Educational Administration: Theory and Practice
2024, 30(5), 9338 - 9351
ISSN: 2148-2403
https://kuey.net/

Research Article

Study of Technology Based Self-service Attributes and its Impact on Customer Satisfaction

Vinayak Sohani[1*], Dr. Bhawna Sharma[2]

[1*]Research Scholar, Amity Business School, Amity University Maharashtra. Email: vinayak.sohani@student.amity.edu
[2]Professor and Off-HoI, Amity Business School, Amity University Maharashtra. Email: bsharma@mum.amity.edu

Citation: Vinayak Sohani (2024), Study of Technology Based Self-service Attributes and its Impact on Customer Satisfaction *Educational Administration: Theory and Practice, 30(5), 9338 – 9351*
Doi: 10.53555/kuey.v30i5.4558

ARTICLE INFO

ABSTRACT

Purpose - This study set out to understand the phenomenon of human interaction during usage of Self-service technology. The quantitative research method was utilized for this investigation. The purpose of the study, which uses research tools to gather data, is to confirm interrelation of customer satisfaction attributes using quantitative and statistical data analysis.
Design Methodology /Approach – Customers rated various customer satisfaction parameters like perception, speed of use, enjoyment etc. for this study. The information used in this study was gathered using primary data. The survey was conducted from passengers who availed the self-service to check-in.
Findings – The study's findings provide important insights on the use of self-service technologies. Facilitation forced usage and promoting repeat usage are some of the actions that may be taken to improve customer satisfaction.
Research limitations – This paper is based on data satisfaction collected from customers using self-service check-in kiosks at the airport.
Implications - In terms of theory, this study completes the process by which passenger satisfaction and self-service technology interact in the context of public transportation, particularly in the airport sector, and it advances our knowledge of the variables that influence passenger satisfaction.

Keywords: Ease of use, Enjoyment, Technology Based Self Service, Customer Satisfaction, Self Service technology.

1. Introduction

In today's service-oriented economy, customer satisfaction is paramount for business success. Satisfied customers are more likely to be loyal, engage in positive word-of-mouth recommendations, and generate repeat business (Anderson & Mittal, 2000). This comprehensive review investigates the vast literature on service customer satisfaction, examining its core concepts, theoretical underpinnings, and practical implications.
This paper presents a comprehensive review of the Technology-based self-service [TBSS] literature, exploring its impact on customer satisfaction, and individual user factors. Paper delves into key themes and theoretical frameworks that inform this research area, highlighting both the advantages and challenges associated with TBSS adoption. This review integrates insights from various disciplines, including marketing, information systems, and human-computer interaction, to provide a holistic understanding of TBSS.
The rise of technology has empowered customers to take a more active role in their service experiences. TBSS refers to systems that allow users to independently complete tasks traditionally handled by service personnel. Examples include online banking, airline self-service kiosks, and library self-checkout systems. TBSS adoption has become a prominent strategy for businesses, offering numerous benefits such as increased efficiency, reduced operational costs, and extended service availability.
This comprehensive review examines the existing research on TBSS, focusing on its impact on various stakeholders. We explore how TBSS influences customer satisfaction, perceived control, and overall service experience. Additionally, we examine the literature on the impact of TBSS on firm performance, including factors such as customer productivity and resource allocation. Finally, we consider user-centric aspects, including individual technology adoption and the role of user interface design in TBSS success.

Teller Machines were the first self-service machines introduced to the public. More specifically, the first ATM was introduced in Great Britain in 1967. They are the most common example of self-service technology [TBSS] in societies around the world. Since businesses survive on loyal customers, it is important to understand how TBSS affects the customer. Because technology reduces human contact between customers and service providers, it can affect customer retention in the long term (Beatson et al., 2007). In the case of logging into TBSS, this would of course mean repeated use.

