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The Dimensions of Self-Service Technologies and the Relation to “Self”

Nichola L Robertson, La Trobe University and Robin N. Shaw, Deakin University

Abstract

This paper assesses the “behavioural” notion of “self” across the various dimensions of self-service technologies (SSTs). In the context of SSTs, it is acknowledged that the customer role is extended to include that of “service employee”. Therefore, the authors propose the need to explore this new role, from the customer’s perspective, across a diverse range of SSTs. This proposition is supported in that prior research has looked generally across a broad range of SSTs, as opposed to drawing comparisons across the different types of SSTs. In bringing together two classification schemes of SSTs, which does not appear to have been done previously, the authors draw on past research and industry examples to explore the customer experience across different categories of SSTs. It is proposed that the dimensions of SSTs, including level of customer participation as influenced by the purpose of the SST, location of the SST, and type of technology employed, will uniquely influence the notion of “self”, and thus the customer’s SST experience. These propositions have implications for both future research and practice. Future research is needed to study empirically the characteristics of specific SSTs, and compare the many different types of SSTs, and how their unique characteristics influence the customer’s production/consumption experience. When marketers gain a better understanding of the dimensions of individual SSTs, and their influence on the customer, more effective management and use of SSTs will result.

Introduction

Despite an increasing prevalence of self-service technologies (SSTs) (Bitner, Brown and Meuter, 2000; Meuter et al., 2000), little academic research has addressed this phenomenon (Bitner, Brown and Meuter, 2000). Studies that have been conducted to date pertaining to SSTs have looked generally across a range of SSTs (Bateson, 1985; Meuter et al., 2000), while much of the research has explicitly focussed on pre-purchase issues of adoption/rejection of SSTs (Walker et al., 2002). Key studies in the SST literature, including the summary provided in Table 1, have done much to enhance the understanding of SSTs. However, through a review of the literature, several gaps have been identified that will drive the discussion in this conceptual paper: 1) What is the meaning of “self” in the context of SSTs? 2) Does the meaning of “self” change across different categories of SSTs? 3) In the context of SSTs, what are the implications of “self” for production/consumption from the customer’s perspective?

Self-Service Technologies: The Meaning of “Self”

SSTs are technological interfaces that allow customers to create services themselves, without direct assistance from service personnel (Meuter et al., 2000). This implies that customers play two roles in an SST encounter, namely the traditional role of service customer and the role of service “employee” (Kelly, Donnelly and Skinner, 1990). Inherent within the definition of SST is the concept of “self”. “Self” is a complex term because of competing definitions presented throughout the literature. In this paper, due to space constraints, the predominant focus is on “self” as a purely “behavioural” construct, reflecting the new role of
the customer as service producer. However, in further work that is currently being undertaken, much attention is given to the more “psychological” aspects of “self”, such as self-concept and self-efficacy, that deserve equal acknowledgement.

Table 1: A summary of key studies in the SST literature

<table>
<thead>
<tr>
<th>Author</th>
<th>Major SST issue addressed</th>
<th>Research Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Bateson, 1985)</td>
<td>Results suggest that for some customers “doing it themselves” is attractive even without the money or timesavings. Further, this propensity to ‘do it yourself’ may carry across various service types, with perceived time taken and perceived control being important evaluative criteria for self-services.</td>
<td>Empirical</td>
</tr>
<tr>
<td>(Bateson, 1983)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Dabholkar, 1994)</td>
<td>Provides a classification of SSTs across service industries and makes suggestions for future research in the SST domain.</td>
<td>Conceptual</td>
</tr>
<tr>
<td>(Dabholkar, 1996)</td>
<td>Finds support for the attribute-based model in forming evaluations of service quality prior to an encounter with an SST. Enjoyment and control are suggested to be important evaluative criteria under all situations.</td>
<td>Empirical</td>
</tr>
<tr>
<td>(Bitner, Brown and Meuter, 2000)</td>
<td>Provides a review of the literature on SSTs, focusing on the benefits provided by SSTs for customers and employees alike.</td>
<td>Conceptual/review</td>
</tr>
<tr>
<td>(Meuter et al., 2000)</td>
<td>Assesses sources of customer satisfaction/dissatisfaction, attribution of blame, complaining, word of mouth and repurchase behaviours with SSTs.</td>
<td>Exploratory</td>
</tr>
<tr>
<td>(Bobbitt and Dabholkar, 2001)</td>
<td>Proposes a visual framework to understand and predict use of technology-based self-service.</td>
<td>Conceptual</td>
</tr>
<tr>
<td>(Selnes and Hansen, 2001)</td>
<td>Findings suggest that self-service should be integrated with personal service to ensure social bonds, particularly in the case of high-complexity relationships.</td>
<td>Empirical</td>
</tr>
<tr>
<td>(Walker et al., 2002)</td>
<td>Develops and tests a model of reasons affecting customer adoption and rejection of SSTs. Findings indicate that adoption or rejection is moderated by customer capacity and willingness.</td>
<td>Empirical</td>
</tr>
</tbody>
</table>

