CO-CREATING VALUE WITH SELF-SERVICE TECHNOLOGY: HELPING CUSTOMERS HELP THEMSELVES

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INTRODUCTION

Vargo and Lusch's (2004) and subsequent work on service-dominant logic [S-D logic] (Lusch and Vargo, 2006; Vargo and Lusch, 2008a, 2008b, 2008c) provides a focus on the role of customers in value creation. S-D logic challenges the conventional idea that value is embedded in goods, emphasizing value in use. This perspective recognizes that customers are co-creators of their own value and determine what is of value (Ballantyne, Williams, and Aitken, 2011). S-D logic also puts a focus on the resources used by both sides in the process of exchange.

This study uses S-D logic as a lens to examine the application of self-service technology (SST) to customer service. This topic is very practical, impacting on business and public service organizations everywhere. Technological developments have rapidly impacted on many areas of commercial activity over the last decade. One feature of this is a trend towards technology enabled self-service, with suppliers of goods and services encouraging customers to interact with machines, rather than staff, in conducting transactions. The internet and the commercial development of the world-wide-web have accelerated this trend towards self-service. The study provides an opportunity to explore some of the fundamental propositions of S-D logic in a real-life context that is of significant importance in contemporary commerce.

There is a growing literature that contributes to our understanding of how and why customers may use or refuse to use SST (for example Zeithaml and Gilly, 1987;Dabholker, 1994,1996; Bitner et al. 2002; Meuter et al. 2003; Van Deursan and Van Dijk, 2009; Ding et al. 2010), but this scholarly work has largely been going on outside of the marketing discipline. S-D logic provides an opportunity for the marketing field to contribute new thinking to the SST literature.

S-D logic recognizes that the supplier cannot create value unilaterally claiming that value is always co-created between the supplier and the customer (Vargo and Lusch, 2004). In some situations, such as in using SST, the customer may also be co-producer of value. S-D logic sees co-production as a component of co-creation that relates to specific tasks undertaken by customers prior to or during usage (Lusch and Vargo, 2006). In using SST, compared with traditional service through employees, the degree of co-production can be seen to have increased, as a result of the transfer of task-performance from employee to consumer (in b2c) or from supplier employee to customer employee (in b2b). This has implications for the type of resources that are employed in the process, the ways in which they are integrated, and the customer's perception of value.
S-D logic identifies two types of resources that figure in creating value. Operand resources, such as raw materials, are "... resources on which an operation or act is performed to produce an effect" (Vargo and Lusch 2004, p. 2). These tend to be tangible, inert and passive, requiring input from an active agent in order to realize value (Arnould et al. 2006; Lusch, Vargo, and Wessels, 2008). Operant resources provide the active agent in creating value. Since tacit knowledge is used directly in creating value, Ballantyne and Varey classify this as an operant resource. In contrast, explicit knowledge is seen as a passive resource that must be accessed by active agents in order to create value, and hence is defined as an operand resource (Ballantyne and Varey 2006). This distinction can be seen to be particularly significant in considering service through SST compared with where it is mediated by an employee. In using SST, a supplier organization is substituting the tacit and specialized knowledge of staff with that of the customer, who is likely to be less knowledgeable and less experienced in the company's systems. Given the prominent role of knowledge at the centre of what firms' do (Kogut and Zander, 1992), this is potentially a very important change.

The other area of S-D logic that has particular relevance in providing new perspectives on the use of SST relates to the debate that has been stimulated on the subject of value. Rethinking "the meaning and process of value creation" is a critical theme in SD logic (Vargo and Lusch, 2008b, P256). Value is not seen as embedded in products or services, and is only manifested in use of the product or service. Suppliers make value propositions and assist customers in their own value creation process (Vargo and Lusch, 2008b). In relation to value in use, both Ramaswamy (2011) and Gronroos (2011) stress the importance of interactivity between the parties involved in value creation. Consideration of the nature of the interaction and its impact on the human experience is particularly interesting in relation to SST, because Ramaswamy suggests that human experiences are being transformed through the role of technology in co-creating value. Another relevant perspective, stimulated by the

discussion on co-creation of value, is that conversely value may be destroyed when things go wrong (Ple and Chumpitaz Caceres, 2010).