Initially, self-service was not an automatic choice for customers versus manual services. But now, customers generally understand that the process has become the norm of our lifestyle and have a positive attitude towards the introduction of self-service(Abdelaziz et al., 2010). Check-in is the customer's first interaction after arriving at the airport terminal. Self-service check-in first appeared about 20 years ago, but it was rudimentary and only used by a few airlines on a few routes. The customer can choose manual registration or visit TBSS check-in kiosks. Self-service options are part of efforts by airlines and airports to improve customer management. Fast customer processing can make the customer happy and leave the customer free time before boarding the plane. The purpose of using TBSS in airports was time saving and convenience due to quick check-in (Kim & Park, 2019). Satisfied customers with free time are more likely to shop at the airport. This is why the airport wants to ensure customer satisfaction with TBSS check-in. Self-service check-in can also be done outside the airport using other devices, such as mobile and online check-in, but customers continue to use TBSS check-in kiosks to print boarding passes and drop off bags. The self-service check-in kiosk is also evolving into a smart one that allows customers to check in with a touch screen, check out with smartphones and other smart devices as technology evolves. This study addresses the basic evaluation and satisfaction aspects of self-service enabled by smart technology [TBSS]. The article first discusses the concept as it has been discussed in the existing literature. The new conceptual framework is also tested, taking into account technological developments and observational factors within the framework.

There are several parts to the check-in process, such as validating tickets and seats, warning customers about hazardous materials, issuing passes, and removing bags. However, most of these elements can be integrated in the TBSS check-in, where the traditional check-in process is associated with causing stress and long waiting times in queues can be eliminated. Customers find self-service processes more efficient and often do so (Roelen, 2016).

2. Literature Review

2.1 Theoretical Frameworks for Understanding Service Customer Satisfaction

Several theoretical frameworks shed light on the complexities of service customer satisfaction. Two prominent models are discussed below.

2.1.1 Service-Dominant Logic (SDL): This framework emphasizes the co-creation of value during service encounters (Vargo & Lusch, 2004) posit that customers actively participate in the service experience, shaping their perceptions of value based on interactions with employees, resources, and the service ecosystem .

2.1.2 SERVQUAL Model: This widely used model identifies five key service quality dimensions that influence customer satisfaction: reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988) propose that a gap between perceived and expected service quality on these dimensions leads to dissatisfaction.

2.2 Factors Influencing Service Customer Satisfaction

Customer satisfaction in the service industry is influenced by a multitude of factors:

2.2.1 Service Quality Dimensions

As highlighted by the SERVQUAL model, the core dimensions like reliability, responsiveness, and assurance significantly impact satisfaction [3]. Customers expect services to be delivered reliably, with prompt attention to their needs and concerns (Zeithaml et al., 2009).

2.2.2 Service Encounters

Each interaction a customer has with a service provider, employee, or technology shapes their overall satisfaction (Bitner et al., 1994). Positive interactions build trust and loyalty, while negative encounters can lead to dissatisfaction (Bitner et al., 1994) .

2.2.3 Customer Expectations

Customer expectations regarding service quality can be influenced by past experiences, marketing messages, and word-of-mouth recommendations (Oliver, 1997). When expectations are met or exceeded, satisfaction is likely to be high, while unmet expectations lead to dissatisfaction (Oliver, 1997).

2.3 Measuring Service Customer Satisfaction

Measuring customer satisfaction is crucial for service organizations to track performance and identify areas for improvement. Here are some common approaches:

2.3.1 Customer Satisfaction Surveys

These surveys utilize questionnaires to gather feedback from customers on their perceptions of service quality and overall satisfaction. Surveys can be conducted online, through phone calls, or in person.

2.3.2 Customer Feedback Analysis

Organizations can analyse customer feedback received through various channels like emails, social media, and complaint forms to identify areas of concern and improvement opportunities. Sentiment analysis techniques can be used to understand the emotional tone of customer feedback.

2.3.3 Net Promoter Score (NPS)

This metric measures customer loyalty and satisfaction by asking a single question: "How likely are you to recommend this company to a friend or colleague?" Scores are categorized into promoters (highly likely to recommend), passives (neutral), and detractors (unlikely to recommend), providing an overall customer satisfaction rating (Reichheld, 2003).

