Adoption and Gender Dynamics in the Usage of Self-Service Technologies in Retail: A Study from Thrissur District.

Abstract: Technological growth and its usage have made a tremendous change in different sectors, especially in retail sector. Retailers are now using innovative ways for delivering goods and services to their customers. Customers grew accustomed to conducting more of their purchasing and communication online, self-service grew along with new digital technologies. self-service technologies are the services operated by customers without any direct involvement or interaction with service providers. This provides cost savings, competitive advantage, convenience, accessibility, ease of use to both customers and the service providers. In Kerala, Self -service technologies are widely installed by retails shops, hypermarkets, supermarkets and shopping malls to provide convenient services to customers. The study intents to know what is the usage pattern of Self -service technologies by the customers. The study also wants to know whether there is any gender difference regarding the awareness and usage of these SSTs. The study is based on primary data collected from 160 respondents from Thrissur district from the customer who use these SSTs in their shopping. And the result revels that there is no difference in the gender regarding the usage of self -service technologies. online ordering platforms and self-service kiosks are the most frequently used SSTs. The research emphasizes the growing relevance of SSTs in modern retail environments and underscores the need for businesses to enhance user experiences across all demographics.

Key words: Self-service technology, Customer Awareness, usage

INTRODUCTION

Technological advancement and the growing usage of information and communication technology (ICT) has changed the way of undertaking daily business activity as well as the customers interaction with goods and services. Self -service technology provide more convenience and efficiency in various industries. Business organisations are utilizing self -service retail, banking, healthcare and transportation to streamline operations and to increase customers experiences. India is amongst the top five ~US$1 trillion retail markets and could be the world's third-largest consumer market by 2030,5 with a 10 percent CAGR growth to US$1.9 trillion.(Future of Retail: Profitable Growth through Technology and AI, 2024).

Retailers are now using innovative ways for delivering goods and services to their customers. This has resulted in increasing usage of self-service technologies (SSTs) enables customers to produce a service independent of direct service employee involvement. Around 92 percent of consumers were excited to try or have already tried an interactive display in the store which engages with them to provide style advice, product recommendations and key benefits.(Future of Retail: Profitable Growth through Technology and AI, 2024).

Self-service technologies like online shopping sites, mobile Apps, Self-service kiosk etc are prominently used in our Indian retail outlets such as hypermarkets, shopping malls, e-commerce websites etc. The present study seeks to Identify the usage pattern of self -service technologies among customers and to determine if there is any gender difference regarding the awareness and usage of Self-service Technology. The study is conduct by collecting 160 respondents from Thrissur district in Kerala. the self -service Technologies under study are Online Ordering platform (like Amazon, Flipkart, Snapdeal, Myntra, ebay, meesho etc.), Mobile Shopping Apps, Self-service Kiosk (like Self-order Kiosks, Vending Kiosks), Information Kiosks (Wayfinding Kiosks, Catalog Kiosks, interactive Product display), Self-Check outs Kiosks.

LITERATURE REVIEW

Technological interfaces that enable customers to produce a service independent of direct service employee involvement (Meuter 2000). Although self-service is not a novel concept, it is revolutionising how companies assist their customers. Self-service fuel stations were widespread in the 1960s, and automatic vending machines were invented for the first time in 1833. Many supermarkets installed self-service checkout lanes in the 1990s, allowing patrons to scan their own products and make payments at the register. The growth of e-commerce in the 1990s and 2000s necessitated advancements in online self-service. As customers grew accustomed to conducting more of their purchasing and communication online, self-service grew along with new digital technologies. Nowadays, self-service options are ubiquitous in almost every industry, empowering customers to direct their own experiences. Most commonly used Self- service technologies in retail sectors self-service check-outs, express order terminals (Meuter et al., 2000) and multimedia kiosks, Self-Service Food Ordering Kiosks, Self-Service Information Kiosk,Self-Service Wayfinding Kiosk.