METHODOLOGY

The objective of the research was to explore customer perceptions of value creation in relation to the resource integration process involved in using SST. A two-stage approach was taken, comprising in-depth interviews, followed by a survey. The first stage comprised of 24 qualitative interviews, conducted in the south east and south west of England, with the interviewees recruited to ensure coverage across gender, social class and age. A semi-structured interview guide was used in conducting the interviews, as recommended for getting information in some depth (Easterby-Smith et al. 1991). The data collection, coding, sorting and analysis were carefully controlled along the lines recommended by Miles and Huberman (1994). The lead researcher coordinated the interviews, putting in place research protocols and processes to ensure dependable and confirmable findings (Lincoln and Guba, 1985). All interviewees were conducted face-to-face and were recorded and transcribed.

In the second stage, the findings of the qualitative data were used to develop a model of the value creation process in a self-service technology context. The qualitative data were used to develop a series of scales to measure perceived value, customer resources, provider resources and attitudes towards self-service technology in the context of self-service checkouts in retail stores. A pilot survey of 50 undergraduate students was used as a basis for an initial round of scale refinement. The refined questionnaire was then issued to a convenience sample of 280 undergraduate and postgraduate students at two UK universities. Following cleaning and the elimination of outliers, this survey yielded a sample of 259. Following further scale refinement, the validity of the hypothesised model was testing using structural equation modelling (SEM).

RESULTS AND DISCUSSION

Stage one: in-depth interviews

The interviews provided rich data on customer perceptions of the resources that they are required to provide in using SST. Customers confirmed the importance of operant resources (knowledge and skills), gained through experience of using technology, in giving people confidence in using SST. However, even confident users often report problems with individual sites, when first using them. One option for many of those with limited knowledge and skills in using technology, is to call upon relational resources (friends, colleagues or relatives) to show them what to do, or alternatively to get them to do it for them. Declining physical resources may impact on the ability of older people to use SST, even though they may otherwise be very capable in using technology. In terms of operand resources the availability of a computer, at home or at work, is pertinent to accessing remote SST, and the available technology needs to be kept up to date, if is it to be effective. Even more basic is the possession of credit/debit cards and bank account, without which, most self-services are inaccessible. However, it is one thing to possess resources; customer attitudes, in terms of motivation, determine the preparedness of the customer to use these resources. In other words, whether the customer is willing to use their resources depends on their perception of value in use.

Value in use relates to the customer's perception of the service experience, which in turn relies on the quality of the resource provided by the supplier in the form of the servicescape and supporting services. Summarizing the material from the interviews, effective integration requires: the systems to be easy to use (e.g. straight forward; logical; providing some flexibility; being clear on what information in customer needs to provide; and effectively using personal information collected); and giving assurance to the user (e.g. through clearly set out stages; showing physical evidence; providing confirmation/record of transaction; and clearly cancelling mistaken actions). A well designed system, that works effectively, can provide a very satisfactory service encounter. In other cases, the servicescape may not work as effectively as customers would like, to the detriment of the perception of the value created. When SST fails, members of staff are often drawn in to provide operant resources. In this situation, the customer's perception of value may be vary greatly depending on the way members of staff interact with customers, and in turn how they make customers feel.

