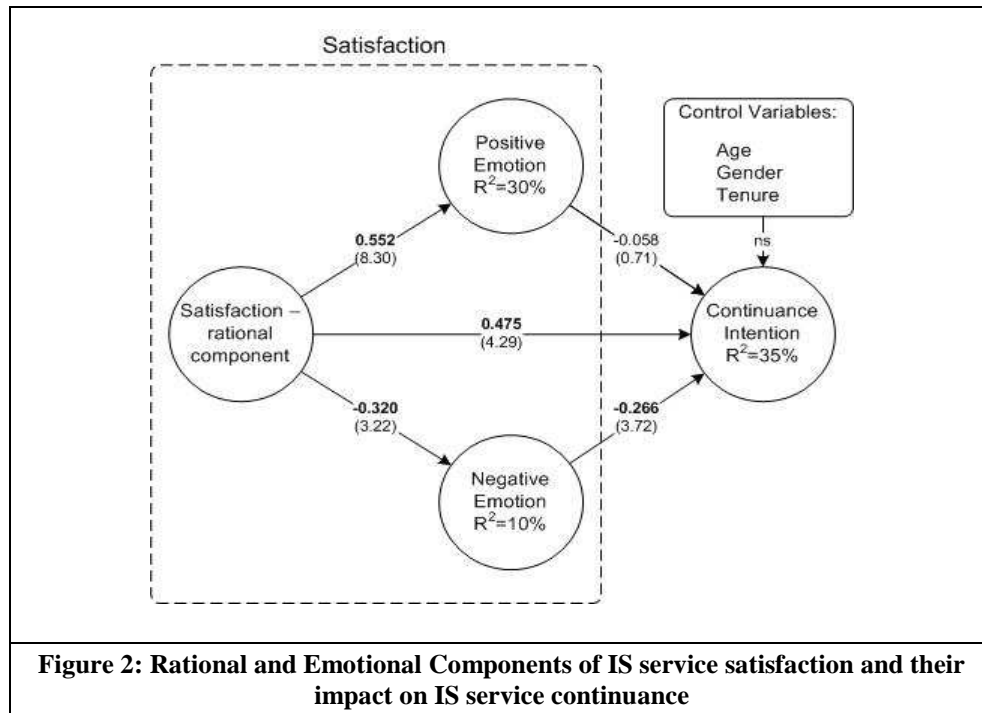
Discriminant validity is established by investigating the latent construct correlations and square root of their respective Average Variance Extracted (AVE). AVE describes the variance explained by measurement items in the latent construct they measure. Gefen and Straub (2005) stipulate that the "square root of the AVE for each construct should be much larger than the correlation of the specific construct with any of the other constructs in the model and should be at least .50." Table 2 displays the square root of the AVE for each construct (boldface on the diagonal) and also the correlation between constructs. The data suggest that these conditions are met and thus suggest appropriate discriminant validity.

The analysis of the data shows that both components of satisfaction are significantly related to the IS service continuance intentions of individuals. The structural relation between the rational component of satisfaction is positively related (.475, $p < 0.001$) to IS service continuance intentions. Similarly, the paths between the rational component of satisfaction and positive (.552, $p < 0.001$) and negative emotions (-0.320, $p < 0.001$) are both significant. Interestingly, while the path between the negative emotions (-0.266, $p < 0.001$) felt by an individual related to a service encounter and the IS service continuance intentions of that individual is, as expected, negative, the relationship between the positive emotions (-0.058, $p = ns$) associated with an IS service and IS service continuance was found to be insignificant. Thus, all hypotheses with the exception of H3a were supported. We also analyzed the influence of the control variables on continuance intentions and have found that none of the control variables had any statistically significant influence on continuance.

While the posited mediation (partial mediation) of emotions between the rational component of IS service satisfaction and the intention to continue the IS service still exists, it appears that negative emotions are more important than positive emotions in assessing the IS service and in constructing intentions to continue using the IS service.

To further investigate the influence of emotions in the appraisal process, and recognizing that some psychology theorists propose a moderation effect of emotions on appraisal processes (e.g. Forgas 1995), we conducted a post-

hoc analysis of positive and negative modal emotions on the relationship between satisfaction and continuance intentions¹. The results of the moderation analysis do not differ significantly from the partial mediation model, in that both the direct effect and the moderating effect of positive modal emotions on the relationship between satisfaction and continuance intentions are still not statistically significant ($t=.940$, $p=ns$ and $t=.588$, $p=ns$ respectively). The direct effects and moderation effects of negative modal emotions are still statistically significant ($t=3.682$, $p<0.001$ and $t=2.469$, $p<0.001$ respectively) and negatively influence the relationship between satisfaction and continuance intentions. Finally, the impact of satisfaction on continuance behaviors is significant and positive ($t=2.107$, $p<0.001$). This brings additional support to the idea that emotions are indeed important when measuring IS service satisfaction and continuance intentions, with the caveat that positive emotions seem not to be correlated to the behavioral intentions investigated.



