Self-Service Technologies and Voice Intentions: An Empirical Investigation

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Abstract

Consumer dissatisfaction with self-service technologies (SSTs) has become prevalent. Although consumers' voice has been studied in the interpersonal services context, in the context of SSTs it has been subject to very little conceptual or empirical scrutiny. To fill this void, this study tests empirically a model of the antecedents of consumers' voice intentions in the context of unsatisfactory SST encounters. The findings suggest the need to integrate both "new" and "conventional" complaint behaviour management in the SST setting.

Background

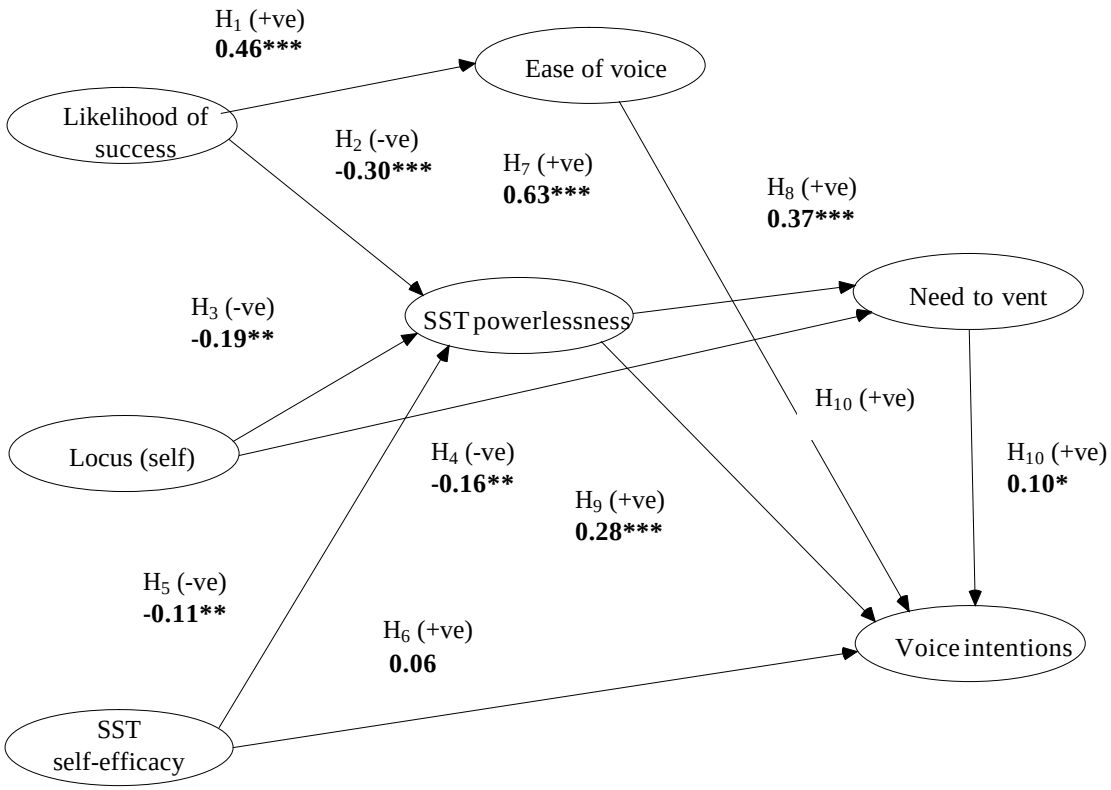
Evidence of the frustration consumers face in dealing with self-service technologies (SSTs), such as machine-assisted and electronic services, is mounting (Parasuraman et al., 2005). Arguably, in this context, the nature of consumer dissatisfaction and its outcomes, i.e., consumer complaining behaviour (CCB), differs from that encountered in "traditional" interpersonal service encounters. The inseparability of service personnel in interpersonal services enables organisations to get direct and immediate feedback from their consumers (Voorhees and Brady, 2005). Recovering from interpersonal service failures includes situations in which a service failure occurs, yet no complaint is lodged (Smith et al., 1999) because service personnel have recognised the failure (Smith et al., 1999), and can recover quickly (Tax and Brown, 1998). The actions and attitudes of service personnel play an important role in determining CCB (Voorhees and Brady, 2005). Conversely, in the context of SST failures, consumers do not have the security or reassurance of service personnel, and, as such, the benefits associated with capturing complaints interpersonally are lost. The lack of direct interaction between consumers and service personnel diminishes the opportunity to gauge consumers' emotional state, and often leaves organisations unsure as to why consumers switch providers (La and Kandampully, 2002). During encounters with SSTs, consumers interact with technology that might not detect service failure (Ahmad, 2002), and, therefore, on many occasions, SST failures go unnoticed by organisations (Pujari, 2004). Lee (2003) went as far as to say that much of the dissatisfaction with SSTs would be resolved easily if service personnel were present. A challenge posed by SSTs is that they create a barrier against voiced complaints. Therefore, in the SST context, consumer switching might be more likely (Rodgers et al., 2005), and negative word of mouth and/or "mouse", i.e., spreading negative comments online, might spread more rapidly (Hennig-Thurau and Walsh, 2003). In the light of this, the importance of studying CCB in the SST context is highlighted. Although some studies have examined consumers' behaviour related to SSTs, there is a lack of research pertaining to post-purchase behaviour (Beatson et al., 2007). The limited research which has been conducted in this area has focussed on consumer satisfaction with SSTs and its consequences, rather than consumer dissatisfaction, and its outcomes (Mittal and Sawhney, 2001), i.e., CCB, (see, for exception, Dall'Olmo Riley et al., 2000; Snellman and Vihtkari, 2003). Therefore, not surprisingly, research in this area has been encouraged (Holloway and Beatty, 2003). The purpose of the present study is to test empirically a model of the antecedents of consumers' voice intentions, i.e., intentions to complain directly to the

