



Interplay between Performance and Convenience in Customer Choice of Self-Service Technologies

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ABSTRACT

Technological enhancements bring more convenience to customers by providing opportunities to do various service transactions through Self Service Technologies (SSTs). However, a very few studies focused on understanding SSTs profoundly. Thus, this research focuses on exploring performance and convenience related to SSTs in detail. Based on the inductive research approach, qualitative interviews were conducted with 25 SST users and data were analyzed using thematic analysis approach. The study found eight performance features; 'usefulness, speed, efficiency, consistency, cost-effectiveness, user-friendliness, reliability, trialability' and three convenience features; 'locational convenience, time convenience and physical exertion' as important in customer choice of SSTs. This study fills the gap in the literature by discussing two important matters in customer choice of SSTs in detail. It opens theoretical lenses to understand the significance of self-service technologies to customers from its performance and convenience perspectives. It provides useful insights for SST service providers that can be incorporated to their SSTs in designing and delivering a high-quality service which matches with the customer expectations.

Keywords: *Self-service technologies; performance; convenience; technological platforms.*

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1. INTRODUCTION

Service setting is identified as very important for both the service provider and the customer. It determines the efficiency and effectiveness of the service transaction as well as satisfaction of both the parties. This service setting can be a place where organization employees and customers meet together or a space where customers interact with the organization at arm's length through different technological devices. Solomon, Surprenant [1] view service encounters as a place where dyadic interpersonal interactions take place in between the customer and the service provider. Previously people had to visit business organizations and meet service employees to get every transaction done. Sometimes it consumes hours and days from customers' time for purchase related activities happening during the pre-purchase, purchase, and post-purchase settings. For example, getting an appointment from a doctor at physical reception in a hospital required customers to visit the physical location many times for getting the appointment, meeting the doctor and may be again to show reports. Thus, interpersonal interactions taking place in traditional physical service encounters create difficulties to both parties while consumers spend time and effort, the organization also has to manage a large crowd within the premises.

However, technological improvements are capable enough to transform the traditional service encounters into technologically incorporated advanced operations [2]. Now the situation has changed due to the introduction of the SSTs. Now customers can perform many service transactions while they are staying at home or reaching self-service technology outlets which are located at convenient locations and open for 24 hours. For instance, without visiting the hospital customers can channel their doctors via online, saving time and efforts.

However, every customer is not adapted to such technologies due to many barriers. Among them the awareness and assurance of SST performance and appreciation of convenience related to SSTs become important. Most of the people do not use technologies since they have not positively experienced performance and convenience benefits of SSTs. Though previous studies recognized those factors as important at surface level, they haven't gone through detailed discussions on these factors. Therefore, this study aims to explore performance and

convenience features related with self-service technologies.

Accordingly, this paper first presents the conceptual foundations of the study. Next, the research methodology is provided before presenting the findings and discussion. Finally, it provides conclusions, recommendations along with limitations and directions for further research.

2. LITERATURE REVIEW

The literature review first presents the role of SSTs which transform the traditional service encounter to technology based self service solutions. Next, type of SSTs, advantages, and disadvantages for both the customers and service providers are explained. Finally, influencing factors on customer choice of SSTs are elaborated highlighting the performance and convenience features.

2.1 Self-Service Technologies as a Transformation in Service Encounter

Hilton, Hughes [3, p 862] defined self-service technologies as "technologies, provided by an organization, specifically to enable customers to engage in self-service behaviors". In a similar note, Meuter, Ostrom [4, p 50] outlined SSTs as "technological interfaces which enable customers to produce the service independent of direct service employee intervention". According to both the definitions SSTs encourage self-service behaviors while persuading customers to be active in performing their own services independently [5] without relying upon the organization's employees. Some self-service technologies have now become commonplace, such as ATMs whereby around more than half of banking transactions now take place without the assistance of a teller [4].

Bitner [6] accepts three forms of service environments namely, self-services, interpersonal services and remote services. According to this classification interpersonal service permits interactions between the service providers and customers while self-services and remote services are mainly dominated by the customer with or without any support from the organisation's service providers. According to [4] SSTs are a fundamental shift in the services context, which transformed the traditional physical service encounters into technology supported service environments. Thus, in today's

business environment, the phrase 'market space' is getting increased attention [7] while SSTs provide a classic example for market space business operations [4] being a natural outcome of the technological maturity [8].

