**Self service technology:
An overview of existing research**

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This working paper is one of a series of papers and reports published by the Center for Service Innovation (CSI). CSI is established by NHH and SNF to strengthen research on service innovation and involves 21 business and academic partners. It aims to increase the quality, efficiency and commercial success of service innovations and to enhance the innovation capabilities of its business and academic partners. CSI is a Center for Research-based Innovation (SFI) funded by the Research Council of Norway.

**PREFACE**

This working paper presents a discussion of literature on self service technology. Based on the shortcomings revealed in existing literature, an exploratory study on how consumers perceive various channels along various dimensions is reported. The paper is written as a preparatory document for future work at the Center for Service Innovation (CSI).

**CONTENTS**

**ABSTRACT**

The purpose of this working paper is twofold. First the paper presents a review of the literature on self service technology (SST). The review categorizes the literature based on dependent variables studied in existing research. The review finds that most of the studies have focused on antecedents of attitude/intention/usage of SST, satisfaction with SST, and loyalty to SST. Also, the antecedents to each of the three main dependent variables are systemized in the review. The review shows that existing literature on SST hardly include moderating variables in the models tested. None of the articles aiming to explain loyalty to SST have included potential moderating effects in the models tested. The paper also gives an overview of potential dimensions for categorization of SST. Only a few of the articles reviewed gives insight into such dimensions.

Given the limited focus on dimensions for categorization of self service technologies, the second purpose was to study how various channels vary along more general channel dimensions. A brief review of such dimensions is reported, and an exploratory study among students at Norwegian School of Economics and Business Administration (NHH) is conducted illustrating how 11 channels are perceived along 16 dimensions. The results show significant differences between the channels in how they are perceived along all of the 16 dimensions studied.

Finally, based on the review and the exploratory study conducted, some directions for future research are suggested.

# 1    INTRODUCTION

The purpose of this working paper is to give an overview of the main characteristics of research on self service technology (SST). More specific, we aim to give an overview of the main dependent variables studied, the main independent variables revealed to influence the dependent variables, an overview of potential mediating and moderating variables included in the studies conducted, and dimensions for categorizing self service technologies. A brief summary of each of the articles reviewed is included in an Appendix. As a response to the somewhat limited focus on dimensions for categorizing self service technologies in the existing literature, an exploratory study is reported at the end of the paper to shed some light on potential dimensions for categorization and how various channels are perceived along these dimensions.

The overview is based on a sample of 31 articles. The articles are revealed from ISI Web of Knowledge/Web of Science. The starting point for sampling articles were the article by Meuter, Ostrom, Roundtree and Bitner (2000), probably the most influential article within the field of self service technology, and the article we consider to be the main source for the growth of this field of research. At the time of sampling (May 2010), this article was cited 206 times in ISI Web of Science. 173 of the cited articles were available online from ISI Web of Science. Among these articles, an evaluation of relevance for the project was based on manual inspection of the title (and abstract in some cases) of the articles. From this evaluation, 31 articles were considered to be relevant. The sampling of articles is delimited to B2C studies.

To give an indication of the sampling frame, a search on "self service technology" (title search) from ISI Web of Science in the period from 1975 - 2010 revealed 30 hits while "self service technologies" (title search) revealed 32 hits. Delimiting the search to the period from 2000 to 2010, the corresponding hits were 29 and 31, indicating that our sampling frame from 2000 to 2010 should include most of the relevant articles in the research field.

Some of the articles included in the sample are focusing Internet as a self service technology. Implicitly, this means that all articles focusing Internet as a service channel is relevant for inclusion in the sample of articles. However, the sample of articles reported here is delimited to articles that have what we can call a "self-service" approach to the usage of Internet (and other channels) as a service channel.

## 2    AN OVERVIEW OF EXISTING RESEARCH

Below we present some of the main characteristics of the articles included in the study. We start with an overview of what types of SSTs that are studied. We then present the most studied dependent variables, their antecedents, and also look into moderating and mediating variables in the models explaining effects of SST. The last section of the review looks into dimensions used for classification of self service technologies. A final part of the paper, included as an answer to the limited focus on dimensions for classification of self service technologies in existing literature, reports results from an exploratory study on dimensions for categorizing self service technologies.

### 2.1    Types of Self Service Technologies

Many types of SSTs are studied in the articles reported. Examples are airline ticket machines, hotel checkouts, car rental machines, package tracking, ATMs, automated telephone services, gambling machines, electric blood pressure machines, pay-at-the-pump terminals, etc. Also, many traditional Internet services are included as SST.

A common approach in existing research is to study self service technologies in general. Little effort is directed to identifying unique characteristics of various types of SST, to study effects of these characteristics on for example SST attitude, satisfaction, and loyalty, or to study how these characteristics may moderate the effect of other antecedents of attitude, satisfaction and loyalty to SST. The exploratory study (please see chapter 3) reported in this paper is a contribution to increase our understanding of how various channels are perceived along various characteristics.

### 2.2    Dependent variables

A variety of dependent variables are focused in the studies. Examples are trust in SST (Hwang and Kim, 2007), relative preference for SST (Simon and Usunier, 2007), choice of SST (Ding, Verma, and Iqbal, 2007), perceived control with SST (Zhu, Nakata, Sivakumar, and Grewal, 2007), evaluation of SST interface (Zhu, Nakata, Sivakumar, and Grewal, 2007),

trial of SST (Meuter, Bitner, Ostrom and Brown, 2005), etc. In addition, two articles also focus on explaining complaining behavior in SST (Snellman and Vihtkari, 2003; Robertson and Shaw, 2009). These dependent variables are typically only included in one (or two) of the articles studied, meaning they do not reflect the major focus of the literature.

The dependent variables that are most studied are the three variables included in Table 1. Articles focusing one or more of the variables attitude to SST, intention to use SST, and usage of SST (Bobbit et al, 2001; Dabholkar and Bagozzi, 2002; Meuter et al., 2003; Weijters et al., 2007; Oyedele and Simpson, 2007; Theotokis,et al. 2008; Dabholkar et al., 2003; and Beuningen et al., 2009) are among the most common in the sample of articles. However, there are also several articles focusing on explaining satisfaction with SST (Meuter et al., 2000; Meuter et al., 2003; and Yen, 2005) and loyalty to SST. Dependent variables categorized as loyalty variables are commitment (Beatson et al., 2007), continued interaction or use (Shamdasani et al., 2008; Ho and Ko, 2008; Chen et al, 2009), customer retention (Al-Hawari et al., 2009; Campbell and Frei, 2010), repeated usage intention (Meuter et al., 2003) and switching intention (Reinders et al., 2010). Also, articles explaining behavioral intention as a result of satisfaction (Lin and Hsieh, 2006; Lin and Hsieh, 2007; Zhao et al., 2008; Makarem et al., 2009) are categorized as loyalty articles (behavioral intention as a result of satisfaction means continued interaction/usage). As can be seen, the article by Meuter et al (2003) is included as an attitude, satisfaction and loyalty article because it treats all three variables as "final" dependent variables in its model.

**Table 1:** Dependent variables most studied in SST research

| Attitude/ Intention/ Behavior | Satisfaction | Loyalty |
|---|---|---|
| 8 | 3 | 12 |

The numbers in the table refer to the "final dependent variable" in the models studied in the various articles. If an article for example studies antecedents of satisfaction and satisfaction as an antecedent of loyalty, the article is categorized as a loyalty article (although it also focuses satisfaction and its antecedents). Based on Table 1, we can see that the main focus of the articles has been on explaining 1)attitude, intention and usage of SST and 2)loyalty to SST.

## 2.3    Independent and mediating variables

Many independent variables are included in the studies. Table 2 gives an impression of what seems to be the most important antecedents of the main dependent variables. In Table 2, antecedents from all of the articles referred to in Table 1 are included. If an article focusing antecedents of loyalty (as categorized in Table 1) also include antecedents of satisfaction, the antecedents of both loyalty and satisfaction are included in Table 2.

**Table 2:** Significant antecedents - direct effects (Numbers in parentheses refer to the number of articles where the antecedents are revealed to be significant)

| Attitude/ Intention/ Behavior | Satisfaction | Loyalty |
|---|---|---|
| Ease of use (3) | Ease of use (4) | Satisfaction (7) |
| Control (3) | Service quality (2) | Service quality (3) |
| Enjoyment/Fun (3) | Save time (2) | Technology readiness (3) |
| General attitude to technology (3) | Convenience (2) | Customer value (2) |
| Self-efficacy (2) | Technology readiness (2) | Ease of use (1) |
| Technology anxiety (2) | Control (1) | |
| Reliable (2) | | |

### 2.3.1   Attitude/Intention/Behavior

About 20 antecedents of various types are included in studies explaining attitude to-, intention to-, and actual usage of SST. The following antecedents seem to be among the most important drivers for attitude, intention to use, and actual usage of SST. First, ease of use is found to have a significant direct effects in three of the studies (Dabholkar and Bagozzi, 2002; Weijters, et al, 2007; Dabholkar, et al., 2003). Second, various types of control also seem to be important to explain attitude to, intention to, and usage of SST. Locus of control (Internal control, Chance, Powerful others) (Oyedele and Simpson, 2007) and control (Dabholkar et al., 2003) are both found to have a significant effect on attitude to, intention to use, or actual use of SST. The third antecedent that seems to be important is fun and/or enjoyment. Fun is

revealed as significant by Dabholkar and Bagozzi (2002) and Weijters et al. (2007) while enjoyment is pinpointed by Dabholkar et al. (2003). Forth, general attitude to technology also seem to influence attitude to SST (Dabholkar et al, 2003; Bobbit and Dabholkar, 2001; Reinders et al., 2008). Fifth, self-efficacy is revealed as significant by Oyedele and Simpson (2007) and Beuningen et al. (2009). Sixth, the significant effect of technology anxiety is also worth mentioning and is revealed by Meuter et al (2003) and Oyedele and Simpson (2007). Finally, SST has to be reliable to influence attitude, intention and/or usage positively (Dabholkar et al., 2003; Weijters et al., 2007).