organisation, in the instance of an unsatisfactory SST encounter. Although the antecedents of voice are documented well in "classical" contexts, including interpersonal service encounters (Cho et al., 2003), in the context of SSTs they has been subject to very little conceptual or empirical scrutiny. Arguably, "it is reasonable to assume that different settings will emphasise different rewards, costs, and barriers to complaining" (Dall'Olmo Riley et al., 2000, p. 2).

The Proposed Model and Hypotheses Development

The model proposed (see Figure 1) and resulting hypotheses (see Table 1), is rooted in both CCB theory and theory adapted from the information systems (IS) literature. The antecedents that were selected for study were chosen in the light of the distinctive characteristics of the SST environment: the requirement of "full" consumer participation in service production independently of service personnel; a lack of interpersonal interaction with service personnel; and consumers being required to interface and interact with technology. Therefore, the majority of antecedents selected for study were situational variables rather than demographic and psychographic variables, which have previously had very mixed success in predicting CCB. These situational variables are also largely within the control of organisations, thereby allowing organisations to manipulate them to encourage consumers' voice. Finally, the complaint outcome of consumers' voice intentions was the focus for the sake of parsimony, as the different types of CCB, e.g., negative word of mouth, are expected to have different antecedents, and because voice is the only type of CCB that provides organisations with the opportunity to analyse and rectify consumer dissatisfaction. Consumers' voice can provide various benefits for organisations, including consumer loyalty and the opportunity to redress problems. Therefore, as consumers' voice offers positive contributions to consumers and organisations alike, understanding its antecedents in the SST context is important.

Figure 1: Hypothesised Model of Voice Intentions in the SST Context



($p \leq 0.001$***, $p \leq 0.01$**, $p \leq 0.05$*)

Table 1: Summary of Hypotheses, Supporting Literature, and Relevance to SST Context

