Exploring Self-Service Technology Powerlessness
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Abstract
Self-service technologies empower consumers to do things for themselves that they could not do before. In the case of consumers’ unsatisfactory encounters with self-service technologies, however, consumers feel powerless. Self-service technology powerlessness is defined as consumers’ feelings of SST dominance. To the authors’ knowledge, this construct has not been investigated previously in the service domain. This paper examines self-service technology powerlessness, and proposes and tests a model of its antecedents and consequences in unsatisfactory encounters with self-service technologies. Consumers’ dissatisfaction with the attributes of self-service technologies was found to be related to consumers’ perceptions of powerlessness. Exit and negative word were found to be outcomes of it.

Introduction
The empowered consumer has become a persistent figure in the service literature. It has been argued that the balance of power has shifted from service provider to consumer (Kucuk and Krishnamurthy 2007; Rezabakhsh et al. 2006). This is reflective of the self-service technology (SST) context, where consumers’ power, control, and independence are promoted (Lee and Allaway 2002). However, SST failures, which are attributed largely to poor service, including inadequate customer support, flawed interface design, and failing technology (Meuter et al. 2000), precipitate feelings of SST powerlessness (Johns et al. 2008; Menon and Bansal 2007). Consumers do not have the security or reassurance of service personnel in the context of SST failures (Chea and Luo, 2008), which can elicit feelings of helplessness and chaos (Johnson et al., 2008). Furthermore, consumers feel particularly powerless since they are unlikely to be able to overcome the failure by themselves (Menon and Bansal 2007). SST powerlessness is defined as consumers’ feelings of SST dominance (Abdul-Gader and Kozar, 1995). This definition is taken from the computing literature and is adapted to the SST context. The adaptation of computing domain constructs to the SST context is fruitful given the technology orientation of both (Anitsal et al. 2002). As SST powerlessness has not been studied before, this paper begins to explore its antecedents and outcomes, as has been encouraged (Menon and Bansal 2007).

Development of Hypotheses

Attribute Dissatisfaction
Attribute dissatisfaction refers to consumers’ subjective dissatisfaction judgements resulting from observations of attribute/feature performance (Oliver 1993) of an SST. When attributes of an SST, such as user-friendliness of the technology, do not meet consumers’ expectations, consumers are likely to feel powerless relative to the SST. Fixed SSTs are likely to be associated with stable failures, i.e., perceived as unlikely to change. For example, a technology design problem is perceived as permanent, thereby exacerbating feelings of SST powerlessness. This gives rise to the following hypothesis:

\( H_1: \text{There is a positive relationship between SST attribute dissatisfaction and consumers’ SST powerlessness.} \)
SST Self-Efficacy

SST self-efficacy refers to the judgment of consumers’ capability to use the SST (Compeau et al. 1999). It is related to consumers’ evaluations of the SST (Bandura 1982). When consumers lack confidence in their ability to use the SST, they are likely to perceive a lack of ability to influence or control the interaction with it, thereby resulting in feelings of powerlessness, such that the following hypothesis is raised:

H2: There is a negative relationship between SST self-efficacy and consumers’ SST powerlessness.

Likelihood of Exit and Negative Word of Mouth Behaviour

The level of consumer power relative to the SST is expected to predict consumers’ responses to dissatisfaction (Menon and Bansal 2007). When the SST alienates consumers, to regain power, consumers are likely to abandon the SST in resentment and to engage in negative word of mouth concerning their unsatisfactory experience with it (Denegri-Knott et al. 2006; Rezabakhsh et al. 2006). Exit, otherwise termed switching or defection, refers to consumers opting not to use the SST again, generally because they believe that the SST situation is unlikely to improve. Non-use of the SST constitutes an anti-organisation reaction, where consumers intend to penalise the organisation by exerting their sanction power (Rezabakhsh et al. 2006). Exit punishes the organisation and enables consumers to avoid future problems with the SST, thereby allowing them to reclaim power. Similarly, providing a warning to friends and family about an unsatisfactory SST experience shifts the power to the consumer. As consumers who switch service providers have also been found to engage in negative word of mouth, the authors further suggest a relationship between consumer exit and negative word of mouth. Therefore, the following hypotheses are proposed:

H3: There is a positive relationship between SST powerlessness and consumers’ likelihood of exit behaviour.

H4: There is a positive relationship between SST powerlessness and consumers’ likelihood of negative word of mouth behaviour.