Discussion

This research extends the understanding of IS service satisfaction by showing the inner workings of satisfaction and the interplay between two important individual components of satisfaction that have not yet been empirically examined. We empirically investigate a nomological network of satisfaction and continuance of use of an IS service that breaks the satisfaction construct into a rational assessment component and an emotional response component. We show that emotions do indeed mediate the rational assessment of quality that is part of IS service satisfaction. We also show that both the rational assessment component and the emotional response component significantly impact the intentions of an individual to continue using an IS service. Interestingly, we find that positive emotions do not seem to have a significant influence on continuance of the use of an IS service, but negative emotions significantly and negatively influence continuance intentions. An explanation for this result may be that, even though both negative and positive emotions are influenced by the rational appraisal of the service encounter (rational component of satisfaction), positive emotions elicited by positive appraisal of the service encounter are not strong enough to influence behavioral intentions (continuance). On the other hand, a negative appraisal of the service encounter leads to strong negative emotions related to the IS service performed, which in turn significantly influences continuance behavioral intentions. Indeed, current research on service recovery finds that negative service

¹ We thank the anonymous reviewer for suggesting this type of post-hoc moderation analysis.

experiences have a strong influence on various behaviors exhibited by individuals (e.g. Andreassen 2000; DeWitt et al. 2008). This finding can be important to practice and especially service recover management since it suggests that managers of IS services should focus more on mitigating negative perceptions and emotions related to the services provided, rather than investing resources in creating high levels of positive emotions about their service.

The overall empirical findings offer support for the idea that emotions play an important part in creating IS service satisfaction and that they explain additional variance in IS service continuance intentions above and beyond the variance explained by just rational components of satisfaction (the variance explained by the rational component of satisfaction alone in IS service continuance was 27%). In following calls for a better understanding of emotions as influencing factors of IS phenomena (Beaudry and Pinssoneault, forthcoming; Ortiz de Guinea and Markus 2009) this study provides an overview of emotions and tries to clarify some of the confusion related to the treatment of emotions in IS research.

The limitations of our study are related to the use of self reported measures for both our dependent variable and the independent variables and to the usual limitations resulting from a limited sample and common methods. We also acknowledge the fact that other variables do impact continuance, with important examples being habit (Limayem 2007), usefulness (Bhattacharjee 2001), IS service value (Kettinger et al. 2009), etc. While all these variables are important for the investigation of IS service continuance, the purpose of this work in progress was to clarify the moderating influence of emotions in an IS service continuance setting. The larger study, of which the present is only a pilot, will investigate the influence of these other salient antecedents of IS service continuance, as well as propose a host of other emotion related constructs that are of relevance to IS continuance and IS services research. Furthermore, the available data does not allow for the investigation of the distribution of respondents across various organizational units. Due to regards to anonymity, the researchers were not able to secure information about which units of the organization individual respondents belonged to. Future research can investigate whether specific organizational units differ in terms of their perceptions of IS service satisfaction and emotional responses to IS services. Future research should also further investigate the effect of emotional aspects of IS service appraisal on other salient rational IS service components and conduct in depth qualitative and laboratory research that can provide additional insights into this important issue.

Conclusion

Understanding how IS service satisfaction forms and how it impacts IS service usage continuance is important given the servitization of IS activities. This paper provides an understanding of two important components of IS service satisfaction – a rational component and an emotional component - and provides empirical support for the use of modal emotions in quantifying IS service satisfaction. It is our intention to clarify the impact of emotional constructs, specifically, and valance states in general and thereby generate more interest from IS researchers, given that emotions can indeed provide useful explanations of IS phenomena.

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Appendix 1: Modal Emotion Scale Items (adapted from Scherer's (2005) Geneva Emotion Wheel framework)			
Emotion Item	Type of Emotion	Loading	Measurement Scale
1: Enjoyment	Positive Modal Emotions	.752	Not Felt Strongly Felt 1 2 3 4 5 6 7
2: Amusement		.671	
3: Pride		.841	
4: Joy		.865	
5: Interest		.889	
6: Hope		.850	
7: Satisfaction		.825	
8: Relief		.726	
9: Sadness	Negative Modal Emotions	.951	
10: Worry		.870	
11: Embarrassment		.962	
12: Disappointment		.905	
13: Envy		.875	
14: Repulsion		.975	
15: Contempt		.975	
16: Irritation		.921	