### 2.3.2   Satisfaction

About 20 different antecedents are included in the studies focusing drivers of satisfaction with SST services. First, ease of use is found to be important for SST satisfaction by Meuter et al (2000), Yen (2005), Makarem et al. (2009) (Makarem et al call their ease of use variable "technological service process"), and Chen et al. (2009). In addition, Shamsadani et al. (2008) revealed indirect effects of ease of use on satisfaction through service quality. Second, service quality is among the most important antecedents of satisfaction with SST and is revealed as a significant antecedent of satisfaction with SST by Lin and Hsieh (2006) and Samsadani et al. (2008). Third, the importance of saving time is also found to influence satisfaction with SST by Meuter et al. (2000) and Yen (2005). Fourth, convenience also seems to have an impact on users' evaluation of SST satisfaction (Yen et al., 2005; Makarem et al., 2009). Fifth, technology readiness (optimism, innovation, discomfort, insecurity) is revealed as significant drivers of satisfaction by Lin and Hsieh (2007) and Chen et al (2009). Finally, control is included in Table 2. Although only one of the articles have found direct effects of perceived control on satisfaction (Yen, 2005), two articles revealed indirect effects of perceived behavioral control (through ease of use/usefulness) (Chen et al., 2009) and indirect effects of control through service quality (Shamdasani et al., 2008).

*2.3.3   Loyalty*

About 10 antecedents were revealed to have direct effects on SST loyalty in the studies reviewed. As can be seen from Table 2, satisfaction with the SST service is the dominating antecedent of loyalty to SST services (Zhao et al., 2008; Lin and Hsieh, 2006; Beatson et al., 2007; Shamdasani et al., 2008; Makarem et al., 2009; Lin and Hsieh, 2007; and Chen et al., 2009). Second, service quality is found to influence loyalty by Lin and Hsieh (2006), Al-Hawari and Newby (2009), and Shamdasani et al. (2008). Third, effects of technology readiness are supported by Lin and Hsieh (2006; 2007) and Chen et al (2009). Fourth, customer value and/or perceived value, a construct related to service quality, is found to influence loyalty by Shamdasani et al (2008) and Ho and Ko (2008). Although only one of the studies reveal direct effects of perceived ease of use on loyalty, indirect effects of ease of use on loyalty is found by Ho and Ko (2008), Zhao, et al. (2008), Shamdasani (2008), and Makarem et al (2009).

An interesting observation is that while attitude/intention/behavior seem to be influenced by variables such as ease of use, enjoyment, reliability, control, general attitude to technology (variables mainly related to the interface and the technology), antecedents of satisfaction and in particular loyalty are more related to variables such as service quality and customer value. The results indicate that an easy to use interface and reliable technology may be satisfactory conditions for consumers to adopt self service technologies. These variables are also necessary, but not satisfactory, antecedents of satisfaction and loyalty. In addition, the self service technologies also have to have a high quality level and add value to consumers to make them satisfied and to make them keep on using the self service technology over time (loyalty).

## 2.4      Moderating variables

Effects of various antecedents of attitude, satisfaction and loyalty to SST may vary across situational and individual characteristics. Some of the articles have investigated such moderating effects.

*2.4.1   Attitude, Intention, Behavior*

The article by Dabholkar and Bagozzi (2002) report how various individual and situational variables moderate the effects of various antecedents on attitude and intention to use SST. For individual variables, they find that the positive effect of ease of use on attitude to SST is reduced when users' *self efficacy* increase. They also find that the positive effect of perceived performance on attitude to SST is reduced when *inherent novelty seeking* increase, that the positive effect of fun on attitude to use SST is strengthened when inherent novelty seeking increase, and that the positive effect of attitude to use SST on intention to use SST is reduced when inherent novelty seeking increase. Furthermore, the positive effect of ease of use on attitude to use SST is found to increase when users *need for interaction with a service employee* increases and that the positive effect of fun on attitude to use SST is strengthened when users need for interaction with a service employee increases. They also find that the positive effect of perceived performance on attitude to use SST is strengthened with greater *self consciousness*, that the positive effect of fun on attitude to use SST is strengthened with greater self consciousness, and that the positive effect of attitude to use SST on intention to use SST is weakened with greater self-consciousness. For situational variables, they find that the positive effect of ease of use on attitude to use is strengthened with greater *perceived waiting time*, that the positive effect of fun on attitude to use is strengthened with greater perceived waiting time, and that the positive effect of attitude to use on intention to use is weakened with greater perceived waiting time. Finally, they find that the positive effect of ease of use on attitude to use is strengthened with greater *social anxiety* (through perceived crowding) and that the effect of fun on attitude to use SST is strengthened with greater social anxiety (through perceived crowding).

Weijters et al (2007) study several moderating effect of age, gender, and education. They find support for some of their hypotheses; that the effect of perceived newness of an SST on attitude to SST is positive for more educated users and negative for less educated users, that the effect of attitude to use SST on actual usage of SST is stronger for customers with higher education level than for customers with lower education level, and that the effect of usefulness on attitude to use SST is stronger among men than among women.

Other moderating effects are revealed by Bobbit et al (2001). They find that the positive effect of attitude to use SST on intention to use SST is reduced when perceived product category

risk increases, that the positive effect of attitude to use SST on intention to use SST is stronger for search goods that for experience and credence goods, and that the positive effect of attitude to SST on intention to use SST is stronger among consumers with a high experience with product category and when amount of information available for product category is high.

Theotokis et al (2008), studying effects of technology readiness on attitude to SST, find some support for moderating effects of what they call customer-technology contact (CTC). High level of CTC refers to relatively many steps of interaction (long time) with technology during service process, a lot of information to process during service process, and a high level of sophistication and complexity of interface and IT during service process. They find some support that the effects of technology readiness on attitude to use SST is stronger for services that has a high level of CTC compared to services with a low level of CTC.

### 2.4.2   Satisfaction

Yen (2005) found that the positive effect of efficiency and convenience on quality satisfaction is higher among skeptics customers (related to technology readiness: optimistic and innovative regarding technology use but rather uncomfortable and insecure about cutting edge technology) than among pioneer customers (related to technology readiness: lack optimism regarding use of technology and are not as innovative as the average but they do not have much insecurity and discomfort at embracing new technology).

The article by Beatson et al (2007) indicates that the positive effect of SST performance on overall satisfaction with SST is higher among customers that use SST often than among customers who rarely use SST.

### 2.4.3   Loyalty

None of the articles reviewed studied how antecedents of loyalty are moderated by individual and/or situational variables.

## 2.5    Classifications

Two articles have a specific focus on classification of services. These articles classified SST based on multidimensional scaling. Cunningham et al. (2008) tested 11 classifying dimensions (physical product component, customer-employee context, production of service is separable/inseparable from consumption, risk level, switching barriers, service is performed on person/object, relationship between service provider and customer (formal/informal), process of service delivery is continuous/discrete transactions, customization of service, the contact employee's judgment on choice of service provided, and convenience of receiving the service) (Cunningham, Young, and Gerlach, 2008; please also see Cunningham, Young, and Gerlach, 2009).

Also the article by Meuter et al (2000) developed a categorization of SSTs. Their main two dimensions were Interface (telephone/interactive voice response, online/internet, interactive kiosk, video (CD) and Purpose (customer service, transaction, self-help). Meuter et al (2003) also present four SST clusters called Travel/business, Daily use, Internet, and Limited use, but do not discuss any theoretical dimensions for these categories. Simon and Usunier (2007) control for differences between Simple versus Complex services (and find moderating effects of service complexity). The study by Oyedele and Simpson (2007) focuses differences between SST in Library context, Shopping context and Hotel context. Neither this categorization was based on theoretical dimensions. Rogers (1995) framework describing characteristics of innovations (Relative advantage, Compatibility, Complexity, Observability, Trialability, Perceived risk) is also suggested as potential dimensions for SST categorization (Meuter et al, 2005). Several articles also make comparisons between traditional services and various types of SST (Ding et al., 2007; Snellman and Vihtkari, 2003; Al-Hawari et al., 2009; Reinders et al., 2008; Dabholkar et al., 2003).

# 3    AN EXPLORATORY STUDY ON CHANNEL CHARACTERISTICS

As a response to the somewhat limited focus on theoretical dimensions for categorizing self service technologies in the existing literature, we looked into more general literature on distribution channels and multichannel environments. Below, a brief discussion of general theoretical dimensions for channel categorization is presented. This literature is not delimited to literature explicitly focusing self service technology but is considered relevant also for self service technology channels. The sample of articles used for discussing the dimensions for categorization is not selected based on a systematic procedure, but is based on what we perceived to be relevant articles from the last few years.

## 3.1    Theoretical dimensions for categorization

Keller (2010, p. 61) points to five channel dimensions (please also see Ailawadi and Keller, 2004). *Access* refers to the "time, effort and resources to reach a retail store". *In-store atmosphere* includes "physical features like design, lighting, and layout, ambient features like music and smell, and social features like type of clientele, employee availability and friendliness". Relevant features for the atmosphere of online stores are functionality, design, look and personality (please also see Rayport and Jaworski, 2000). *Price and promotion* mainly refer to the average price level, variation in price over time, and whether the stores strategy is everyday low price or high-low promotional pricing. *Cross category product/service assortment* refers to the breadth and range of products and services offered by a company in different channels. Finally, *Within-category brand/item assortment* refers to the depth of the company's assortment in a channel. In addition to these five dimensions, Keller (2010, p. 61) also briefly mention that channels vary along dimensions such as relative degree of control between consumers and the firm, whether they allow for one-way or two-way interaction, their scope and reach, the clientele they attract, and the degree to which they enable experiential involvement.