H5: There is a positive relationship between consumers’ likelihood of exit behaviour and consumers’ likelihood of negative word of mouth behaviour.

Research Method

In order to test the proposed relationships, a survey was conducted. 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 panelists 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. A range of SSTs provided the context for the study, including those across different technologies and purposes (Meuter et al. 2000). Respondents were asked to report their frequency of use for various SSTs, and to select one of
them with which they had experienced dissatisfaction within the last six months. This provided the context for completing the 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 (see Table 1). All of the measures utilised a seven-point scale.

Table 1: Construct Measures

<table>
<thead>
<tr>
<th>Construct and Source(s)</th>
<th>Final Item</th>
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<tr>
<td><strong>SST powerlessness</strong> (Abdul-Gader and Kozar, 1995)</td>
<td>I feel that the SST controlled me rather than I controlled it&lt;br&gt;SSTs dehumanise society by treating everyone the same&lt;br&gt;I feel helpless when using the SST&lt;br&gt;SSTs have the potential to control our lives&lt;br&gt;I find that I have to adapt my needs to fit the SST, rather than it adapting to fit my needs</td>
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<tr>
<td><strong>Attribute dissatisfaction</strong> (Curran and Meuter, 2005; Dabholkar, 1996; Lee et al., 2003; Lee and Allaway, 2002; Meuter et al., 2003; Parasuraman, 2000; Pujari, 2004; Yen, 2005; Xue and Harker, 2002; Zhu et al., 2002)</td>
<td>Level of control felt in using the SST&lt;br&gt;Speed of the SST&lt;br&gt;Reliability of the SST, i.e., the SST worked as promised&lt;br&gt;Convenience of the SST&lt;br&gt;Enjoyment of using the SST&lt;br&gt;Access to resources to use the SST, e.g., instructions&lt;br&gt;User friendliness of the SST</td>
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<tr>
<td><strong>SST self-efficacy</strong> (Compeau and Higgins 1995)</td>
<td>I could use the SST if there was no one around to tell me what to do as I went&lt;br&gt;I could use the SST if someone showed me how to use it first&lt;br&gt;I could use the SST if I had never used a technology like it before&lt;br&gt;I could use the SST if someone else had helped me get started&lt;br&gt;I could use the SST if I had only written instructions for reference&lt;br&gt;I could use the SST if I could contact someone for help if I got stuck&lt;br&gt;I could use the SST if I had seen someone else using it before trying it myself</td>
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<td><strong>Likelihood of exit</strong> (Liu and McClure 2001; Ping,1993; Singh, 1990)</td>
<td>Not use this SST again&lt;br&gt;Use another organisation’s SST next time&lt;br&gt;Look for another means of getting the service next time around</td>
</tr>
<tr>
<td><strong>Likelihood of negative word of mouth</strong> (Athanassopoulos et al., 2001; Huefner et al., 2002; Singh, 1990)</td>
<td>Speak to friends and relatives about my bad experience&lt;br&gt;Convince my friends and relatives not to use that organisation's SST&lt;br&gt;Inform other customers of this organisation about complaints that I had about this SST&lt;br&gt;Warn friends and family so that they would not have the same problem</td>
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**Analysis and Findings**
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. Skewness values were within the range of -3 and +3, and kurtosis was mainly negative for those variables affected, the effects of which disappear with samples with greater than 100 cases (Tabachnick and Fidell 2006). The data were analysed using the “two step approach” to structural equation modeling. The measurement model was found to fit the data adequately (chi-square = 456.36 [df = 179], p = 0.00, GFI = 0.91, NFI = 0.94, CFI = 0.95, and RMSEA = 0.05) following the deletion of several items that could be justified theoretically. Finally, composite reliability (CR) and average variance extracted (AVE) were calculated per construct, all of which were found to be above the 0.5 level recommended, and discriminant validity was established (see Table 2).

**Table 2: Correlation Matrix and AVE Statistics**

<table>
<thead>
<tr>
<th>Construct</th>
<th>CR</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attribute dissatisfaction</td>
<td>0.90</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Exit</td>
<td>0.75</td>
<td>-0.18**</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Negative WOM</td>
<td>0.80</td>
<td>-0.18**</td>
<td>0.68**</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Self-efficacy with SST</td>
<td>0.91</td>
<td>-0.01</td>
<td>-0.07</td>
<td>-0.08</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>5. SST powerlessness</td>
<td>0.84</td>
<td>-0.43**</td>
<td>0.23**</td>
<td>0.38**</td>
<td>-0.06</td>
<td>0.73</td>
</tr>
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</table>

* **p ≤ 0.01, *p ≤ 0.05

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 = 464.57 [df = 184], p = 0.00, GFI = 0.91, NFI = 0.92, CFI = 0.95, and RMSEA = 0.05). All of the proposed relationships were supported, with the exception of the relationship between SST self-efficacy and SST powerlessness (see Table 3). This model explained 28 per cent of the variance in SST powerlessness, 11 per cent of the variance in exit, and 71 per cent of the variance in negative word of mouth behaviour.