2.4 Managing Customer satisfaction with TBSS

Organizations can implement various strategies to enhance customer experience with TBSS.
User-Centered Design: Involving users in the design process through user testing and feedback loops ensures that the TBSS system caters to their needs and expectations (Norman, 2002 [8]).
Training and Support: Providing training materials or tutorials on how to use the TBSS system can empower users and reduce the likelihood of frustration.
Customization Options: Allowing users to personalize their experience to some extent (e.g., language preferences, default settings) can foster a sense of control and increase user satisfaction (Huang & Liao, 2015).
Previous studies show that the perceived service quality has dimensions that go beyond the different services that consumers use to form expectations and perceptions about services, dimensions (Parasuraman et al., 1985).
TBSS also has dimensions that allow the customer has complete control over the travel experience and thus the satisfaction associated with the service. Customers can perform tasks that were previously required by manned counter agents. A customer can use CUSS [Common User Self Service] kiosks which are nothing but TBSS at the airport to print a boarding pass, select seats, tag luggage and fill out or access many other information. Counter-agents can be released to help other customers with difficult questions or help they need, depending on the willingness of customers to use such TBSS. Therefore, better employee productivity can be expected because the counter-agent only participates in first-time or block use cases. Smart kiosks supported by mobile app-based or similar self-service technologies, as well as research on TBSS cost savings for improving the customer experience, were not investigated in this study. Based on the above, companies would be interested in knowing how these characteristics or effects affect customer satisfaction.
The conceptual framework of technological self-service [TBSS] considers the intention to use TBSS as an aspect that depends on the expected service quality of the TBSS, which in turn is influenced by attributes and affects (P. A. Dabholkar, 1996). The author compiled the models comprehensively, based on the review of several research works from 1979-1994. Among the features listed, speed of delivery, ease of use, enjoyment and control are important today. The following paragraphs discuss the concept of customer satisfaction.

2.5 Customer satisfaction

Oliver (Oliver, 1997) defines customer satisfaction as an enjoyable level of satisfaction in relation to consumption. Previous studies of the conceptual model of service quality show that service quality perceived by consumers is influenced by differences or gaps on the part of the service provider. Thus, it is necessary to measure customer perception(Parasuraman et al., 1985). Therefore, it is recommended to use the SERVQUAL scale. Service quality is conceptualized as the relative perceived distance between customer expectations and evaluations of service experience and service quality using a multi-item scale called the SERVQUAL model (Parasuraman et al., 1988). The SERVQUAL model includes five dimensions: importance (physical abilities and appearance of staff), reliability (ability to deliver promised service reliably and accurately), responsiveness (willingness to help customers and provide prompt service), assurance (knowledge base of employees that inspires customers trust) and empathy (care of the service provider and individual attention to customers). These five dimensions can be found in TBSS registration as follows: Securing physical objects at kiosk exits - boarding card and baggage tags - facilitates staff and creates an impression of reliability using a touch-sensitive user interface

or responsiveness to document scanning flow, trust is created with the help of trained staff on demand and the provision of multiple service kiosks, careful empathy with software user interface design and floor assistance.
In this article, customer satisfaction is defined as a customer's response on a 5-point scale to rate satisfaction with a service.
Customer satisfaction remains a cornerstone of success in today's competitive service industry. This comprehensive review examines the vast literature on service customer satisfaction, exploring its key drivers, measurement methods, and managerial implications. We delve into theoretical frameworks like the Service-Dominant Logic (SDL) and Service-Quality (SERVQUAL) model to understand the complex relationship between service encounters, customer perceptions, and loyalty. The review further analyses factors influencing customer satisfaction, including service quality dimensions, service encounters, and customer expectations.