Dholakia et al (2010, pp. 89 – 90) also discuss several channel dimensions of relevance. The first one is the distinction between channels that primarily have a *purchase purpose versus informational purpose*. They also differ between what they call *physical versus virtual* channels. The third dimension is related to accessibility and differs between *mobile versus*

*stationary* channels. They also present a dimension called type of communication that differs between *synchronous versus asynchronous* channels. Although more and more channels can be customized, some still have a fixed interface, and the authors therefore suggest the possibility to categorize channels according to whether they are *fixed versus customizable* channels. Level of *convenience* is the sixth dimension, and refers to whether a channel is mainly a low cost channel or a channel focusing convenience. Ease of *switching* from a channel to another channel can also be used to categorize channels. It is often easier to switch from a provider in an online context compared to an off line context. Dimension number eight refers to degree of *flexibility* related to consumers' opportunity to self-organize a product category so that it aligns with the consumers' cognitive structure for the particular category. Finally, *behavioral history* point to the channels ability to maintain consumers' historical transaction records and make adaptations based on this memory.

Balasubramanian and his colleagues (2005) highlight the importance of five particular channel dimensions in a multichannel environment. *Economic goal* refers to the possibility for consumers to be rational and/or utility oriented, save time, and make low price purchases. *Self-affirmation* is the possibility for a consumer to affirm her subjectively perceived expertise. Depending on the purpose of using a channel, different channels varies in their opportunity for self-affirmation. *Symbolic meaning* may be particularly relevant in gift giving. Buying a painting online as a gift to a close friend (to save time) may not be as suitable for symbolizing the friendship as buying the painting directly from the artist, maybe also with a personal greeting from the artist. *Social influence and experiential impact* is about the possibility to chat and socialize with other people in the channel chosen and also to be able to feel the texture of fabrics, listen to the sounds of music and other people talk, feel the smell of food products, etc. Finally, *shopping schemas and scripts* is the possibility different channels offer for consumers to follow their established schemas and scripts when using a channel for shopping or information search.

Berry et al (2010) focus on three main dimensions for categorization of channels. First, channel *purpose* refers to information acquisition, make purchase, access to service, post purchase support, etc. Channels can be categorized based on their ability to support such purposes. Second, they point to the fact that channels differ in their features and therefore have different *abilities for creating unique experiences* for consumers. For example, channels

differ in atmospheric and social environment and customers experience is a function of such features. The third dimension is *channel interaction*. The dimension is about the degree to which the channels interact with each other – the degree to which they are purely substitutes or if they complement each other.

Patricio et al (2008, p. 322) also propose three relevant dimensions for categorizing service channels. *Usefulness* includes "clearness of information, completeness of operations, and information availability". The second dimension is *efficiency* and comprises "accessibility, ease of use, and speed of delivery". The third dimension, *personal contact*, is about "personalization, competence, and trustworthiness of employees".

Bolton and Saxena-Iyer (2009) discuss the importance of channel interactivity and point to two important dimensions of interactivity. The first is the extent to which a service is *technology enabled* or not. A visit to a hotel is not particularly technology embedded while making the hotel reservation online is highly technology enabled. Second, they point to the degree of *customer participation* as an important dimension. One-way TV does not enable a high extent of customer participation while interactive TV accommodates customer participation to a higher degree.

## 3.2    Methodology

The purpose of the empirical study was to find out how consumers evaluate various channels along relevant dimensions. In an exploratory study at Norwegian School of Economics and Business Administration (NHH), students were asked to evaluate how they perceive various channels along dimensions discussed in chapter 3.1. The dimensions chosen were;

1. The channel is *access*ible for customers when they need access (motivated by Keller, 2010; Dholakia et al, 2010 and Patricio et al, 2008).

2. The channel is suitable for *interaction* between customers and providers (motivated by Patricio, 2008).

3. The channel is *easy to use* (motivated by Patricio, 2008).

4. The channel is adapted to customers' *prior usage* and history (motivated by Dholakia et al, 2010).

5. The channel has *unique* features that other channels do not have (motivated by Berry et al, 2010).

6. The channel enables *physical* contact with other people (motivated by Keller, 2010; Dholakia et al, 2010 and Bolton et al, 2010).

7. The channel enables *assistance* from service personnel (motivated by Keller, 2010).

8. The channel enables creation of *social* relationships between provider and customers or between customers (motivated by Balasubramanian et al, 2005).

9. The channel enables *creation* of services (and value) in interaction with other customers (motivated by Balasubramanian et al, 2005).

10. The channel is *personalized* (motivated by Dholakia et al, 2010 and Patricio et al, 2008).

11. The channel enables *problem* solutions without social contact with provider (motivated by Patricio et al, 2008).

12. The channel is *expensive* to use (motivated by Dholakia et al, 2010).

13. The channel is to a high extent *control*led by the provider (motivated by Keller et al, 2010).

14. The channel is suitable for collection of *information*/information search (motivated by Dholakia et al, 2010 and Berry et al, 2010).

15. The channel is suitable for making *purchases* (motivated by Keller, 2010; Dholakia et al, 2010 and Berry et al, 2008).

16. The channel is suitable for service/*support* (motivated by Dholakia et al, 2010 and Berry et al, 2008).

The channels were chosen based on their relevance for the CSI partners and in general to cover a broad specter of channels. The channels investigated were;

1. *Physical* store

2. Web (*My Site*)

3. Automatic phone services (*IVR*)

4. *E-mail*

5. Friends and family (*F&F*)

6. Applications and websites on *mobile* phone

7. Web (*website*/web store/FAQ)

8. *Social media* (Facebook, Twitter, community)

9. *Chat* /synchron)

10. Customer service through *telephone*

11. *Letter* or other paper communication

Data were collected in the main cantina of NHH December 3, 2010. A questionnaire was handed out to 65 students participating as respondents. 34 of the students responded to their perception of the six first channels listed above while 31 of the respondent responded to the five last channels listed above. 7 point Likert scales were used to measure the respondents' evaluation of the suitability of the channels along the dimensions.

### 3.3 Main results

The results reported in Table 3 illustrate how the respondents perceive the 11 channels along the 16 dimensions. As can be seen from the table, Websites are perceived to be most accessible for the customers when they need access. Furthermore, physical store and E-mail are the channels that are perceived to be most suitable for interaction between customer and provider (the channels perceived to be most useful for each of the dimensions are marked with red in the table). More general, we also see that "Letter or other paper communication" is the

channel that in general seems to be least useful for the dimensions studied. Also, overall, the channels seem to be rather accessible and easy to use.

The results presented in Table 3 are based on students at Norwegian School of Economics and Business Administration and not representative for the population of Norwegian consumers. To reveal more specific information, companies should conduct similar surveys among respondents' that are representative for the consumer segments they serve. The evaluation of the suitability of the different channels for each of the dimensions is evaluated for services in general. Companies conducting such studies should have an explicit focus on the suitability of the channels in the specific service sector they operate.

**Table 3:** One-way ANOVA (including mean values)

| | Physical | My site | IVR | E-mail | F&F | Mobile | Website | Social media | Chat | Telephone | Letter | p-value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Access** | 4.79 | 6.26 | 4.62 | 5.38 | 4.67 | 5.97 | **6.45** | 6.22 | 5.00 | 3.93 | 3.27 | 0.00 |
| **Interaction** | **5.53** | 4.06 | 3.21 | **5.53** | 4.64 | 4.68 | 4.35 | 5.16 | 5.03 | 5.00 | 3.13 | 0.00 |
| **Easy to use** | 5.68 | 5.56 | 3.62 | **6.15** | 5.29 | 5.30 | 5.68 | 6.10 | 5.55 | 4.24 | 2.83 | 0.00 |
| **Prior usage** | 4.24 | 5.18 | 2.62 | 4.68 | **5.34** | 4.00 | 4.48 | 4.93 | 3.29 | 3.60 | 3.30 | 0.00 |
| **Unique** | 5.32 | 5.91 | 2.70 | 4.15 | **6.17** | 5.38 | 5.45 | 5.94 | 4.68 | 4.13 | 2.97 | 0.00 |
| **Physical** | 5.91 | 1.55 | 1.74 | 1.62 | **6.31** | 1.76 | 1.70 | 2.57 | 2.68 | 2.63 | 1.80 | 0.00 |
| **Assistance** | **5.97** | 3.24 | 3.26 | 4.74 | 4.39 | 3.35 | 3.61 | 3.07 | 4.74 | 5.70 | 2.50 | 0.00 |
| **Social** | 5.00 | 2.21 | 1.91 | 3.00 | **5.90** | 2.82 | 2.27 | 4.90 | 4.32 | 3.60 | 2.33 | 0.00 |
| **Creation** | 4.45 | 2.56 | 2.15 | 3.06 | **5.36** | 3.41 | 3.26 | 4.48 | 3.71 | 3.10 | 2.60 | 0.00 |
| **Personalized** | 3.26 | 4.41 | 2.03 | 4.21 | **5.17** | 3.82 | 3.55 | 4.55 | 3.29 | 3.57 | 3.27 | 0.00 |
| **Problem** | 3.38 | **5.68** | 3.82 | 4.29 | 2.67 | 4.94 | 5.32 | 4.68 | 4.26 | 3.10 | 4.17 | 0.00 |
| **Expensive** | 4.15 | 2.41 | 4.29 | 1.85 | 3.07 | 3.53 | 2.55 | 2.52 | 2.48 | **5.40** | 4.23 | 0.00 |
| **Control** | 5.03 | 4.59 | 4.74 | 3.68 | 3.59 | 4.56 | 4.55 | 4.19 | 4.42 | **5.33** | 3.97 | 0.00 |
| **Information** | 4.44 | 5.76 | 3.15 | 4.85 | 5.21 | 5.21 | **5.81** | 5.03 | 3.61 | 4.27 | 3.21 | 0.00 |
| **Purchase** | **6.06** | 4.79 | 2.71 | 3.71 | 3.86 | 4.26 | **6.06** | 2.55 | 2.94 | 3.83 | 2.90 | 0.00 |
| **Support** | **5.76** | 4.41 | 3.91 | 5.18 | 4.55 | 4.26 | 4.19 | 3.19 | 4.77 | 5.67 | 2.70 | 0.00 |

# 4        FUTURE RESEARCH

The literature review reported in this working paper gives a brief overview of research on SST. Based on the review, there seem to be many interesting paths for future research.