**Table 3: Summary of Results for Hypothesized Relationships**

<table>
<thead>
<tr>
<th>Path from/to</th>
<th>Valence</th>
<th>Standardized estimate</th>
<th>Sig. level</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Attribute dissatisfaction to SST powerlessness</td>
<td>+</td>
<td>0.52</td>
<td>***</td>
<td>Supported</td>
</tr>
<tr>
<td>H2: SST self-efficacy to SST powerlessness</td>
<td>-</td>
<td>0.09</td>
<td></td>
<td>Not supported</td>
</tr>
<tr>
<td>H3: SST powerlessness to exit behaviour</td>
<td>+</td>
<td>0.34</td>
<td>***</td>
<td>Supported</td>
</tr>
<tr>
<td>H4: SST powerlessness to negative word of mouth behaviour</td>
<td>+</td>
<td>0.23</td>
<td>***</td>
<td>Supported</td>
</tr>
<tr>
<td>H4: Exit behaviour to negative word of mouth behaviour</td>
<td>+</td>
<td>0.74</td>
<td>***</td>
<td>Supported</td>
</tr>
</tbody>
</table>

p ≤ 0.001***

Limitations, Managerial Implications and Future Research
The limitations of this study include the questionable accuracy of self-reports and the lack of consideration given to the different types of SSTs, i.e., SSTs across the board provided the setting. Notwithstanding this, based on the study results, various practical recommendations are suggested for SST providers. This study contributes to the service literature, as consumers’ perceptions of power have not been investigated, to the authors’ knowledge, in the SST context before.

The aim of this study was to begin to examine the construct of SST powerlessness and its antecedents and consequences. As predicted, the more that consumers positively evaluated the attributes of the SST, the less likely they were to feel powerless relative to it. Therefore, organisations can minimise SST powerlessness by ensuring that the elements of the SST are customer-focussed. Customers will feel less powerless when the SST provides some level of customisation, choice and flexibility, offers menu options that are comprehensive, and delivers service at a pace that individual consumers can control. Surprisingly, consumers’ SST self-efficacy was not found to be related to SST powerlessness. A possible explanation for this might be that consumers attribute feelings of SST powerlessness to aspects intrinsic to the SST, rather than those that are related to self. When technology fails, consumers tend to blame the SST rather than themselves. Regardless of this finding, however, the authors argue that it is the responsibility of organisations to direct consumers to the self that they need to play in order to use the SST effectively and efficiently. Finally, as SST powerlessness was found to be related positively to exit and negative word of mouth, the authors demonstrate the importance of engendering and reinforcing consumers’ feelings of power for consumer retention in the SST context. Organisations need to channel consumers’ responses to SST powerlessness away from the complaint behaviour types of exit and negative word of mouth, and towards voiced complaints. This can be achieved by making voicing easy and offering service recovery that addresses the issue of SST powerlessness.

Various avenues for future research are open to pursue, particularly those that are stimulated by this study’s limitations. Firstly, the current study could be replicated explicitly across different types of SSTs. The current study was designed to examine SSTs generally to broaden the scope of the research. It would be valuable to examine the extent to which the findings of the current study could be generalized across the various specific types of SSTs. Such fine-grained research will help to reveal the antecedents and consequences of SST powerlessness for particular types of SSTs. This would allow more narrowly focused recommendations for organisations offering specific types of SSTs. Secondly, future research on SST powerlessness could be undertaken using other research methods to complement the approach taken in the current study. For example, given that research on SST powerlessness is relatively new, qualitative methods, such as in-depth interviews, would be useful for gaining a deeper understanding of the subtleties of this phenomenon. Finally, as in any study, a limited number of antecedents and consequences could be included in the model tested. Future researchers, therefore, should consider other antecedents and consequences of SST powerlessness. The computing literature could offer insights with regard to relevant constructs to examine given that the SST powerlessness construct was adapted from it.

References