Hypothesis	Supporting Theory	In the SST Context	Source
H_1: Likelihood of voice success positively influences ease of voice.	CCB theory suggests that consumers perceive ease of voice when a successful complaint outcome is likely. The opposite is true when the complaint process appears unresponsive.	The removal of service personnel eliminates their ability to encourage voice, thus consumers will search for alternative indicators of voice ease. If voice is expected to achieve consumers' goals, e.g., compensation, its perceived barriers will be lowered.	(Barry and Shapiro, 2000; McKee et al., 2006; Richins and Verhage, 1985; Tax and Brown, 1998).
H_2: Likelihood of voice success negatively influences SST powerlessness.	When consumers expect that voicing will not result in the outcome desired, e.g., problem fixed, they are likely to feel powerless relative to the SST.	Consumers' fear being ignored when they complain. Service recovery is generally perceived as poor, resulting in consumers feeling powerless.	(Abdul-Gader and Kozar, 1995; Dall' Olmo Riley et al., 2000; Goetzinger et al, 2006; Holloway and Beatty, 2003; Schultze, 2004).
H_3: Consumers' causal locus (self) negatively influences SST powerlessness.	When failure is perceived to arise due to factors outside of the consumer, it is likely to render the consumer powerless. The self-serving bias indicates that consumers will attribute unfavourable outcomes to causes external to themselves.	Attribution of blame is an important area for research on SSTs due to the shift in locus of control from service personnel to consumers. This shift increases consumer control, thereby changing the nature and flexibility of the attributional process.	(Anitsal et al., 2002; Harris et al., 2006; Meuter et al., 2000; Moon, 2003; Snellman and Vihtkari, 2003; Wathieu et al., 2002),
H_4: Consumers' causal locus (self) negatively influences consumers' need to vent.	External causal locus is expected to increase consumers' need to vent, i.e., the need to seek relief by expressing one's problem, while if internal, the need to vent will be unlikely as consumers hold themselves responsible for their own dissatisfaction.	Consumers generally desire to vent anger and animosity towards the source of their dissatisfaction. In technology-mediated environments, venting is characterised by behaviour such as shaking, kicking, and swearing at machines. In the IS context, "violent and abusive" behaviour toward computers is common.	(Bennett, 1997; Hibbard et al., 2001; Lee, 2003; Picard, 2000).
H_5: Consumers' self-efficacy with the SST negatively influences SST powerlessness.	Consumers with high self-efficacy are expected to feel empowered, while those who are not efficacious in a given task are likely to feel powerless.	Consumers' self-efficacy is relevant given their full production role. Consumers' confidence in their ability to use the SST is expected to serve as the basis for their perceptions of it.	(Compeau and Higgins, 1995; Compeau et al., 1999; Lee and Allaway, 2002; Mick and Fournier, 1998).
H_6: Consumers' self-efficacy with the SST positively influences consumers' likelihood of voice.	People who believe that they are efficacious in a particular role are more likely to engage in "problem-solving strategies" related to that role.	Voice requires autonomous action from consumers and, therefore, consumers need to believe that they have the ability to voice, without the encouragement or assistance of service personnel.	(McKee et al., 2006; Dabholkar, 1994).
H_7: Ease of voice positively influences consumers' likelihood of voice.	CCB theory suggests that by creating complaint processes that are easy to access and use, voice will be facilitated.	Consumers are "alone" and "free" to choose whether they will voice, thus organisations are reliant on consumers' "voluntary performance" to do so. To this end, ease of voice becomes a decisive factor in deciding to voice.	(Davidow, 2003; Singh and Wilkes, 1996).
H_8: SST powerlessness positively influences consumers' need to	Perceptions of powerlessness are likely to result in negative emotions, which consumers need to release.	Consumers who have reported wanting to scream, swear, and get physical in the event of an unsatisfactory SST experience where they have felt powerless relative to the SST,	(Meuter et al., 2003; Yen, 2005).

vent.		arguably, are demonstrating a need to vent.	
Hypothesis	**Supporting Theory**	**In the SST Context**	**Source**
H_9: SST powerlessness positively influences consumers' likelihood of voice.	Voice represents a means of regaining power in the instance of service failure, i.e., it empowers consumers by allowing them to "tell their side of the story".	SSTs are promoted as increasing consumers' sense of power, control, and independence, consequently when the opposite is the case, that is, perceived powerlessness, consumers will be likely to voice.	(Van Birgelen et al., 2002; Bodey and Grace, 2006; Chang, 2006; Stillwell and Salmon, 1990).
H_{10}: Consumers' need to vent positively influences consumers' likelihood of voice.	Most complaints are made for venting frustration. Non-instrumental complaining attributes voice to people's desires to express themselves, and to be listened to.	Many SSTs lack emotional intelligence, ignoring consumers displaying frustration. In SST encounters, devoid of human-to-human interaction, the "need to vent" might be even more compelling than in "traditional" interpersonal service encounters.	(Lee, 2003; Picard, 2000).