## 4.1      Dependent variables

As revealed in the review, attitude/intention/use, satisfaction and loyalty are the main dependent variables studied in this research area. The importance of creating customer experiences has achieved more attention in consumer behavior literature the last few years (Pine and Gilmore, 1998; Meyer and Schwager, 2007) and experiences are revealed to influence satisfaction and loyalty positively (Brakus, 2009). None of the articles reviewed are studying the effects of SST on customer experience and/or brand experience. The increase interest for customer experiences among practitioners and researchers and its positive influence on satisfaction and loyalty makes it interesting to study effects of self service technologies on customer experiences in future SST research. There is in general a need to do more research on dependent variables that are only included in one or two of the studies reviewed in this report. However, including the experience construct as a dependent variable seem to be a particular interesting contribution to the existing SST literature.

## 4.2      Independent variables

Most of the studies have taken attitude models and extended technology adoption models as the starting point for choosing independent variables in the model tested. Subjective norm, however, is often not included in the model tested. Given the increased usage of mobile devices as platform for self services, more consumers will conduct self services in a social context. The importance of social norm as an antecedent for adoption may therefore be more relevant in the years to come. In addition, variables such as habit/frequency of use (Breivik and Thorbjørnsen, 2008; Bagozzi and Warshaw, 1990), and recency of use (Bagozzi and Warshaw, 1990) should also be considered as interesting potential antecedents of attitude/intention/use of self service technologies.

The antecedents of satisfaction with self service technologies are overlapping a bit with the antecedents of attitude/intention/use but also include variables such as for example perceived quality. Hoyer and MacInnis (2010) argue for the importance of feelings as antecedents of both attitude and satisfaction. An increased focus on the effects of feelings as antecedents of attitude to and satisfaction with self service technologies seem to be a relevant and interesting path for future research.

Satisfaction is the most important antecedent for loyalty to self service technologies – in addition to variables such as service quality and customer value. Effects of brand personality (Aaker, 1997) has been suggested and found significant as an antecedent to both satisfaction and loyalty (Brakus, 2009). Research on brand personality has received renewed attention the last few years, and new dimensions or theoretical frameworks for brand personalities have been suggested (Grohmann, 2009; Geuens, Weijters, and Wulf, 2009). More focus on the effects of brand personality and comparison of predicting effects of the alternative brand personality measures on loyalty to- and satisfaction with self service technologies seems to be an interesting path for future research.

## 4.3    Mediating and moderating variables

Some of the articles are including mediating variables in the models they are testing to reveal knowledge about the "chain of cause" in how attitude, satisfaction and loyalty are influenced by SST. Given the discussion in chapter 4.2 above, studying how brand personality mediates the effects of self service technology on loyalty may be one direction for future research.

Fewer studies include potential effects of moderating variables. None of the articles studying effects of SST on loyalty have looked into effects of potential individual and/or situational moderator. This should have priority in future research. Both variables related to consumer characteristics and situational characteristics are highly relevant to study in future research.

## 4.4 Categorization

### 4.4.1 Channels

An important path for future research is to work with the channel dimensions discussed in chapter 3 in this paper and to study how self service technologies varying along these dimensions, influence variables such as attitude to SST, satisfaction with SST, and loyalty to SST.

### 4.4.2 Services

Few of the articles are discussing potential effects of service type. We may propose that antecedents to attitude/satisfaction/loyalty to SST will vary depending on what type of service the SST is offering. For example, ease of use may be more important for transaction services than for information services.

### 4.4.3 Consumers

Consumer characteristic can also be used to categorize users. Users may vary along dimensions such as consumer confidence, socio economic characteristics, motivation, etc. (Black et al, 2002).

A main point with categorization is to reveal a more nuanced understanding of how variables influence attitude, satisfaction and loyalty to SST. Categories – and/or dimensions for categorizations – are useful as moderating variables in future studies. By including such variables, we will be able to understand the importance of various independent variables on attitude/satisfaction/and loyalty to SST for various self service technologies, for various types of services, and for various types of consumers.

# REFERENCES

Aaker, J. L. (1997): Dimensions of Brand Personality, *Journal of Marketing Research*, vol. 34, pp. 347-356.

Ailawadi, K. L. and Keller, K. L. (2004): Understanding Retail Branding: Conceptual Insights and Research Priorities, *Journal of Retailing*, vol. 80, pp. 331-342.

Al-Hawari, M., Ward, T. and Newby, L. (2009): The Relationship between Service Quality and Retention within the Automated and Traditional Contexts of Retail Banking, *Journal of Service Management*, vol. 20, no. 4, pp. 455-472.

Bagozzi, R. P. and Warshaw, P. R. (1990): Trying to Consume, *Journal of Consumer Research*, vol. 17, pp. 127-140.

Balasubramanian, S., Raghunathan, R., and Mahajan, V. (2005): Consumers in a Multichannel Environment: Product Utility, Process Utility, and Channel Choice, *Journal of Interactive Marketing*, vol. 19, no. 2, pp. 12-30.

Beatson, A., Lee, N. and Coote, L. (2007): Self-Service Technology and the Service Encounter, *The Service Industries Journal*, vol. 27, no. 1, pp. 75-89.

Berry, L. L., Bolton, R. N., Bridges, C. H., Meyer, J., Parasuraman, A, and Seiders, K. (2010): Opportunities for Innovation in the Delivery of Interactive Retail Services, *Journal of Interactive Marketing*, vol. 24, pp. 155-167.

Beuningen, J. van, Ruyter, K. de, Wetzels, M., and Streukens, S. (2009): Customer Self-Efficacy in Technology-Based Self Service, *Journal of Service Research*, vol. 11, no. 4, pp. 407-428.

Black, N. J., Lockett, A., Ennew, C., Winklhofer, H. and McKechnie, S. (2002): Modelling Consumer Choice of Distribution Channels: An Illustration from Financial Services, *International Journal of Bank Marketing*, vol. 20, no. 4, pp. 161-173.

Bobbitt, L. M. and Dabholkar, P. A. (2001): Integrating Attitudinal Theories to Understand and Predict Use of Technology-Based Self-Service, *International Journal of Service Industry Management*, vol. 12, no. 5, pp. 423-450.

Bolton, R. and Saxena-Iyer, S. (2009): Interactive Services: A Framework, Synthesis and Research Directions, *Journal of Interactive Marketing*, vol. 23, pp. 91-104.

Brakus, J. J., Schmitt, B. H. and Zarantonello, L. (2009): Brand Experience: What is it? How is it Measured? Does it Affect Loyalty?, *Journal of Marketing*, vol. 73, May, pp. 52-68.

Breivik, E. and Thorbjørnsen, H. (2008): Consumer Brand Relationships: An Investigation of Two Alternative Models, *Journal of the Academy of Marketing Science*, vol. 36, pp. 443-472.

Campbell, D. and Frei, F. (2010): Cost Structure, Customer Profitability, and Retention Implications of Self-Service Distribution Channels: Evidence from Customer Behavior in an Online Banking Channel, *Management Science*, vol. 56, no. 1, pp. 4-24.

Chen, S.-C., Chen, H.-H., and Chen, M.-F. (2009): Determinant of Satisfaction and Continuance Intention towards Self-Service Technologies, *Industrial Management & Data Systems*, vol. 109, no. 9, pp. 1248-1263.

Cunningham, L. F., Young, C. E., and Gerlach, J. H. (2008): Consumer Views of Self-Service Technologies, *The Service Industries Journal*, vol. 28, no. 6, pp. 719-732.

Cunningham, L. F., Young, C. E., and Gerlach, J. H. (2009): A Comparison of Consumer Views of Traditional Service and Self-Service Technologies, *Journal of Service Marketing*, vol. 23, no. 1, pp. 11-23.

Dabholkar, P. A. and Bagozzi, R. P. (2002): An Attitudinal Model of Technology-Based Self-Service: Moderating Effects of Consumer Traits and Situational Factors, *Journal of the Academy of Marketing Science*, vol. 30, no. 3, pp. 184-201.

Dabholkar, P. A., Bobbitt, L. M., and Lee, E.-J. (2003): Understanding Consumer Motivation and Behavior Related to Self-Scanning in Retailing, *International Journal of Service Industry Management*, vol. 14, no. 1, pp. 59-95.

Dholakia, U. M., Kahn, B. E., Reeves, R., Rindfleisch, A., Stewart, D., and Taylor, E. (2010): Consumer Behavior in a Multichannel, Multimedia Retailing Environment, *Journal of Interactive Marketing*, vol. 24, pp. 86-95.

Ding, X., Verma, R. and Iqbal, Z. (2007): Self-Service Technology and Online Financial Service Choice, *International Journal of Service Industry Management*, vol. 18, no. 3, pp. 246-268.

Geuens, M., Weijters, B., and Wulf, K. (2009): A New Measure of Brand Personality, *International Journal of Research in Marketing*, vol. 26, pp. 97-107.