Most of the digital technologies provide a personalized environment to their customers [9] even though they perform transactions at arm's length. Additionally, SSTs provide needed information and guidance to the customers which is necessary to perform successful service transactions in interactive interfaces [10]. Today customers receive a significant independence over their service transactions [4]. Thus, SSTs create 'working customers', who perform tasks on their own [11]. Bitner, Faranda [12] note that SSTs convert customers to be 'full participator' by performing transactions without any help from service employees. This evolution has altered the manner that organizations practice customer care by asking customers to 'do it yourself' at SSTs [13, p 246]. At present, most businesses have introduced SSTs in a wider variety of services [14] ranging from routine and simple transactions to more complex non-routine work [15]. In future more technology-based solutions in service encounters are expected as 'automated social presence' [16] and 'humanoid robots' by providing technology-based service frontline experiences [17].

2.2 Types Self-service Technologies

Self-service technologies were recognized under different classifications based on the channels of delivering the service to the customer, as electronic kiosks, the internet, telephone, and mobile devices etc. [8]. Accordingly, such services can be delivered via different modes such as over the telephone connections, internet connections, mobile devices such as phones as well as interactive kiosks machines which range from well-established traditional offerings to novel platforms such as flight check-in facilities [18]. Meuter, Ostrom [4] categorize SSTs into four groups as telephone and interactive voice response systems, online connections and internet-based interfaces, interactive kiosks and video or CD technologies. Both the classifications are similar and represent mainly online, telephone and kiosk based self-service options. Accordingly, telephone-based technologies allow the customer to perform many service transactions over the telephone without physically visiting the service premises. Most of the telephone-based services provide customer

service such as answering questions regarding accounts, pay bills, tracking deliveries etc. Internet-based interfaces provide opportunities for customers to login to relevant websites and perform transactions in online platforms without any geographical barriers [19]. It enables direct transactions such as ordering, purchasing, and exchanging resources between the organization and the customer. Most of the interactive kiosks have touchscreens, displays, card readers, scanners, coin operations etc., and enable users to access information (e.g., ATMs). People can use Video/CD technologies instead of experiencing services at physical locations (films, educational CDs). It provides self-help/ education /learn and training the customers [4, p 52].

2.3 Benefits of SSTs to Service Providers

Now it is visible that a considerable amount of service providers are providing full or part of their services via self-service technologies. SSTs provide benefits to both the customers and the service providers. Service providers can save cost by reducing the labor cost [13]. Additionally, they can increase efficiency of the services through standardizing the mechanisms [20]. Further, service providers can focus on other priorities avoiding many clerical, simple and routine tasks in the service transactions [8]. Though providing SSTs service providers can increase speed of service delivery [21] and productivity [2]. Further, introducing SSTs into the service encounter allows organizations to handle varying demand conditions without adjusting the staff [22].

2.4 Benefits of SSTs to Customers

SSTs provide many benefits to the customer. They are mainly benefited with timesaving where previously they had to visit service premises particularly during the given time schedule (office hours) to get the service transaction done, though it is a disturbance to their normal schedules. Further it saves cost since customers can reduce unnecessary travelling and waiting time [20,23]. Additionally, customers can earn a spontaneous happiness by performing tasks by themselves [2,24]. Among all, the greater convenience related with the use of SSTs is significant [25]. It gives the customer a feeling of accomplishment, while enhanced self-efficacy, and enjoyment [26]. SSTs are user-friendly and provide more accessibility to people with disabilities (e.g., online transactions) and potentially contribute to the national prosperity

and quality of life of individuals [8]. Wei, Torres [27] find the importance of extrinsic attributes and intrinsic attributes of self-service technologies that provide customer satisfaction and a positive service experience. 'Trust' is found to be the most vital element in building e-loyalty among generation Y customers [28]. Nijssen, Schepers [29] note that customer relational value is higher among individuals who are highly benefited with SSTs and experience low-cost attributions. SSTs can delight customers simply through giving them the credit for what they can accomplish by themselves [4, p 69].