“Self” Across Different Categories of SSTs

There appears to be a gap in the literature pertaining to the behavioural role of the customer, and how this role may vary, as applied to different categories of SSTs. For instance, Walker et al.’s (2002) research suggests the variables that could be used to segment the SST customer market, including the customer’s need for face-to-face interaction with a human service provider, and perceived sense of capacity to use the SST. However, the results of this study
are generated from general items about SSTs across the board that do not distinguish between specific types of SSTs. The question then arises, does the customer’s role, i.e., the notion of “self”, change across different SSTs?

It appears that the most quoted classification scheme of SSTs is that theorised by Dabholkar (1994). However, distinction must be made between what Dabholkar (1994) terms technology-based service delivery, and SSTs (Meuter et al., 2000). In her classification scheme, Dabholkar (1994) proposes that service organisations can use technology in three ways: 1) technology used ‘backstage’ by non-contact service employees, 2) contact service employees using technology to deliver service to customers; and 3) customers using technology to perform services for themselves. Therefore, in reviewing SSTs, only the final third of Dabholkar's (1994) categorisation is used in this discussion. Variables used in Dabholkar's (1994) classification, as they apply to SSTs, are as follows: 1) Who delivers the service?, 2) Where is the service delivered?, and 3) How is the service delivered? More recently, Meuter et al. (2000) categorised SSTs using the variables of interface and purpose, that is, what type of technology is being employed, and what is the purpose of the service delivery? In bringing together the Dabholkar (1994) and Meuter et al. (2000) classification schemes, which does not appear to have been done previously, the remainder of this paper will endeavour to draw some comparisons between different types of SSTs, with the express purpose of comparing the role of ‘self” from the customer’s perspective, and developing a number of research propositions. Past research and industry examples will be used to aid in the discussion, focussing explicitly on the customer’s role in the production/consumption stage of the service encounter. Finally, suggestions for future research and potential managerial implications are offered.

Who Delivers the Service?

Customer participation (CP), defined as customer mental, physical and emotional input (Rodie and Kleine, 2000), is apparent in both the marketing and management literatures (Bettencourt, 1997; Bitner, Farnanda and Hubbert, 1997; Bowen, 1986; Cermak, File and Prince, 1994; Dabholkar, 1990; Dean, 1997; Keh and Teo, 2001; Kelly, Donnelly and Skinner, 1990; Manolis et al., 2001; Mills and Morris, 1986). However, such studies have tended to focus on the personal co-production roles of customers, interacting with service personnel to create the service, as opposed to the personal “full” production or “employee” role played by customers that pertain to SSTs. Further, much of the CP literature is written from the view of management (i.e., customers as productive resources to the organisation), rather than from the customer perspective (Dabholkar, 1996).

In considering Dabholkar's (1994) first dimension of classifying SSTs, namely ‘who delivers the service?”, different types of SSTs require different levels of CP. CP can be viewed on a continuum, from roles that require minimal degrees of effort and instinctive participation, to those that require high mental and/or physical activity (Kelly, Donnelly and Skinner, 1990). The left columns of the matrix below (Figure 1) distinguish between low and high CP in the context of SSTs. For instance, online banking is positioned in the high CP quadrant of the matrix because the customer needs to be highly active in the process of service delivery. The customer must provide information, click a mouse to make decisions, navigate options to access the correct information, and ensure exiting of the system for security purposes. However, it must be considered that the CP level also depends upon the purpose of their input. It is proposed that the classification dimension alluded to by Meuter et al. (2000), namely purpose of the SST, influences CP. For instance, customers using the Internet to
inquire about their account balance show lower levels of participation than customers who make a transaction such as paying a bill, transferring funds between accounts, or buying financial products online. This example highlights that the customer’s role size (Bowen, 1986) is dependent on the purpose of the customer’s interaction.