Grohmann, B. (2009): Gender Dimensions of Brand Personality, *Journal of Marketing Research*, vol. XLVI, February, pp. 105-119.

Ho, S.-H. and Ko, Y.-Y. (2008): Effects of Self-Service Technology on Customer Value and Customer Readiness. The Case of Internet Banking, *Internet Research*, vol. 18, no. 4, pp. 427-446.

Hoyer, W. D. and MacInnis, D. J. (2010): *Consumer Behavior*, 5th edition, South-West Cengage Learning, US.

Hwang, Y. and Kim, D. J. (2007): Customer Self-Service Systems: The Effects of Perceived Web Quality with Service Content on Enjoyment, Anxiety, and E-Trust, *Decision Support Systems*, vol. 43, pp. 746-760.

Keller, K. L. (2010): Brand Equity Management in a Multichannel, Multimedia Retail Environment, *Journal of Interactive Marketing*, vol. 24, pp. 58-70.

Lin, J.-S. C. and Hsieh, P.-L. (2006): The Role of Technology Readiness in Customers' Perception and Adoption of Self-Service Technologies, *International Journal of Service Industry Management*, vol. 17, no. 5, pp. 497-517.

Lin, J.-S. C. and Hsieh, P.-L. (2007): The Influence of Technology Readiness on Satisfaction and Behavioral Intentions towards Self-Service Technologies, *Computers in Human Behavior*, vol. 23, pp. 1597-1615.

Makarem, S. C., Mudambi, S. M. and Podoshen, J. S. (2009): Satisfaction in Technology Enabled Service Encounters, *Journal of Services Marketing*, vol. 23, no. 3, pp. 134-144.

Meyer, C. and Schwager, A. (2007): Understanding Customer Experience, *Harvard Business Review*, February, pp. 1-11 (Reprint R0702G).

Meuter, M. L., Ostrom, A. L., Roundtree, R. I, and Bitner, M. J. (2000): Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters, *Journal of Marketing*, vol. 64, July, pp. 50-64.

Meuter, M. L., Ostrom, A. L., Bitner, M. J. and Roundtree, R. (2003): The Influence of Technology Anxiety on Consumer Use and Experiences with Self-Service Technology, *Journal of Business Research*, vol. 56, pp. 899-906.

Meuter, M. L., Bitner, M. J., Ostrom, A. L. and Brown, S. W. (2005): Choosing among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies, *Journal of Marketing*, vol. 69, April, pp. 61-83.

Oyedele, A. and Simpson, P. M. (2007): An Empirical Investigation of Consumer Control Factors on Intention to Use Selected Self-Service Technologies, *International Journal of Service Industry Management*, vol. 18, no. 3, pp. 287-306.

Patricio, L., Fisk, R. P., and Cunha, J. F. (2008): Designing Multi-Interface Service Experiences: The Service Experience Blueprint, *Journal of Service Research*, vol. 10, no. 4, pp. 318-334.

Pine, B. J. and Gilmore, J. H. (1998): Welcome to the Experience Economy, *Harvard Business Review*, July-August, pp. 97-105, (Reprint 98407)

Rayport, J. F. and Jaworski, B. (2000): *e-Commerce*, McGraw-Hill Irwin, New York, NY.

Reinders, M. J., Dabholkar, P. A. and Framback, R. T. (2008): Consequences of Forcing Consumers to Use Technology-Based Self-Service, *Journal of Service Research*, vol. 11, no. 2, pp. 107-123.

Rogers, E. M. (1995): *Diffusion of Innovations*, 4th Edition, Free Press, New York, NY.

Robertson, N. and Shaw, R. N. (2009): Predicting the Likelihood of Voiced Complaints in the Self-Service Technology Context, *Journal of Service Research*, vol. 12, no. 1, pp. 100-116.

Shamdasani, P., Mukherjee, A. and Malhotra, N. (2008): Antecedents and Consequences of Service Quality in Consumer Evaluation of Self-Service Internet Technologies, *The Service Industries Journal*, vol. 28, no. 1, pp. 117-138.

Simon, F. and Usunier, J.-C. (2007): Cognitive, Demographic, and Situational Determinants of Service Customer Preference for Personnel-in-Contact over Self-Service Technology, *International Journal of Research in Marketing*, vol. 24, pp. 163-173.

Snellman, K. and Vihtkari, T. (2003): Customer Complaining Behaviour in Technology-Based Service Encounters, *International Journal of Service Industry Management*, vol. 14, no. 2, pp. 217-231.

Theotokis, A., Vlachos, P. A. and Pramatari, K. (2008): The Moderating Role of Customer-Technology Contact on Attitude Towards Technology-Based Services, *European Journal of Information Systems*, vol. 17, no. 343-351.

Weijters, B., Rangarajan, D., Falk, T. and Schillewaert, N. (2007): Determinants and Outcomes of Customers' Use of Self-Service Technology in a Retail Setting, *Journal of Service Research*, vol. 10, no. 1, pp. 3-21.

Yen, H. R. (2005): An Attribute-Based Model of Quality Satisfaction for Internet Self-Service Technology, *The Service Industries Journal*, vol. 25, no. 5, pp. 641-659.

Zhao, X., Mattila, A. S. and Tao, L.-S. E. (2008): The Role of Post-Training Self-Efficacy in Customers' Use of Self Service Technologies, *International Journal of Service Industries Management*, vol. 19, no. 4, pp. 492-505.

Zhu, Z., Nakata, C., Sivakumar, K. and Grewal, D. (2007): Self-Service Technology Effectiveness: The Role of Design Features and Individual Traits, *Journal of the Academy of Marketing Science*, vol. 35, pp. 492-506.

**APPENDIX**

| Reference | SST | Methodology | Independent variables | Moderating/Mediating variables | Dependent variables |
|---|---|---|---|---|---|
| Meuter, Ostrom, Roundtree and Bitner (2000) | Airline ticketing machines, hotel checkouts, car rental machines, package tracking, ATMs, automated telephone services, internet shopping, general internet information search, gambling machines, electric blood pressure machines, pay-at-the-pump terminals. | Critical incident technique (n=823 critical incidents), 53% women, 32% between 25-34 years. | Self service technologies (SST)<br><br>1 Solved intensified needs (11%)<br><br>2 Better than the alternative (68%)<br><br>(Easy to use-16%, Avoid service personnel-3%, Saved time-30%, When I want-8%, Where I want, 5%, Saved money-6%.<br><br>3 Did its job (21%)<br><br>1 Technology failure (43%)<br><br>2 Process failure (17%)<br><br>3 Poor design (36%)<br><br>4 Customer driven | | **Satisfaction with SST**<br><br>*Satisfying incidents*<br><br>1 Solved intensified needs (11%)<br><br>2 Better than the alternative (68%)<br><br>(Easy to use-16%, Avoid service personnel-3%, Saved time-30%, When I want-8%, Where I want, 5%, Saved money-6%.<br><br>3 Did its job (21%)<br><br>*Dissatisfying incidents*<br><br>1 Technology failure (43%)<br><br>2 Process failure (17%)<br><br>3 Poor design (36%)<br><br>4 Customer driven failure |

| | | | failure | | |
|---|---|---|---|---|---|
| Bobbitt, Pratibha and Dabholkar (2001) | Internet is used as example (but the model presented can be applied to any SST) | Conceptual/ Theoretical | 1 Attitude to use technology in general<br><br>2 Perceived risk associated with SST<br><br>3 Experience with SST (Good-Bad)<br><br>4 Situational influences (related to Internet, consumer, and retail stores) | Factors associated with the product category<br><br>*Moderating effects*<br><br>Attitude -> intention is negatively moderated by Perceived product category risk<br><br>Attitude -> intention is stronger for search categories than for experience and credence categories<br><br>Attitude -> intention is positively moderated by Consumer experience with product category and Amount of information available for product category | **Attitude -> Intention -> Behavior**<br><br>*Direct effects Attitude*<br><br>1 Attitude to use technology in general has a positive effect on attitude to SST<br><br>2 Attitude to direct marketing has a positive effect on attitude to SST<br><br>3 Perceived risk has a negative effect on attitude to use SST<br><br>4 Positive experiences with SST usage has a positive effect on attitude to SST<br><br>*Direct effects Behavior*<br><br>1 Slow loading of information has a negative effect on internet shopping<br><br>2 Less time available for shopping has a positive effect on internet shopping<br><br>3 Crowded retail stores has a positive effect on internet shopping<br><br>4. Unavailability of other shopping |