2.5 Disadvantages of SSTs

Concurrent occurrences of both positive and negative outcomes of SSTs were pointed out by Mick and Fournier [30] denoting that some people consider it as a threat and feel anxiety while some others enjoy the benefits of SSTs. As [29] show less-benefited people disclose a destructive association with the firm due to SSTs. From the organization's viewpoint, Meuter and Bitner [20] identify six general concerns as possible shortcomings of SSTs as service recovery issues, reduced face-to-face interaction, an overemphasis on firm benefits, an overemphasis on technologically based competitive advantages, the limitations of social experience and lack of sufficient cost savings. Customer complaints and dissatisfaction are mainly due to technology failures and process failures which are higher in SSTs compared to interpersonal interfaces [4]. Considering both successes and failures in traditional and technological interfaces, Thomas [31] recommends 'hybrid services' in the customer service field combining technology innovations with human involvement in customer service approaches. Even though the firm derives short-term value, forcing all customers to accept self-service technologies might result in value co destruction [32]. Therefore, the firm should have a thorough understanding of the extent of customer acceptance of self-service technologies.

2.6 Customer Choice of SSTs and Theoretical Foundations to Understand the Acceptance

Most of the previous scholars used models such as Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) model to understand the SST context. However, Oh, Jeong [33] view that

TAM is not adequate to understand SST adoption, while Lee [34] notes that it produces inconsistent results in different cultural settings. Blut, Wang [35] developed a model to specifically explain the SST context by combining the efforts of above models which later become the foundation to understand SST acceptance for many current studies.

Apart from those established models, scholars found some powerful factors which cause customer choice of SSTs. Hilton and Hughes [14] point out the importance of 'consumer contexts' which is comprising with customer's skills, experience, social and psychological factors as well as the 'organizational contexts' which is characterized with features of the interface, speed, control, reliability as vital in customer choice of SSTs. Liljander, Gillberg [36] and Lin and Hsieh [37] point out the influence of technological readiness on customer intentions to select SSTs. Meuter, Ostrom [38] and Wang, Barua [39] explain the individuals' technology anxiety and lack of trust towards technology cause unwillingness to use SSTs and dissatisfaction. Wang, Harris [40] explore the role of situational influences such as perceived waiting, complexity of the task in the customer choice of SSTs while Demoulin and Djelassi [41] also finds the influence of situational factors such as time pressure, basket size, coupons and queue length at the SSTs and staffed checkouts on actual customer usage of SSTs. Customer attitudes towards SSTs are found as important in SST acceptance [42,43]. The SST Attitude-Intention Model [22], explains the influence of multiple attitudes of SSTs on customer's behavioral intention on selecting SSTs.

Lee and Lyu [44] find 'personal values' and 'consumer traits' as important in determining the intentions to use SSTs via building attitudes. Wu, Quyen [45] find e-servicescape dimensions having significant impacts on consumer attitudes and trust toward websites. Need for interaction with the service employee causes a negative disposition towards SSTs [2]. [34] confirms an inverse relationship between need for interaction with service employees and intention to use SSTs. Furthermore, Anton [46] views that customers are generally seeking more human interactions during the service encounter, also would negatively affect SSTs. Habit and experience of similar technology have also been found as significant in SST adoption [41]. Wang, Harris [47] identify prior habit as the most powerful precursor on SST usage, while Castro,

Atkinson [8] argue that previous experience in using SSTs is crucial when the technology is new. Influences of personal control on the adoption of self-service technologies was recognized by Lee and Allaway [48]. Levels of perceived empowerment and enjoyment were identified as factors with strong influence on customers willingness to engage in online value co-creation [49].