<table>
<thead>
<tr>
<th>Customer participation level</th>
<th>Employee contact level</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>. Interactive voice response (IVR) telephone</td>
<td>. Taxi service</td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Short message service (SMS) signals</td>
<td>. Airline service</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>. Online banking</td>
<td>. Accountant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>. Online education</td>
<td>. Personal trainer</td>
<td></td>
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</tbody>
</table>

Figure 1: Customer Participation Versus Employee Contact Matrix

Interactive voice response (IVR) telephone and short message service (SMS) signals are positioned as requiring low levels of CP. For example, using IVR, based on natural-language recognition (NLR) technology that understands normal spoken sentences, TAB Limited, an Australian-based provider of entertainment services specialising in wagering, gaming and broadcasting, allows customers to place bets on a range of domestic and international sports over the telephone, simply through the spoken word. Receiving SMS messages through one’s mobile phone allows customers to be advised of all manner of information, including sports updates, new flashes and even student examination results, with little or no participation required from the customer. These examples of SSTs require little or no participation from the customer. Providing information, such as a mobile telephone number or password, is the extent of CP in these contexts.

Proposition 1: The level of CP is a function of the purpose of the SST encounter.
Proposition 2: The level of CP required by the SST influences the notion of “self”.

Where is the Service Delivered?

Dabholkar (1994) proposes that SSTs can also be classified utilising the dimension labelled “where is the service delivered?” An SST can be used at the customer’s home or place of work, at the service site, or even at a ‘neutral’ location. This dimension of Dabholkar’s (1994) classification scheme may also affect the notion of ‘self’. For example, a university student, wishing to use a self-service kiosk in the university library, that allows students to borrow their own books, may watch other students’ behaviour for role clarity, namely understanding how to perform his/her role (Bowen, 1986). In this context, various perceived risks exist for the student, namely technological and functional risk, and also social risk (e.g., the humiliation associated with not being able to operate the kiosk in the presence of fellow students).

On the other hand, many SSTs can be accessed from the customer’s own home or place of work. Online services, such as airlines offering Internet booking systems, enable customers to book airline travel on their own, from the convenience of their own home, at any time of the day or night. In terms of the role of “self” in this context, customers play a purely autonomous role in service delivery. Customers accessing an SST from their home or place of work do not have the opportunity to watch other customers try to use the technology, or seek the advice of service personnel, as is often the case when utilising an SST located at a service site.
Therefore, it may be that customer willingness or ability to use an SST is moderated by the location of that SST, and the perceived support customers believe they will receive, should they not have all the pertinent resources to produce/consume the service. Recognising this, more and more SSTs, particularly those located at arm’s length of the service site, are implementing support systems for the ‘isolated’ customer, for example, demonstration systems, frequently asked questions and feedback options.

*Proposition 3: The location of the SST influences the notion of “self”.*

**How is the Service Delivered?**

Dabholkar’s (1994) final dimension for classifying SSTs, labelled, how is the service delivered? is equivalent to that proposed by Meuter *et al.* (2000), namely, what type of technology is being employed? Various technological interfaces are used to deliver a host of services to customers. The type of technology employed alters the notion of ‘self’greatly. Customers interfacing with technology to produce services are quite likely to be uniquely influenced by the technological aspect of their encounter (Meuter *et al.*, 2000), just as customers of interpersonal services are largely influenced by the performance of service personnel. In some service industries, customers can choose between competing technologies to attain the same service. For example, customers can use the Internet to pay bills, or they can simply use the telephone. According to Bobbitt and Dabholkar (2001), pressing numbers does not require much technical skill on the customer’s part. Dabholkar (1994) suggests that when the customer is in direct contact with the technology, for instance a website, the customer may perceive a greater sense of control, due to the visible aspect of the technology. On the other hand, Dabholkar (1994) argues that technologies at ‘arm’s length’, such as dialling an automated phone system, do not allow customers ‘direct’ contact with the technology, and in this example, all the customer can do is push buttons to try to get the right answers.

*Proposition 4: The technology aspect of the SST influences the notion of “self”.*

**Future Research Directions and Managerial Implications**

Based on this conceptual paper, some ideas for future research and implications for managers are offered. Firstly, researchers need to develop models and hypotheses based on the discussion, and preliminary propositions presented in this paper. A deeper understanding of SSTs can only be gained when their various dimensions are examined. SSTs should not be viewed as a universal entity when there are so many different types, and dimensions within, that uniquely influence the customer, particularly the notion of “self”. The dimensions of SSTs, including level of CP, SST location, type of technology, and others, should be explored regarding their influence on the customer experience, together with the role the customer is required to play. Secondly, given a focus on pre-purchase issues of adoption/rejection in the SST literature, more attention needs to be given to the customer’s production/consumption experience, considering both the “behavioural” and “psychological” sides of “self”. From a managerial perspective, such research will provide guidelines that are needed concerning the customer-technology interface (Cowles, Kiecker, and Little, 2002), and SST strategies. In assessing the similarities and differences between a broad array of SSTs, strategies can be developed for different types of SSTs. Research that develops an understanding of the SST experience from the customer perspective, can be used to design better systems and frameworks for service provision, including support for customers in their new role.

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References