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| | | | | | modes has a positive effect on internet shopping<br><br>5 Unavailability of products locally has a positive effect on internet shopping<br><br>6 Difficulties or inabilities to assess the internet has a negative effect on internet shopping |
| Dabholkar and Bagozzi (2002) | Touch screen for ordering in a fast food restaurant | 2*2 design (n=392). 49 percent men. Average age = 26 years.<br><br>Consumer traits were first measured. Then Situational factors were presented – manipulated as high vs low Waiting time and high vs low Social anxiety (perceived crowding). Perceptions about Touch | Ease of use, Performance, Fun | Consumer traits (Self-efficacy, Inherent novelty seeking, Need for interaction, Self consciousness) and Situational factors (Perceived waiting time, Social anxiety)<br><br>*Moderating effects*<br><br>Ease of use ->attitude were moderated by Self efficacy, Need for interaction, Waiting time, and Social anxiety<br><br>Performance -> attitude were moderated by Inherent novelty seeking, and Self | **Attitude to use -> Intention to use**<br><br>*Direct effects*<br><br>Ease of use has a positive effect on attitude to use<br><br>Performance has a positive effect on attitude to use<br><br>Fun has a positive effect on Attitude to use |

| | | | | consciousness | |
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| | | | | | |
| | | | | Fun -> attitude were moderated by Inherent novelty seeking, Need for interaction, Self consciousness, Waiting time, and Social anxiety | |
| | | | | | |
| | | | | Attitude -> intention were moderated by Inherent novelty seeking, Self consciousness, and Waiting time | |
| Yen (2005) | Online travel agencies or bookstores | Survey (n=459) | Efficiency, Ease of use, Performance, Perceived control, Convenience | Technology readiness (Optimism, Innovativeness, Discomfort (rev) and Insecurity (rev)). Divided into Explorer, Pioneer, Sceptics | **Satisfaction with service quality (quality satisfaction)** |
| | | | | | |
| | | | | | *Direct effects* |
| | | | | | |
| | | | | | Efficiency has a positive effect on satisfaction with service |
| | | | | *Moderating effects* | |
| | | | | | Ease of use has a positive effect on satisfaction with service |
| | | | | Efficiency -> satisfaction significant among Sceptics | |
| | | | | | Performance has a positive effect on satisfaction with service |
| | | | | Ease of use -> Satisfaction significant | Perceived control has a positive effect on satisfaction with service |

| | | | | | among Explorers and Pioneers<br><br>Performance -> satisfaction significant among Explorer, Pioneers and Sceptics<br><br>Perceived control -> satisfaction significant among Pioneers<br><br>Convenience -> satisfaction significant among Explorer, Pioneers and Sceptics | Convenience has a positive effect on satisfaction with service |
|---|---|---|---|---|---|---|
| Snellman and Vihtkari (2003) | Banking services (Compare traditional service encounter and SST encounter – ATM and internet banking) | Several studies; critical incident study – 160 incidents. | Traditional versus SST banking channels | | | **Complaining behavior**<br><br>No differences in frequency of complaining between traditional and SST.<br><br>Higher complaining frequency for Internet banking than for ATM (differences within SST)<br><br>No differences in perception of how easy it is to complain between traditional and SST<br><br>*Reasons for not complaining:* |

| | | | | | Understand why the incident happened |
|---|---|---|---|---|---|
| | | | | | Believe the company is aware of the problem |
| | | | | | Do not know where and how to complain |
| | | | | | Problem was solved during incident |
| | | | | | Alternative solutions were found |
| Meuter, Ostrom, Bitner and Roundtree (2003) | Travel/Business: Car rental machines, Airline ticketing machines, Hotel checkouts, Package tracking, Automated investment transactions, Tax preparation software. Daily use: Automated phone banking, ATMs, Other automated phone services, Pay-at-the-pump terminals. Internet: Internet shopping, General internet information search. Limited use: Gambling machines, Electric blood pressure machines. | Survey among respondents recruited at an airport and from an online panel. | Technology anxiety (TA), Demographics (Age, Gender, Education, Income) | | **SST usage** <br><br> Travel/Business is influenced by TA (-), Age (+), Gender (men), and Education (+). <br><br> Daily use is influenced by TA (-), Gender (women), and Education (+) <br><br> Internet is influenced by TA (-), and Gender (men). <br><br> Limited use is influenced by Age (+), Gender (women), and Education (-) <br><br> **SST Experience** (Satisfaction, WOM intention, Repeat usage intention) <br><br> TA has a negative effect on Satisfaction, WOM intention, and Repeat usage intention among |

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| | | | | | satisfied customers.<br><br>TA has a negative effect on WOM intention among dissatisfied customers. |
| Meuter, Bitner, Ostrom and Brown (2005) | Interactive voice response system for prescription refill request (Study 1) and an Internet based system for prescription refill request (Study 2) | 2 surveys. One for each of the two SST. | <u>Innovation characteristics</u> (compatibility, relative advantage, complexity, observability, trialability, perceived risk) and <u>Individual differences</u> (inertia, technology anxiety, need for interaction, previous experience, demographics) | *Mediating*<br><br><u>Customer readiness</u> (role clarity, extrinsic motivation, intrinsic motivation, ability) | **Trial of SST**<br><br>Main results:<br><br>Study 1: No direct effects of Complexity and Observability. No direct effects of Gender and Education. Direct effects of all Customer readiness variables. Only one of the significant antecedents (relative advantage) was not mediated by any of the customer readiness variables.<br><br>Study 2: No direct effects of Trialability and Observability. No direct effects of Technology anxiety and Education. Direct effects of all Customer readiness variables. All of the significant antecedents were mediated by at least one of the Customer readiness variables. |
| Lin and Hsieh | Respondents with experience with one of | Survey among | Technology readiness (Optimism, | *Mediating* | **SST satisfaction, SST service quality, and SST behavioral** |

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| (2006) | many SSTs (e.g. reservation ticketing for transport, voice systems, kiosks, internet, ATM, mobile phone) | 436 respondents. | Innovation, Discomfort (reversed) and Insecurity (reversed)) | Mediating analyses were not conducted. We may however have indirect effects of Technology readiness on SST satisfaction through SST service quality | **intention**<br><br>Technological readiness has a positive effect on SST service quality<br><br>Technological readiness has a positive effect on SST behavioral intention<br><br>SST service quality has a positive effect on both SST satisfaction and SST behavioral intention<br><br>SST satisfaction has a positive effect on SST behavioral intention |
| Lin and Hsieh (2007) | Respondents with experience with one of many SSTs (e.g. reservation ticketing for transport, voice systems, kiosks, internet, ATM, mobile phone) | Same data/survey as Lin and Hsieh (2006) | Technology readiness (Optimism, Innovation, Discomfort (reversed) and Insecurity (reversed)) | *Mediating*<br><br>Mediating analyses were not conducted. We may however have indirect effects of Technology readiness on SST behavioral intention through SST satisfaction | **SST satisfaction and SST behavioral intention**<br><br>Technological readiness has a positive effect on SST behavioral intention<br><br>Technological readiness has a positive effect on SST satisfaction<br><br>SST satisfaction has a positive effect on SST behavioral intention |
| Beatson, Lee, and Coote | SST at hotels (automated check in and check out, online booking, automated | In depth interviews with | SST performance and Personal service (PS) | *Mediating*<br><br>Mediating analysis were | **Affective-, Temporal-, and Instrumental commitment** |

| (2007) | room service ordering, automated messaging, automated housekeeping services) | 13 respondents | performance | not conducted: SST performance and Personal service performance may influence the commitment constructs indirectly through satisfaction.<br><br>*Moderating*<br><br>Frequency of SST usage increase the positive effect of SST performance on Overall satisfaction | Based on responses from the interviews the following propositions are presented:<br><br>1: SST performance has a positive effect on Overall satisfaction<br><br>2: PS performance has a positive effect on Overall satisfaction<br><br>3: Overall satisfaction has a positive effect on all of the three commitment variables |
| --- | --- | --- | --- | --- | --- |
| Hwang and Kim (2007) | Procedure of purchasing a book at www.amazon.com | Online survey among 325 students based on their experience with the Amazon purchase | Perceived web quality | <u>Enjoyment</u> and <u>Anxiety</u><br><br>Perceived web quality has a positive effect on Enjoyment<br><br>Perceived web quality has a positive effect on Anxiety<br><br>Enjoyment has a positive effect on Integrity and Ability<br><br>Anxiety has a positive effect on Integrity and | **E-Trust: Integrity, Benevolence, Ability**<br><br>Perceived web quality has a positive effect on Integrity<br><br>Perceived web quality has a positive effect on Benevolence<br><br>Perceived web quality has a positive effect on Ability |

| | | | | Ability<br><br>*Mediation*<br><br>Perceived web quality may have an indirect effect on Integrity and Ability through Enjoyment and/or Anxiety. | |
|---|---|---|---|---|---|
| Simon and Usunier (2007) | Simple services (domestic mail, cash withdrawal, car refueling) and Complex services (financial transactions, sending international parcels, local rail ticketing, long distance rail ticketing) | Face to face interview with 115 respondents who had used the services surveyed at least twice the last 12 months | Rational engagement, Experiential style, Age, Perceived service complexity | *Moderating*<br><br>Simple versus complex service<br><br>The negative effect of Experiential style on Preference for SST is higher for Complex services than for Simple services<br><br>No other moderating effects were revealed. | **Preference for SST over personnel-in- contact (PiC)**<br><br>Rational engagement has a positive effect on Preference for SST<br><br>Experiential style has a negative effect on Preference for SST<br><br>Perceived complexity has no effect on Preference for SST<br><br>Age has a negative effect on Preference for SST<br><br>Expected waiting time for SST (PiC) has a positive effect on preference for PiC (SST) |
| Weijters, Rangarajan, Falk, and | Self-scanning in a grocery store | Survey among 497 respondents visiting the store. | Perceived usefulness, Perceived ease of use, Reliability, Perceived | *Moderating*<br><br>Education, Age, and | **Attitude to SST -> SST usage**<br><br>Perceived usefulness has a positive |

| Schillewaert (2007) | | | 65 % women.<br><br>36% used self-scanning | fun, (Newness) | Gender<br><br>The effect of Newness on Attitude to use is positive among people with a high education level and negative among people with low education level<br><br>The effect of Attitude to use on Usage is stronger for people with a high education level than among people with a low education level<br><br>The effect of Perceived usefulness on Attitude to use is stronger for Men than for Women<br><br>*Post purchase moderation*<br><br>The negative effect of Perceived waiting time on Overall satisfaction with the shopping trip is stronger among SST users than among non- | effect on attitude to use<br><br>Ease of use has a positive effect on attitude to use<br><br>Reliability has a positive effect on attitude to use<br><br>Perceived fun has a positive effect on attitude to use<br><br>Post purchase effects - **Satisfaction**<br><br>Perceived waiting time has a negative effect on Overall satisfaction with the shopping trip |
|---|---|---|---|---|---|---|

| | | | | | users | |
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| Oyedele and Simpson (2007) | Focus on SST in contexts as retailing, library and hotel | Survey among 186 student respondents. 48% men. Average age is 24. | Locus of control (Internal control, Chance, Powerful others), Autonomy (Sensitivity to others' control, Goal attainment), Time pressure, Technology anxiety, Self efficacy | | | **SST usage intention**<br><br>Shopping context:<br><br>Powerful others have a negative effect on intention to use<br><br>Chance has a negative effect on intention to use<br><br>Technology anxiety has a negative effect on intention to use<br><br>Library context:<br><br>Technology anxiety has a negative effect on intention to use (p=.08)<br><br>Hotel context:<br><br>Chance has a negative effect on intention to use<br><br>Self-efficacy has a positive effect on intention to use<br><br>Technology anxiety has a negative effect on intention to use |
| Ding, Verma and Iqbal | SST in financial sector | Quasi experiment among 1319 | Cost saving (Price, special offer), Time saving (access to local | | | **Choice of service (SST, Hybrid, Personal/Professional)** |