Importance of service quality in SST context is found by Dabholkar [2] and confirmed by several researchers [50-53] as important in SST adoption. Dean [54] finds consumer demographics, especially age effects on SST use such that older generations have less experience with SSTs and therefore, less confidence in performing via SSTs. Eriksson and Nilsson [55] find that consumer demographics are insignificant in developed markets. However, nonsignificant impact of age on the use of SSTs was found by Dabholkar, Michelle Bobbitt [56] and Weijters, Rangarajan [57]. Proving the same, Blut, Wang [35] found that age and gender as not effective predictors of SST acceptance. However, a significant effect of gender on intention to use self-service technologies are found by [58]. Additionally, characteristics of technology such as simplicity of use, time convenience, place convenience, security, standardization of equipment, availability of technology, efficiency and average competence are recognized as encouraging customer use of self-service technologies while habit, preference, fear and absence of sufficient benefits discouraging the use of SSTs [59]. The effect of perceived usefulness and multichannel satisfaction [55], innovation characteristics [60], cost savings, time-saving and behavioral control [13], individuals' capacity, perceived risk, relative advantage, desire for personal contacts and personal back up [61], willingness and ability [62] have also been recognized as important. Galdolage [63] found ten key determinants of SST acceptance including the performance and convenience. Additionally, well-designed interface, accessibility, support of employees, store promotion and fast delivery were recognized as important in retail kiosks [64]. Picot-Coupey, Hure [65] found the challenges e-retailers confronted when enhancing the customer shopping experience by synchronizing clicks with bricks.

Curran and Meuter [42] contend that adoption of SSTs is a shift in consumer behavioral patterns and therefore firms should encourage customers

to use SSTs by providing justifications. [62] note that transferring to SSTs without understanding the customer's perspective as critical. Thus, this study explores performance and convenience of SSTs in detail from customers' perspective which determines their choice of SSTs in service transactions.

3. METHODOLOGY

Exploratory type of research work typically accepts when it is difficult to find sufficient information through existing literature [66,67]. Pointing out the lack of prevailing scholarly work in understanding SSTs from customers' perspective, the qualitative research approach was used to achieve the research objectives. Semi structured interviews were conducted with 25 individuals in North East area of United Kingdom who were chosen based on a non-probabilistic judgmental sampling method. As Palinkas, Horwitz [68] point out, investigator's judgment on which respondents provide the quality insights on the research interest helps to identify information-rich cases. Interviews were like conversations, allowing respondents to freely express their views and ranged from 30-45 minutes. The interviews were conducted until reaching information redundancy. All the interviews were recorded with the permission of interviewee and transcribed into word document providing more convenience to the researcher to read, re-read the quotes until being familiar with the content. Data were analyzed using Thematic analysis method.

4. RESULTS AND DISCUSSION

The study found eight (08) elements which determine the performance of SSTs and three (03) factors which customers considered as giving convenience to them.

4.1 Performance Features Associated with Customer Choice of SSTs

The study outlines performance as "the degree to which using SSTs provides benefits to customers in performing certain activities". The interviews identified eight elements that determine the SST performances: usefulness, speed, consistency, cost effectiveness, user friendliness, trialability, efficiency and reliability. A few quotations from interviews are provided in support of the findings.

Usefulness: Most of the respondents mentioned that SSTs is a very useful solution for their busy

lives. They pointed out the situations where they have to waste time and wait in the que if they happened to visit service organisations and wait until service employees provide the service for them.

It's useful. I am using internet banking, self-checking checkouts, ATM, online shopping and so on... Yes, I mean definitely useful and makes things a lot quicker than others. Imagine what happens if we are supposed to go to pay electricity bills, water bills to different places and go to the bank just to withdraw money. Now everything is very easy. (38 years, Male).

The literature shows 'performance expectancy' to be the strongest predictor of customer acceptance and use of technologies (UTAUT model) [69], and important in determining attitude towards SST usage [43]. 'Perceived usefulness' and 'Perceived ease-of-use' were recognized in the TAM model as key in determining customers' acceptance of technologies [70, p 277]. Similarly, the effect of perceived usefulness was confirmed as significant in customer intention of using technological interfaces [55].

Speed: Many of the respondents praised SSTs for their speed/quickness of service performance. Therefore, they recognised SSTs as a useful medium that helps them to save time with a minimum of waste.

I use SSTs because they are quick and fast. Basically, otherwise you have to get leave or half day from the office to do shopping every week. But now I am not wasting my time. I find free time for myself and do shopping online. I do all kinds of payments via online. It actually speeds up my life. (58 years, Male)

Increased speed of service delivery [71], speed and flexibility [19] and Speed, control, reliability are recognised as important in customer choice of SSTs [3].