Research Method

A range of SSTs provided the context for the study. The population of interest was defined as males and females aged 18 years or over, living in Australia, who were Internet users and who had recently experienced, and could recall, an unsatisfactory SST encounter. Consumers' use of the Internet was employed as an indicator of likely SST usage. The sampling frame was an Australian-based online panel of consumers. A "closed" Web-based questionnaire was used to collect data. A random sample of online panellists was sent an opt-in e-mail message inviting them to participate in the study. The incentive for participation was five dollars for a completed questionnaire. Existing items that were sourced from past studies, and adapted to the SST context, were employed to measure each of the constructs of interest (due to space restrictions, the multiple-item measures can be supplied by the authors on request). All of the measures utilised a seven-point scale. A pre-test and pilot study, details of which are not included in this paper, were used to assess the validity of all of the measures employed. For the main study, a response rate of 41 per cent was attained, with the typical respondent being male, aged 35 to 44 years, whose occupation was manager or administrator, and whose highest level of education achieved was a bachelor degree. Following the removal of multivariate outliers, 453 usable responses remained. The data were analysed using the "two step approach" to structural equation modelling. The measurement model was found to fit the data adequately (chi-square = 751.22 [df = 384], p = 0.00, GFI = 0.90, NF1 = 0.92, CFI = 0.96, and RMSEA = 0.05) following the deletion of one item, which measured self-efficacy with the SST. Finally, composite reliability and average variance extracted were calculated per construct, all of which were found to be above the 0.5 level recommended (Fornell and Larcker, 1981). To demonstrate discriminant validity, the researchers took the square root of each of the AVE values which appear along the diagonal (shown in bold) of Table 2 and compared them to the correlations in the corresponding rows and columns (Hulland, 1999). The square root of the AVE values was shown to be greater than the correlations in the equivalent rows and columns, supportive of discriminant validity. Once the measurement model was shown to be satisfactory, the structural model was tested. With the exception of chi-square, the fit statistics indicated a good fit of the model to the data (chi-square = 763.65 [df = 393], p = 0.00, GFI = 0.90, NF1 = 0.92, CFI = 0.96, and RMSEA = 0.05). All of the hypotheses were supported (see the standardised estimates in Figure 1), with the exception of H_6, i.e., self-efficacy with the SST was not found to be related to voice intentions. This model

explained 21 per cent of the variance in voice intentions, which is an improvement on recent studies conducted in the interpersonal services context (Voorhees and Brady, 2005).

Table 2: Correlation Matrix and AVE Statistics

Construct							
Construct	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Locus	**0.88**						
2. Voice intentions	-0.08	**0.87**					
3. SST powerlessness	-0.20**	-0.17**	**0.74**				
4. Need to vent	-0.21**	0.18**	0.34**	**0.84**			
5. SST self-efficacy	-0.17**	0.02	-0.08	-0.01	**0.82**		
6. Ease of voice	0.08	0.35**	-0.17**	0.04	-0.01	**0.79**	
7. Likelihood of success	0.19**	0.20**	-0.32**	-0.07	-0.02	0.53**	**0.86**

**$p \leq 0.01$, *$p \leq 0.05$

Discussion, Limitations, and Managerial Recommendations

The aim of this study was to examine the relationships that influence consumers' likelihood of voice in the SST context, as distinct from the interpersonal services context in which the bulk of complaint behaviour research has been conducted. The findings suggest the need to integrate both "new" and "conventional" CCB theory in the SST setting. Firstly, ease of voice was found to be the strongest predictor of consumers' likelihood of voice. Secondly, SST powerlessness, adapted from the information systems literature, was found to contribute moderately and positively to consumers' intentions to voice. Arguably, voice presents a means of regaining power. This study also sheds light on some of the contributors of consumers' feelings of SST powerlessness. Specifically, the less that consumers perceived likelihood of voice success, SST self-efficacy, and internal (self) attribution, the more powerless they were likely to feel relative to the SST. Thirdly, consumers' need to vent was weakly and positively related to consumers' likelihood of voice. The need to vent was also found to increase as consumers' perceptions of SST powerlessness increased, and as internal (self) attribution decreased. "Venting" is only now becoming the focus of research in marketing, thus the current study contributes to the limited past research that has considered its role in the context of CCB. Finally, contrary to expectations, consumers' self-efficacy with the SST was not found to be related to likelihood of voice, in contrast to McKee et al.'s (2006) findings in the interpersonal services context. Self-efficacy in using an SST is associated with consumers' perceived capability to be autonomous in using the technology to generate services for themselves, without depending on service personnel. Arguably, this might be unrelated to voice, which involves a degree of dependence on, and interaction with, another person.

The limitations of the study include the questionable accuracy of self-reports and the lack of consideration given to the different types of SSTs. Notwithstanding this, based on the study results, various practical recommendations are suggested for SST providers. These include: facilitating voice ease by removing the barriers to it, e.g., improving consumers' perceptions of likelihood of success via service guarantees; encouraging voice as a means of regaining power; reducing consumers' perceptions of powerlessness by improving their SST self-efficacy, e.g., via formal training; not being content with letting consumers blame themselves for SST failure, as it does not assist in addressing the real cause of the problem; and taking

control of consumers' venting at the point of dissatisfaction by ensuring that complaint channels are not perceived as exacerbating consumers' frustration, and by providing surrogates for the concern and empathy shown by service personnel in interpersonal services.

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