Many research has been conducted with respect to application of SSTs in different areas like tourism, hospitality, health care sector etc. Davis (1989) introduced the Technology Acceptance Model (TAM), which highlights perceived usefulness and ease of use as key factors influencing user acceptance of technology. This model has been widely utilized in research to understand technology adoption. Davis's research interests include computer support for decision making and motivational determinants of computer acceptance. TAM continues to be a valuable framework for predicting user acceptance of technology, with implications for information system design and implementation.

Wang et al. (2022) provides insights into the impact of the COVID-19 pandemic on consumers' utilization of self-service technologies, emphasizing the changing perceptions of social interactions and technologies. The review highlights the benefits of SSTs, the emergence of new motivations for SST usage during the pandemic, and the integration of culture and identity literature into understanding consumers' behaviour in the SST context. The study identifies four distinct user segments of SSTs and provides insights into how businesses can adapt their SST offerings to meet changing consumer needs during and post-pandemic. The research highlights the importance of understanding consumer behavior and preferences in the context of technological advancements and societal changes brought about by the pandemic.

Liljander et al. (2006) The study aims to understand the factors affecting customers' attitude towards SSTs and their adoption behaviour, Technology readiness (TR). This article investigates the effect of TR on customers' attitudes towards using SST for airline check-in, adoption of self-service check-in and evaluations of a new self-service check-in on the Internet, in terms of perceived service quality, satisfaction and loyalty. The study was conducted among 1258 loyalty program customers of a European airline.

Kokkinou & Cranage (2013) The purpose of the study was to examine under which conditions the of self – service technology in a service delivery process could reduce actual waiting time and improve service levels. The study finds that waiting times and service levels in hotel check in process were influenced by number of resources available to customers, number of customers arriving to receive service, processing speed of self -service kiosk and the failure rate of the self-service kiosk. The results shows that the processing time and failure rate of self-service kiosk is higher and also led to longer waiting times when customer demand was high. Scenario based survey of 1472 participants was conducted to establish a conditional probability.

Djelassi et al. (2018) investigates how self-service technology (SST) experience evaluation influences customer satisfaction in the retail sector. The study emphasizes the mediating role of satisfaction with SSTs and waiting time satisfaction in the relationship between SST experience evaluation and customer satisfaction with the store. The research also explores how the type of SST moderates these relationships, with self-checkout and self-scanning technologies showing differences in the link between experience evaluation and satisfaction levels. Overall, the findings highlight the significance of technology experience in driving customer satisfaction and its potential spillover effects on store satisfaction, underscoring the importance of considering a broader range of consequences of technology use beyond adoption in the decision support systems

Based on this review the present study intends to identify the awareness and usage pattern of SSTs among the customers in Thrissur district in Kerala.

STATEMENT OF PROBLEM

Technological growth and its usage have made a tremendous change in different sectors, especially in retail sector. The advent of SSTs in retail sector has led to proliferation of self-checkout machines (Bulmer et al., 2018; Reynolds-McIlnay and Morrin, 2019) and self-scanning hand-held devices (Marzocchi and Zammit, 2006) and growing use of technology-mediated service environments to improve efficiency and reduce labour costs (Patti et al., 2020). In Kerala, SSTs are widely installed by retails shops, hypermarkets, supermarkets and shopping malls to provide convenient services to customers. The present study intents to know what is the usage pattern of SSTs by the customers. The study also wants to know whether there is any gender difference regarding the awareness and usage of these SSTs.

OBJECTIVE

1. Identify the usage pattern of self -service technologies among customers.

2. Determine if there is any gender difference regarding the awareness and usage of SSTs.

HYPOTHISIS

Based on the objective's hypothesis were fixed:

 Awareness Hypotheses:

- H_0: There is no significant difference between males and females regarding their awareness of self-service technologies.
- H_1: There is a significant difference between males and females regarding their awareness of self-service technologies.

 Usage Hypotheses:

- H_0: There is no significant difference between males and females in their usage of self-service technologies.
- H_1: There is a significant difference between males and females in their usage of self-service technologies.