Efficiency: Most of the SSTs are very efficient. As respondents mentioned, SSTs do not result in wasting customers time and effort and helps to achieve maximum productivity with minimum wasted effort, resource or expense.

Another kind of things like internet banking, I think it's good because it's efficient, it saves

your time and effort. Also, you don't have to wait for someone, if you go to the petrol station and it's closed, you can still somehow pay with your card. Moreover, at a supermarket, you don't have to wait for someone, so I think that's good in that sense. (50 years, Male)

Meuter and Bitner [20], recognised the importance of increasing efficiency while Froehle and Roth [72] also pointed out the same. Marr and Prendergast [59] recognised 'efficiency' as vital in encouraging customers to use self-service technologies.

Consistency: Respondents admired the consistency of SSTs in similar contexts as important in their intention to use SSTs, mainly because they could use their existing knowledge and skills in performing transactions, even in slightly different contexts such as automated checkouts at different shops. Similarly, Froehle and Roth [72] discuss the Importance of uniformity and consistency of self-service technologies.

You do not need lots of help. Everything is obvious and straightforward. It provides the same service every day. If you have done it once, for the next time also you may have to do the same...all machines are similar, the process may not be changing (consistent). It's easy for me. (45 years, Female)

Cost-effectiveness: Some of the respondents pointed out the cost efficiencies related with SSTs as an influencing factor to collaborate with SSTs. Reduction of transportation costs becomes important here.

What I feel is, if I go shopping for everything, it's a big cost for me...see fuel, parking and my time either. I can save my money doing my shopping online. It's clever. (25 years, female)

In the literature, Afuah [73] points out that specially Internet-based interfaces are cost-effective and provide open networks that reduce constraints of distance and geographical barriers.

User friendliness: The study further reveals the user-friendliness of the SSTs, the reliability of service due to not having human errors and the opportunities given for trials as important in customer acceptance.

I am not saying that it's too difficult...many of the self-service options are user-friendly. Nothing we have to do other than simply ticking a few numbers and words. All questions are in simple language and in an understandable way... I have seen some provide a few options for language selection too. (45years, female)

Castro, Atkinson [8] recognised that SSTs as user-friendly which provide more accessibility to people even with disabilities and potentially contribute to the national prosperity and quality of life of individuals.

Reliability: Respondents pointed out that SSTs are reliable and free from human errors. Since most of the machines provide standardized service on a one-to-one basis which are typically routine, it can deliver an error free service.

These machines are truly reliable. Because, I hope that it is free from human errors. Think of the money you get from ATMs. Have you ever heard of errors with counting? (38 years, male)

Hilton, Hughes [3] and Berry and Carbone [74] recognize the importance of reliability of SSTs in enhancing customer trust and confidence.

Trialability: As respondents pointed out, customers can try out many services particularly online based SSTs before making an actual purchase. It helps them to be familiar with the SSTs as well as decide not to purchase/ or do transactions at the last moment by clicking the cancel button.

Sometimes I try out many options even though I haven't actually purchased it or not. It's simple in SSTs. You can go to the last step and if you realize that you don't want it simply you can cancel it by clicking a button. It asks for your confirmation before finalising the transaction. Pressing the cancel or exit button will bring you to the beginning. (62 years, female)

In the literature, Meuter, Bitner [26] recognised 'innovative characteristics' such as relative advantage, observability, trialability as influential in consumer trials of SSTs .

4.2 Convenience Features Associated with Customer Choice of SSTs

Convenience is recognised as the degree of ease associated with the use of SSTs. The study

identifies three main convenience factors: locational convenience, less physical exertion and time convenience. Further, the study found that younger participants were more convenience oriented than older people and more inclined towards using SSTs.

Locational Convenience: Locational convenience relates to opportunities to perform many services at one's fingertips (in many online services) or in most convenient places such as money withdrawal machines, vending machines etc, placed in locations convenient for customers like supermarkets, the roadsides etc.

It makes my life easier. I do many things online, staying at home, in my bedroom (location). I think it increases the efficiency of purchasing things or sending the bank transactions. It assists your daily life, so you can do some things like you could be at the office but also be shopping for food, you could be possibly at work but then during your breaks send a money transaction to someone. I would say it creates more convenience. (32 years, female)

Convenience of accessing via fingertips was discussed in the literature [20,23] as providing positive customer comments towards SSTs.