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| (2007) | | consumers (demographically balanced panel)<br><br>Discrete choice analysis | branch, ability to apply online and to be trading in minutes, availability of streaming quotes and streaming news, availability of real time profit and loss portfolio evaluation)<br><u>Behavioral control</u> (Access to overall fee based professionally managed accounts with a pre-determined investing strategy, access to portfolio asset location modeling with stock ideas, access to proprietary research at no additional cost, access to IPOs for all account holders)<br><br><u>Demographics</u> | | They who chose SST perceive time saving, cost saving, personal control and avoidance of personal contact as the most important factors for adopting SST. Not driven by promotion.<br><br>They who choose Hybrid are a mix of the SST and the Personal/Professional consumers. A unique dimension is their preference for checking their plans with friends and family.<br><br>They who chose Personal/Professional perceive cost saving, they do a lot of research and analyses and tend to put more weight on the professional managed accounts. Not driven by promotion.<br><br>SST users are between early thirties and late forties. Professional/Personal consumers are in their 40s and 50s. Hybrid users are in their 20s and 30s.<br><br>Less women than men use SST. |
| Zhu, Nakata, Sivakumar, | Experiment 1: Car rental | Experiment 1: Comparative | Comparative information | *Moderating* | **Perceived control** |

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| and Grewal (2007) | kiosk<br><br>Experiment 2: Intelligent ATM | information (presence versus absence of comparative information) * Interactivity (interactive versus static information)<br><br>N=141 (consumers recruited at shopping malls).<br><br>Experiment 2: Comparative information (presence versus absence of comparative information) * Interactivity (interactive versus static information)<br><br>N=127 (consumers recruited at shopping malls). | (presence versus absence of comparative information) * Interactivity (interactive versus static information)<br><br>Single feature design (either interactive or comparative) versus Combined feature design (both interactive and comparative design)<br><br>2*2 between subjects design | Prior SST experience<br><br>Technology readiness<br><br>A Single feature design has a higher positive effect on perceived control than a Combined-feature design for novice consumers but not for experienced consumers<br><br>A Single feature design has a higher positive effect on interface evaluation than a Combined-feature design for novice consumers but not for experienced consumers<br><br>A Single feature design has a higher positive effect on perceived control than a Combined-feature design for high-Technology readiness consumers but not for low-Technology | **Interface evaluation**<br><br>A Single feature design has a higher positive effect on perceived control than a Combined-feature design<br><br>A Single feature design has a higher positive effect on interface evaluation than a Combined-feature design |

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| | | | | readiness consumers<br><br>A Single feature design has a higher positive effect on interface evaluation than a Combined-feature design for high-Technology readiness consumers but not for low-Technology readiness consumers | |
| Alcock and Millard (2007) | Conceptual/Practical based on secondary consulting studies | | | | **Recommendations for design of SST**<br><br>*Task must not be too complicated<br><br>*Offer consumer the opportunity to chose between SST and traditional channels<br><br>*Speed is important (SST must be fast)<br><br>*Perceived control is important<br><br>*Security and Privacy is important<br><br>*Keep the customer informed throughout the process<br><br>*The emotional component of the |

| | | | | | task – if emotional SST may not be suitable |
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| Shamdasani, Mukherjee and Malhotra (2008) | Internet banking | Survey among 224 online bank customers | Speed of service, Ease of use, Reliability, Enjoyment, Control | *Mediation*<br><br>Service quality: Effects of Speed of service, Reliability, Enjoyment and Control on Perceived value, Satisfaction and Continued interaction were all mediated by Service quality | **Service quality, Perceived value, Satisfaction, Continued interaction**<br><br>Positive effects of Speed of service, Reliability, Enjoyment and Control on Service quality were revealed<br><br>Effects of Speed of service, Reliability, Enjoyment and Control on Perceived value, Satisfaction and Continued interaction were all mediated by Service quality<br><br>Perceived ease of use were revealed to influence Continued interaction directly (Continued interaction was also significantly influenced by Service quality, Satisfaction and Perceived value)<br><br>Perceived risk was found have a negative effect on Perceived value |
| Cunningham, Young and Gerlach (2008) | Online banking, Distance education, Airline reservation, Tax software, Retail self-scanning, Online auction, Pay at the pump, ATMs, Online brokerage, | Multidimensional scaling<br><br>Student sample, N=180, 53% men, Average | Dimensions for classification; Physical, Contact, Inseparability, Riskiness, Switching, Person/object, | | **Classification dimensions**<br><br>67% of variance in classification is explained by the two dimensions 1)Customization/Standardization and 2)Separability/Inseparability. |

| | Interactive phone, Internet search, Online car buying | age=27 years | Relationship, Service delivery (continuous/discreet), Customization, Judgment, Convenience | | Separable/Customized: Airline reservations, Online car buying, Online auction <br><br> Moderately separable/Customized: Distance education, Online banking <br><br> Inseparable/Customized: Online brokerage <br><br> Moderately separable/Standardized: Pay at the pump, Retail self scanning, Internet search, Tax software, ATMs <br><br> Inseparable/Standardized: Interactive phone |
| Ho and Ko (2008) | Internet banking | Online survey. N=771. 58% men. 85% of sample between 21 and 30 years | Ease of use, Usefulness, Cost saved, Self-control | *Mediation (Mediation analysis not conducted)* <br><br> Customer value and Customer readiness <br><br> Positive effects of Customer value and Customer readiness on Intention to continued use <br><br> There may be indirect effects of Ease of use, Usefulness, Cost saved, | **(Customer readiness ->Customer value) ->Intention to continued use** <br><br> Positive effects of Ease of use, Usefulness, Cost saved and Self-Control on Customer readiness <br><br> Positive effects of Ease of use, Usefulness, Cost saved and Self-Control on Customer value |

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| | | | | and Self control on Intention to continued us through Customer value and Customer readiness | |
| Zhao, Mattila and Tao (2008) | Self check-out machine in a library | Survey among 131 students with no experience with the machine<br><br>Respondents were given training on beforehand | Post training Self efficacy | *Mediation*<br><br>Technology anxiety and Ease of use<br><br>Effect of Post training self efficacy on Behavioral intention was mediated by Ease of use | **Customer satisfaction and Behavioral intention**<br><br>Positive effect of Post training self efficacy on Ease of use<br><br>Positive effect of Post training self efficacy on Customer satisfaction<br><br>Negative effect of Ease of use on Technology anxiety<br><br>Positive effect of Ease of use on Behavioral intention<br><br>No effects of Post training self efficacy on Technology anxiety, or Behavioral intention<br><br>No effects of Technology anxiety on Customer satisfaction or Behavioral intention<br><br>No effect of Ease of use on Customer satisfaction |

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| Theotokis, Vlachos and Pramatari (2008) | Digital shopping assistant (touch screen PC with a scanner affixed to the shopping cart), Automatic vending machine24 hour, Self check-out (scan and pay at electronic cashier), Traceability information (digital display with information about history and quality of product – where it has been produced, etc), Dynamic pricing ((electronic price tages that dynamically change to price reduction or expiry date), Personalized promotion (digital displays that inform customers with personalized information about product just picked up from the shelf) | Customers in 10 supermarkets, N=603. 69% women. 51% between 25-44 years | Technology readiness (Optimism, Innovativeness, Discomfort (rev), Insecurity (rev)) | *Moderation*  High technology contact services (Digital shopping assistant, Automatic vending machine 24hour, Self check-out) and Low technology contact service (Traceability information, Dynamic pricing, Personalized promotion  (High technology contact characterized by 1)high time of contact with technology, High media sophistication, and 2-way interaction) | **Attitude towards technology-based services**  Effects High technology contact  Positive effects of Optimism and Innovativeness on Attitude to service for High technology contact services  Negative effects of Discomfort and Insecurity on Attitude to service for High technology contact services  Effects Low technology contact  Positive effects of Optimism on Attitude to service for Low technology contact services  Negative effects of Innovativeness on Attitude to service for Low technology contact services  No effects of Discomfort and Insecurity on Attitude to service for Low technology contact service |
| Cunningham, Young, and | Online banking, Distance education, Airline reservation, Tax software, | Multidimensional scaling | Dimensions for classification; Physical, Contact, | Traditional services versus SST services | **Classification dimensions**  Respondents viewed the |