SCOPE OF THE STUDY

SSTs are used constantly in consumers' daily lives, which reflects how these technologies continue to influence consumption in a variety of settings, especially while shopping in stores. SSTs provide both opportunities and challenges for Customers and retail stores. The proposed study wants to identify the usage pattern of SSTs among customers and to determine gender difference regarding the awareness and usage of SSTs. 160 respondents were collected from Thrissur district from the customer who use these SSTs in their shopping.

RESEARCH METHODOLOGY

The survey was conducted in Thrissur district in Kerala among the respondents who are using Self-service technologies. The convenience sampling method was adopted to collect the data through structured questionnaire Google form. The present study collected and analysed the demographic profile of customers using Self-service technologies, customer's awareness, usage pattern, frequency of using SSTs. Questionnaire in the form of Google form is distributed to 196 respondents, out of these 160 responses were selected after screening process and 36 questionnaires were discarded due to missing entries or incomplete responses. And for analysis of the data percentage, mean average are used to analyse demographic variables and t-test is used find out if there is any difference between male female in their usage and awareness of self-service technologies

.ANALYSIS& INTERPRETATION OF DATA

This section of the paper deals with analysis and interpretation of the collected data. Percentage analysis, Average and Independent T test was used to analyse the data collected.

Table 1 Demographic Profile of Respondents

Demographic Profile		Frequency	Percent
Gender	Female	74	46
	Male	86	54
Age	Below 30	53	33
	30-50	56	35
	50 Above	51	32
Education Level	12	44	27
	Post Graduate	39	24
	SSLC	33	21
	Under Graduate	44	28
Occupation	Business	22	14
	Employee	26	16
	House Wife	23	14
	Not Working	28	17
	Profession	22	14
	Self-Employee	22	14
	Student	17	11
Annual Income (Rs)	10,00,000 Above	56	35
	5,00,000 – 10,00,000	59	37
	Less than 5,00,000	45	28
Regional Status	Rural	59	37
	Semi-Urban	51	32
	Urban	50	31
Marital Status	Married	78	49
	Single	82	51

Source: Primary Data

Table 1 depicts the results of demographics of the respondents. This consist of basic variable of respondents such as gender, age, education, occupation, annual income, regional status, Marital status. The table shows that the data consists of 46 percent of female and 54 percent of male respondents. It is found that majority of the respondents belongs to age group 30 to 50 years (35 percent) which is followed by below 30 age group (33 percent), whereas 32 precent of the respondents belongs to above 50 age group of respondents. In case of education level large number of respondents are under graduates (28 percent). 17 percent of respondents are not working, and 16 percent of respondents constitute employees. The data includes 37 percent of respondents who have annual

income between Rs 5,00,000 to 10,00,000 and 35 percent of respondents have above 10,00,000 annual incomes. It is further found that majority of the respondents resides in rural area and 32 percent respondents resides in semi-urban area. And majority of the respondents are single (51 percent) and 49 percent are married.

Table 2 Retail shop preference and Customers frequency of retail shopping

	Average
Super markets	3.11
Hypermarket	2.98
shopping mall	2.97
Online shopping sites	3.05
Shopping Apps	2.89

Source: Primary Data

Table 2 interprets the Retail shop Preference of respondents. Mean Average has been calculated to measure the preference. It is found that majority of respondents prefer Supermarket (3.11) for shopping followed by online shopping (3.05), Hypermarket (2.98), shopping mall (2.97) and finally shopping Apps (2.89) for shopping.

Table 3 Frequency of Retail Shopping

	Frequency	Percent
Daily	26	5.56
weekly	86	18.38
Bi-weekly	90	19.23
Monthly	156	33.33
Rarely	110	23.50

Source: Primary Data

Table 3 depicts the frequency of retail shopping done by respondents. It is found that majority of the respondents do shopping on monthly basis (33.33 percent) while 23.50 percent respondents rarely do shopping. Whereas 19.23 percent go for shopping Bi-weekly, weekly (18.38) and daily (5.56) .

Table 4 SST Awareness and Usage.