Time convenience: Respondents pointed out that time convenience provided by SSTs due to 24 hours' operation, every day of the year, including after office hours and holidays etc, is a great advantage.

We are a busy family. I work full time with two children. I don't have time just to go and spend a day in the town shopping leisurely. I personally prefer self-service than actually physically going in and out. It's not to do with laziness. It's just to do with convenience. (45 years, female)

You know, many self-service machines are 24 hours, day and night, weekends, really easy...what happens if I have to get a day off and go for all these matters? I find it difficult in the office hours. (48 years, male)

Time convenience due to flexible operating hours [52] and the effect of convenience on consumer adoption in SSTs was discussed in previous research work [23,52,59,75].

Physical exertion: Less physical effort due to reducing travelling, searching for items and

carrying out transactions also were pointed out by the respondents as favourable features of SSTs.

With these online, telephone technologies, we don't want to go everywhere to get everything done. It makes me free from unnecessary travelling and tiredness (physical efforts). I think it's good. Just purely because like for instance, if you want to go to the supermarket you want to get in and out of it very quickly but there is a massive queue at the till, you can just use self-service in using yourself. (38 years, male)

5. CONCLUSION

The study found eight features relate to performance; usefulness, speed, efficiency, consistency, cost-effectiveness, user-friendliness, reliability, trialability and three features relate with convenience; locational convenience, time convenience and physical exertion as important in customer choice of SSTs. The summary of the findings is provided in the Fig. 1 and 2.

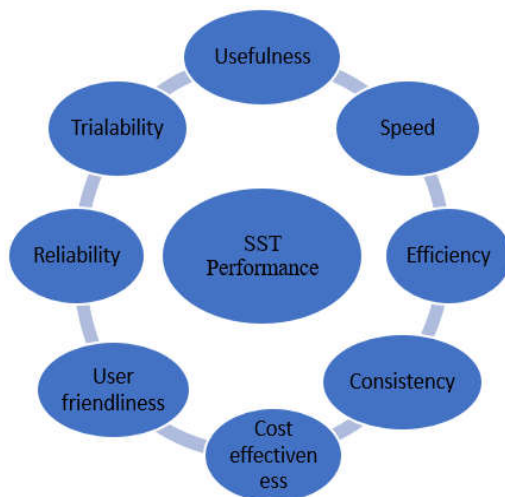


Fig. 1. Performance associated with SSTs

6. LIMITATIONS, RECOMMENDATIONS AND FUTURE RESEARCH DIRECTIONS

This is a qualitative inquiry with 25 respondents and therefore the study findings will not be able to generalize to a larger population or to a different context. Apart from that, the study focused on understanding two key determinants of customer choice of SSTs (performance and convenience) in detail disregarding the numerous factors which determine the customer acceptance of SSTs.

Remedying these limitations, future researchers can focus on understanding different customer reactions including their personal judgements and emotional responses towards SSTs which boost or hinder SST acceptance.

This study provides insights for service providers on performance and convenience related elements that they need to consider when providing SSTs to customers. Incorporating these elements to SSTs in the designing and delivering stages would ensure a high quality service to the customers which result in enhancing customer acceptance of SSTs.

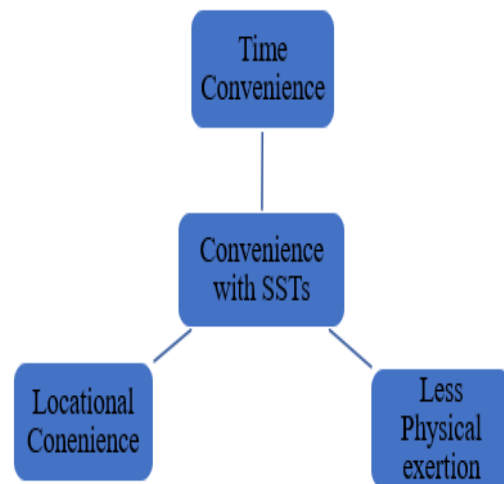


Fig. 2. Convenience elements with SSTs

COMPETING INTERESTS

Author has declared that no competing interests exist.

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