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| Gerlach (2009) | Retail self-scanning, Online auction, Pay at the pump, ATMs, Online brokerage, Interactive phone, Internet search, Online car buying | SST service: Student sample, N=180.\n\nTraditional service: Student sample, N=282. | Inseparability, Riskiness, Switching, Person/object, Relationship, Service delivery (continuous/discreet), Customization, Judgment, Convenience | | classification of Convenience, Person/Object, and Delivery different for SST service and Traditional service\n\n87 percent of the total variance for the traditional service is explained by Customization/Standardization and Person/Object\n\n67 percent of the total variance for the SST service is explained by Customization/Standardization and Inseparability/Separability\n\n(Classification change when service move from traditional to SST) |
| Makarem, Mudambi, and Podoshen (2009) | Respondents based their response on recall of their most recent telephone-based service encounter | Survey among 253 students (tech savvy respondents) | Convenience, Tech service process (evaluation of how the technological elements of the service worked), Touch service process (evaluation of how the human touch of the service worked), Service outcome | | **Customer satisfaction**\n\nPositive effects of all of the four independent variables were revealed.\n\n(Both tech and touch matter, even for tech savvy respondents) |
| Al-Hawari, M., Ward, T. and | Retail banking: Automated (ATM service quality, | Survey with sample from the | Automated service | | **Customer retention (Positive word** |

| Newby, L. (2009) | Telephone service quality, Internet service quality) versus <u>Traditional </u>(employee service quality, process service quality, tangible service quality) | general public. N=442 | quality<br><br>Traditional service quality | | **of mouth)**<br><br>Automated service quality:<br><br>Positive effects of Telephone service quality on retention<br><br>No effects of ATM service quality or Internet service quality on retention<br><br>Traditional service quality:<br><br>Positive effects of Employee service quality on retention<br><br>Positive effects of Process service quality on retention<br><br>Positive effects of Tangibility service quality on retention |
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| Chen, Chen and Chen (2009) | Respondents were asked to assess their experience with the SST they had used most frequently; including e-reservation/ticketing, kiosks, ATM, Internet or mobile banking/finance/investment. | Survey. N=481. Student sample | Technology readiness (Optimism, Innovativeness, Discomfort, Insecurity), Subjective norm, Behavioral control | *Mediation*<br><br>(Perceived ease of use, Perceived usefulness) -> Satisfaction<br><br>Optimism has a positive effect on Ease of use<br><br>Innovation has a negative effect on Ease of Use | **Continuance Intention**<br><br>Positive effects of Satisfaction, Subjective norm, Behavioral control, and Optimism on Continuance Intention<br><br>Mediation analyses not conducted. However; Technology readiness, Subjective norm and Behavioral control may influence Continuance intention through (indirectly) |

| | | | | Behavioral control has a positive effect on Ease of use | Perceived usefulness, Perceived ease of use and/or Satisfaction |
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| | | | | | (Many other links within the model were also tested with no significant relationships revealed) |
| | | | | Optimism has a positive effect on Usefulness | |
| | | | | Ease of use has a positive effect on Satisfaction | |
| | | | | Usefulness has a positive effect on Satisfaction | |
| | | | | Optimism has a positive effect on Satisfaction | |
| | | | | Innovation has a positive effect on Satisfaction | |
| Campbell and Frei (2010) | Online banking | Sample of 100.000 retail banking customers, panel data for a period of 30 months | Adoption of online banking | | **Cost structure, Customer profitability, Retention**<br><br>Transaction in offline self service channels decrease when online banking is adopted (substitution effect)<br><br>Transaction in offline assisted service channels increase when online banking is adopted |

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| | | | | | (augmentation effect)

Total transaction volume increase following the adoption of online banking

There is an increase in estimated average cost to serve when online banking is adopted (resulting from the combination of the findings listed above)

There is a reduction in short-term customer profitability when online banking is adopted

Online banking is associated with higher customer retention rates over 1, 2, and 3 years (the association increasing in the length of the horizon)

Future market shares are systematically higher in markets with high contemporaneous utilization rates for online banking |
| Dabholkar, Bobbitt and Lee (2003) | Self-scanning check-out at a supermarket store

SST in general | A combination of qualitative data and quantitative data. N=101 | Speed, Control, Reliability, Ease of use, Enjoyment, Preference relative to traditional check-out | | **Intention to use self-scanning regularly/SST**

<u>Self scanning</u>

Consumers who plan to use self- |

| | | | | | scanning regularly perceived it as 1)offering greater control, 2)more reliable, 3)easier to use, 4)more enjoyable, and 5)prefer it to the traditional checkout relatively more than those who do not plan to use it regularly |
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| | | | | | Consumers who like self-scanning (and use or plan to use it) will wish to avoid interaction with service employees |
| | | | | | Consumers who dislike self-scanning (and have not used it or plan not to use it) will value interaction with service employees |
| | | | | | Consumers who like self-scanning (and use or plan to use it) will have favorable attitudes to using technology in general |
| | | | | | Consumers who dislike self-scanning (and have not used it or plan not to use it) will have unfavorable attitudes to using technology in general |
| | | | | | Consumers who use self-scanning in grocery stores will prefer 1)Internet shopping to telephone shopping |

| | | | | | and 2)ATM to bank teller (No support for relative preference for a)shopping from home to shopping at the store, b)using touch-tone dialing to speaking to a person when telephone shopping, or c)using a computer touch screen in the store to ordering verbally to an employee in the store)<br><br>Consumers who use self-scanning will have greater access to the Internet than consumers who avoid self-scanning<br><br><u>SST in general</u><br><br>Consumers who prefer a particular SST to its alternative traditional service option will wish to avoid interaction with service employees<br><br>Consumers who prefer the alternative traditional service option to a SST will value interaction with service employees<br><br>Consumers who prefer a particular SST to its alternative traditional service option will have favorable attitudes to using technology in |
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| | | | | | general |
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| | | | | | Consumers who prefer the alternative traditional service option to a SST will have unfavorable attitudes to using technology in general |
| Reinders, Dabholkar, and Frambach (2008) | Railway context (Ticketing and Travel information)<br><br>Employee, on-site SST, off site SST (Internet) | Experimental design (Forced use of SST without employee as fall back option, Forced use of SST with employee as fall back option, Limited choice (two SST or one SST and employees), full choice (customer could choose between all three options)<br><br>N=1150, Real customers | Forced use of SST<br><br>Interaction with an employee as a fall-back option<br><br>Previous experience with SST in general | *Mediation*<br><br>Attitude to use SST<br><br>Attitude to service provider<br><br>Attitudes partially mediate the relationship between perceived freedom of choice and word of mouth intentions and fully mediate the relationship between perceived freedom of choice and switching intention | **Positive word of mouth and Switching intention**<br><br>Forced use of SST results in less favorable attitude to use SST/-to service provider<br><br>Greater choice among service delivery options results in more favorable attitudes to using SST/-to service provider<br><br>The more positive the attitude to use SST a)the more likely that the consumer will engage in positive WOM and b)the less likely that the consumer will switch to another mode of service<br><br>The more positive the attitude to the service provider a)the more likely that the consumer will engage in positive WOM and b)the less likely that the consumer will switch |

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| | | | | | to another mode of service<br><br>The availability of interaction with an employee as a fall-back option in the case of forced use of SST will lead to a)more positive attitude to using the SST and b)more positive attitudes to the service provider<br><br>Consumers' previous experience with using SST in general will lead to a)more positive attitudes to using a particular SST.<br><br>(The hypothesis predicting that consumers' previous experience with using SST in general will lead to more positive attitude to the service provider of that SST was NOT supported) |
| Robertson and Shaw (2009) | "Use of Internet" was used as a surrogate indicator of likelihood of using SST in general | Survey from online panel. N=453. Typical respondent was between 35-44 years | Likelihood of voice success, Causal locus (self), SST self-efficacy | *Mediation*<br><br>Ease of voice and SST powerlessness<br><br>Ease of use parsimoniously mediate the relationship between Likelihood of voice success on Likelihood of voice (NB! | **Likelihood of voice, Need to vent**<br><br>Likelihood of voice success has a positive effect on Likelihood of voice (NOT SUPPORTED)<br><br>Likelihood of voice success has a positive effect on Ease of voice<br><br>Likelihood of voice success has a negative effect on SST |

| | | | | No significant effect between Likelihood of voice success and Likelihood of voice) | powerlessness<br><br>Causal locus has a negative effect on SST powerlessness<br><br>Causal locus /self) has a negative effect on Need to vent<br><br>SST self-efficacy has a negative effect on SST powerlessness<br><br>SST self efficacy has a positive effect on Likelihood of voice (NOT SUPPORTED)<br><br>Ease of voice has a positive effect on Likelihood of voice<br><br>SST powerlessness has a positive effect on Need to vent<br><br>SST powerlessness has a positive effect on Likelihood to voice<br><br>Need to vent has a positive effect on Likelihood of voice |
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| Beuningen, Ruyter, Wetzels, and Streukens (2009) | Online stock investment | Survey, Sample among business students, N=271, Average age=22. | Credibility (Firm, Third party, Peer), Argument quality (Firm, Third party, Peer) | *Mediation*<br><br>Perceived financial performance and Perceived value | **Self efficacy and Usage intention**<br><br>**Self efficacy**<br><br>a)Information source credibility and b)argument quality positively affect self efficacy. For source credibility, |

| | | | | | *Moderation* | peer credibility exerts the strongest effect (NOT SUPPORTED). For argument quality, firm argument quality exert the strongest influence |
| | | | | | Role engagement | |
| | | | | | High role engagement strengthens the effect of a)information source quality and b)argument quality on self-efficacy (only marginal differences in moderating effects between the three sources (Firm, Third party, Peer)) | Self-efficacy has a positive effect on customer perceived financial performance |
| | | | | | | Self-efficacy has a positive effect on customer perceived value |
| | | | | | | Self-efficacy has a positive effect on Usage intention |
| | | | | | *Mediation* | |
| | | | | | The effect of self-efficacy on Usage intention is mediated by a)customer perceived financial performance and b)customer perceived value | |