Stage two: survey

The various scales were tested for discriminant and convergent validity through confirmatory factor analysis. The average variance extracted is above the criterion value of 0.5 for all constructs, and the construct reliability ratios all exceed the criterion value of 0.7, indicating good reliability. The variance extracted for each construct is higher than the squared inter-construct correlations for all constructs. The scales can therefore be said to have good convergent validity, and the constructs

exhibit good discriminant validity (Hair et al. 2010). The fit indices show a good overall fit (Hair et al. 2010). However, examination of the regression path estimates indicate the path between perceived value and customer resources to be insignificant. The modification indices also provided strong support for the inclusion of a path from customer resources to provider resources. This is consistent with attribution theory, according to which customers would attribute shortcomings in their own resources to those of the provider. There was also strong empirical support for the inclusion of a direct path from perceived value to attitude. Again, there seems to be good conceptual support for a model in which attitude towards self service technology is influenced directly by the perceived value of using that technology.

CONCLUSIONS

The introduction of SST has provided organizations with a potential opportunity to reduce costs through moving tasks away from staff to customers. Much of the scholarly research in this area has focused on the design of self-service systems so that they are easier for customers to use. An alternative analysis is provided by SD logic in which value is seen to be co-created in use. This focuses on the integration of the resources of the actors involved and the customers' perceptions of the value created. Our findings suggest that the willingness of customers to use their resources, in operating SST, is related to their attitudes and their perception of resources provided by the supplier to support them. Customers don't directly link perceived value to their own resource strengths/weaknesses, and so failings on their part will be attributed to the provider. Prior research has tended to put the emphasis on the design of the interface, and to neglect the important role of customers in determining the value they get out of co-production activities. This study has shown that the distinction between customer and provider resources and their role in value creation is a valid one – both figure as important determinants of attitude towards SST, and constitute distinct influences on attitude which work in different ways. Nevertheless, the scales are still at the early stages. There is scope to develop a much more comprehensive measure of provider resources and customer resources which will throw more light on these complex and interwoven relationships. Further work could also look at the moderating role of factors such as age and gender on the constructs.

IMPLICATIONS FOR THEORY AND PRACTICE

From a theoretical point, the findings raise questions about the nature of the interaction with the customer, in using SST. Resource integration can be seen to take place between the customer (using their operant resources) and the organization (supplying the operand resource), but this process has not involved inter-personal interaction. However, when things go wrong, or the customer is unable to operate the self-service equipment a member of staff has to intervene, providing operant resources. When this happens integration also involves interaction between the parties. The existence of direct interactions is considered to be crucial to value creation (Gronroos, 2011) and yet interaction is only apparent in SST when something goes wrong. This raises the question of how far the introduction of SST limits interaction. The importance of human touch in service recovery from SST failures is noted elsewhere (Mattila, Cho, and Ro, 2011). This type of staff support may be infrequent or quite intensive, such as in the example of supermarket self-service checkouts, where a member of staff is often allocated to provide constant customer support. Thus the move to SST changes the emphasis of the role of staff and this has implications for practice in relation to the management of the 'people' element of the services marketing mix. The essential difference from traditional service, in using staff in conjunction with SST, is that the role of staff members is to support the customer in using the SST, rather than in completing the transaction themselves. Thus the potential role of staff becomes one of motivating, reassuring and educating customers in the use of SST. Also, in supporting customers, who have limited skills, providing help, as a friend to the customer and understanding the specific help required by those with physical disabilities. A major change here is in the role of staff moving from primarily operational to primarily customer support. In many cases this requires the development of new skills and abilities.

Further research would be useful to understand the way that firms implementing SST are responding to the challenges of integrating the resources of customers into their processes. In particular, there is much to learn about how the roles of customer-facing staff are evolving in relation to how they interact with customers. This in turn raises the question of how the move to SST impacts on customer and organizational learning. Tacit knowledge is traditionally associated with staff, in providing the operant resource. In SST the customer, sometimes supplemented by staff support, provides tacit knowledge. There is, therefore, much to learn about how the application of SST impacts on organizational learning and the ongoing development of the service. Does lack of direct staff-to-customer interaction hamper knowledge development or does knowledge develop in other ways?

REFERENCES AVAILABLE ON REQUEST