SST Awareness	Average
Online Ordering platform	3.11
Mobile Shopping Apps	3.06
Self-service Kiosk	3
Information Kiosks	3.1
Self-Check outs Kiosks	3.09
Usage of SSTs	
Online Ordering	3.12

platform	
Mobile Shopping Apps	3.03
Self-service Kiosk	3.10
Information Kiosks	2.98
Self-Check outs Kiosks	2.98
SST Usage Duration	
Online Ordering platform	2.41
Mobile Shopping Apps	2.46
Self-service Kiosk	2.39
Information Kiosks	2.36
Self-Check outs Kiosks	2.39
SST Usage Frequency	
Online Ordering platform	3.06
Mobile Shopping Apps	2.93
Self-service Kiosk	2.79
Information Kiosks	2.98
Self-Check outs Kiosks	2.86

Source: Primary Data

Table 4 shows the SST Awareness and Usage patten of respondents. Mean Average is calculated to measure the awareness and usage of respondents towards SSTs. It has been found that most of the respondents are aware about Online Ordering platform (3.11) which is followed by Self-Check outs Kiosks (3.09), Mobile Shopping Apps (3.06), Information Kiosks (3.1 0and Self-service Kiosk (3).

Regarding the usage, majority of respondents are using Online Ordering platform (3.12), next most used SST is self-service kiosk with an average of 3.10, and the least used SSTs are information kiosks and self-check outs kiosks with an average of 2.98. In case of duration of usage all the SSTs under study have the same average ranging from 2.36 to 2.41 i.e respondents are using these SSTs for 6 months to 1 year or more. Moreover, the SST usage frequency shows that most frequently used SST is online ordering platforms (3.06) whereas all the other SSTs like Mobile shopping Apps, self-service kiosk, information kiosks, and self -check outs kiosks have an average of 2.279 to 2.98.

Table 5 Awareness Hypotheses t-test: Two sample Assuming Equal Variance

	Female	*male*
Mean	3.1	3.037209302
Variance	0.433150685	0.340246238
Observations	74	86
Pooled Variance	0.383170445	
Hypothesized Mean Difference	0	
df	158	
t Stat	0.639741319	
P(T<=t) two-tail	0.523267317	

t Critical two-tail	1.975092073	

Source: Primary Data

Table 5 represents the result of t-test to measure the difference between males and females regarding their awareness of self-service technologies. The t-test shows no significant difference between the mean values for females (3.1) and males (3.037) at the 5% significance level. the t-statistic (0.6397) is less than the critical t-value (1.9751), and the p-value (0.5233) is greater than 0.05. Therefore, we also fail to reject the null hypothesis in the two-tailed test. Hence, there is no significant difference between males and females regarding their awareness of self-service technologies.

Table 6 **Usage Hypotheses**

	Female	*Male*
Mean	3.064864865	3.025581395
Variance	0.288337653	0.35745554
Observations	74	86
Pooled Variance	0.325521326	
Hypothesized Mean Difference	0	
df	158	
t Stat	0.434235383	
P(T<=t) two-tail	0.664709927	
t Critical two-tail	1.975092073	

Source: Primary Data

Table 6 elaborates the t-test analysis for measuring if there is any difference between males and females in their usage of self-service technologies. The t-test shows no significant difference between the mean values for females (3.065) and males (3.026). The two-tailed p-value (0.665) is much higher than the significance level of 0.05, and the t-statistic (0.434) is less than the critical value (1.975). Therefore, we fail to reject the null hypothesis, indicating that the observed difference is likely due to random chance.

CONCLUSION

The study focused into how self-service technologies (SSTs) were adopted and how gender dynamics affected their use in the retail industry in Kerala's Thrissur District. The results showed that most consumers are aware of and use SSTs, particularly self-service kiosks, mobile shopping apps, and online ordering platforms. However, there was no significant gender difference in awareness or usage patterns. The analysis highlighted that online ordering platforms and self-service kiosks are the most frequently used SSTs. The research emphasizes the growing relevance of SSTs in modern retail environments and underscores the need for businesses to enhance user experiences across all demographics.

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