

# The influence of technology anxiety on consumer use and experiences with self-service technologies

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## Abstract

The explosion of new technologies is revolutionizing the retail environment. Yet, not all consumers choose to use the new technologies nor do all consumers see these changes as improvements. In this research, we explore usage patterns and benefits of using self-service technologies (SSTs) based on a sample of 823 consumers. We also assess the influence of individual characteristics, specifically technology anxiety (TA) and particular demographics, on SST usage patterns and satisfaction levels. The findings indicate that respondents with higher levels of TA use fewer SSTs and that TA is a better, more consistent predictor of SST usage than are demographic variables. In addition, TA was found to influence overall levels of satisfaction, intentions to use the SST again and the likelihood of participating in positive word-of-mouth for those consumers who had an initially satisfying experience.

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## 1. Introduction

The growth of new technologies is revolutionizing the retail landscape with firms using technology both internally and externally to improve operations, increase efficiencies and provide functional benefits for customers. “There is hardly an industry that is not undergoing an upheaval in how it deals with customers” (Hof, 1999, p. 86). This discontinuity is especially evident in how service firms, including retailers, relate to their customers (Lovell, 1995; Parasuraman, 2000). Many service providers and retailers have begun to use a wide range of technologies, including the Internet, to allow customers to produce and consume services electronically without direct contact from firm employees. These technological interfaces have been called self-service technologies (SSTs) (Meuter et al., 2000). Examples of SSTs include applications such as automated phone systems, ATMs and transactions via the Internet such as Federal Express’ package tracking and Internet shopping. The wide range of SST alternatives available to retailers illustrates that not only is the Internet revolutionizing retailing, but there are also numerous other technological applica-

tions such as in-store kiosks and interactive phone systems that can be utilized by retailers to compete in the E-Retailing marketplace.

Despite increasing availability, very little is known about factors influencing customer usage of these SSTs options. With most SST options, customers choose between an interpersonal and a technologically based encounter (i.e., deposit money through an ATM vs. with a teller inside the bank or shopping on-line vs. visiting a physical retail store). Because a choice is available, customers will not use a SST option unless they perceive an advantage for using it and feel comfortable with the technology. For example, consider a quote from our preliminary qualitative research on consumer SST usage:

I’m very hesitant of those machines, I haven’t gotten comfortable with the ATM. I just have a little hesitation using them. They (the bank) actually encourage it but I keep saying no. I just always, for some reason, I always have the comfort of going to a teller and seeing my check or money actually going into someone’s hand. I’m getting better about it, I just have this fear. (26-year old single male)

Even when customers can see the benefits of using a particular SST, they may avoid it if they are not comfortable

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with using the technology as in the example above. The main focus of this study is on the role of technology anxiety (TA) influencing both SST usage and the experience of using an SST. To explore these issues, we pose three research questions. With increased understanding of these issues, retailers and service providers will be better equipped to offer SST options to customers and to manage the implementation of electronic commerce applications more effectively.

- How frequently are SST options used and why do customers use these alternatives?
- Do TA and/or demographic characteristics influence usage of SSTs?
- Does TA impact overall satisfaction with SST interactions, attributions, and future behaviors such as word-of-mouth and repeat usage intentions?

## 2. Positioning within the literature

### 2.1. Self-service technologies

Researchers have only recently begun to explore the role of technology in the delivery of services (e.g., Dabholkar, 1994, 1996, 2000; Meuter et al., 2000; Mick and Fournier, 1998; Parasuraman, 1996, 2000). Some have suggested that the traditional marketplace interaction between a customer and an employee is being replaced by a *marketspace* transaction (Rayport and Sviokla, 1994, 1995). The *marketspace* is a virtual arena where transactions take place through technological channels, no longer requiring the physical presence of both the buyer and the seller (Rayport and Sviokla, 1995).

One area of SST research has been the development of profiles for the typical SST user based on demographic characteristics (e.g., Bateson, 1985; Dabholkar, 1992; Eastlick, 1996; Greco and Fields, 1991; Zeithaml and Gilly, 1987). For example, in a study of adoption of interactive teleshopping, it was determined that nonadopters were older, less educated, in lower income brackets and were more likely to work in blue-collar occupation categories than adopters (Eastlick, 1996). However, demographic variables have not consistently explained technology usage. For instance, a metaanalysis investigating age and adoption of innovative technologies found that about half of the 228 studies established no relationship. In addition, the remaining studies were split between finding that younger respondents were more likely adopters and older respondents were more likely to adopt innovative technologies (Rogers, 1995). Other areas of SST research include the role of technology in improving service quality (Dabholkar, 1996), classification schemes for new technologies (Dabholkar, 1994) and the formation of attitudes toward technology (Taylor and Todd, 1995). Although this is a growing body of research, there is still much to be learned about customer use of SSTs.

### 2.2. Technology anxiety

With the growth of new technologies, it is important to explore the ability and willingness of customers to use these new technologies. The concept technology readiness (TR) has been developed to understand consumer use of new technologies to accomplish goals (Parasuraman, 2000). TR is conceptualized as a propensity to embrace technology and would be expected to influence the predisposition to use new technologies (Parasuraman, 2000). Related to TR is computer anxiety (Igarria and Parasuraman, 1989; Kay, 1993), defined as “the fear, apprehension and hope people feel when considering use or actually using computer technology” (Cambre and Cook, 1985; Scott and Rockwell, 1997). This anxiety is characterized by “excessive timidity in using computers, negative comments against computers and information science, attempts to reduce the amount of time spent using computers, and even the avoidance of computers in the place where they are located” (Doronina, 1995).

Studies have shown that computer anxiety is in fact a fairly common occurrence. One study found that 55% of Americans suffer from some degree of technophobia (Williams, 1994), while others contend that millions of American workers (Craig, 1994) and one-third of college students (DeLoughry, 1993) suffer from computer-related anxiety. While only a small percentage suffer from *severe* computer anxiety (Rosen and Maguire, 1990), it is clear that computer anxiety is an important factor to understand. Some have identified the phenomenon of computer anxiety as a factor that may reduce the effectiveness of increased computerization of society (Doronina, 1995; Heinssen et al., 1987).

The research emphasis has been on anxiety related to personal computers, yet what has been learned can easily be extended to apply to anxiety in relation to technological tools in general. TA is different from computer anxiety in that TA focuses on a user's state of mind about general technology tools whereas computer anxiety is more narrowly focused on anxiety related to personal computer usage. TA is also distinct from TR. TR is a relatively broad construct focusing on such issues as innovativeness and the tendency to be a technology pioneer. TA specifically focuses on the user's state of mind regarding their ability and willingness to use technology-related tools.

## 3. Conceptual model

In order to provide a framework for our exploration of the three research questions, we have developed a model to illustrate relationships between each of the constructs (see Fig. 1). In regards to the first research question, SST usage and the related benefits of SST delivery options are explored. The second research question explores the linkages between individual characteristics such as TA and demographics with overall usage of SSTs. It is presumed

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