3. Methodology of Research

The purpose of academic research can be exploratory, descriptive or explanatory. Exploratory research as a valuable tool to find out what is going on; seeking new insights; to question and evaluate phenomena in a new light; descriptive research that aims to "describe an accurate profile of people, events, or situations" and can be an extension or precursor to exploratory research and explanatory research to establish causal relationships between variables. Here, the emphasis is on examining a situation or problem to clarify the relationship between variables. The most commonly used classification is the triple exploratory, descriptive, and descriptive classification. explanatory, but in some ways you can have more than one goal and the goal can change over time (see (Saunders et al., 2003)) The starting point of our research objective is the research problem, i.e. how and why consumers adopt/reject technology-based self-service.
Then our research strategy is suitable for a case study. However, it is important to distinguish between a case and a unit of analysis. In one case we can have several units of analysis. (Yin, 1994) describes the same case study that may contain more than one unit of analysis. It is classified as a comprehensive and embedded case study. According to (Yin, 1994), the main unit of analysis is likely to be related to the main research question. Embedded units of analysis occur when attention is drawn to a subunit or subunits in a single instance. Since we are interested not only in a specific technology or case, but also in the adoption behaviour of different customer segments, we should study several customers (units of analysis) within a selected case. The basic unit of analysis and the embedded subunits identified in this study are shown schematically in the figure 2.1 below.

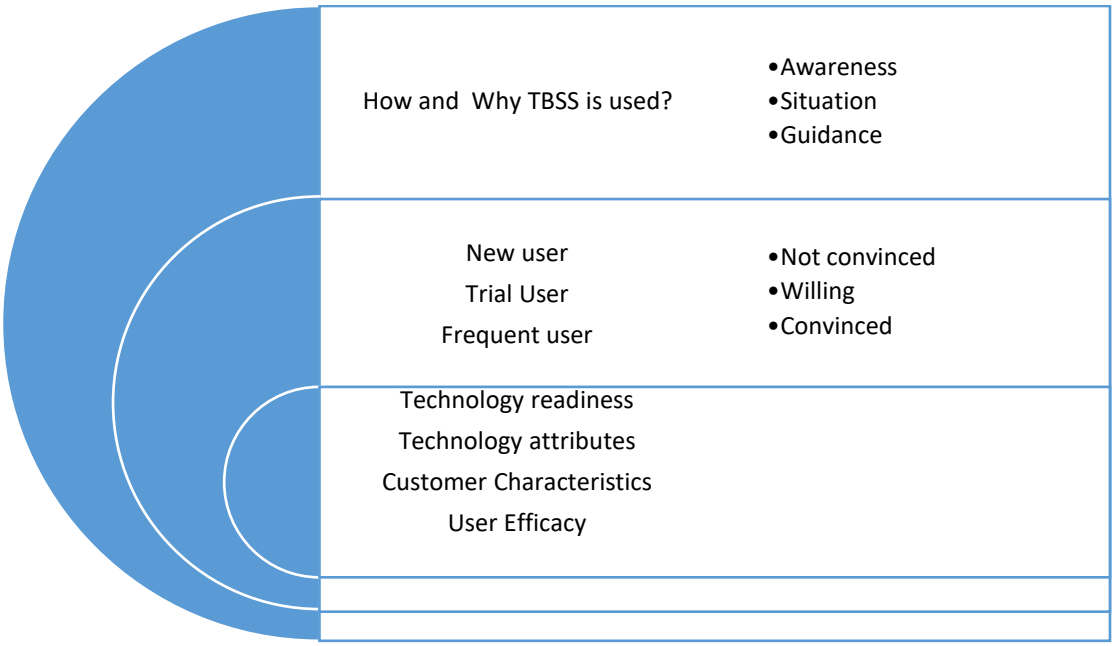

Figure 3.1 Steps considered in survey design.
(Source: Author's own source)

3.1.1 Sample selection: Research Object

(P. Dabholkar et al., 2003) suggests that future research should be based on research contexts that propose testing new technology-based self-service opportunities that would be very useful to those experienced in the field. Focusing on a single technology and industrial context, and thus promoting an industry-specific empirical building block in TBSS knowledge, would indeed give us a deeper understanding of all four research questions, industry-specific issues and the technology-specific marketing context (Anselmsson, 2001). Arguably, the most interesting TBSS systems are those where the customer interacts with the technology the most. Cell 1 would be where customers tend to be most interactive. This means that they are physically, cognitively and perceptually connected not only to the technology, but also to the physical environment of the service location and other

customers (Anselmsson, 2001). Another reason to choose cell 1 over cell 2 is that we have more opportunities to track consumers. Real-world experience and conducting survey-based interviewing as a quantitative approach requires a sufficient sample of respondents for statistical validity.

3.1.2 Criteria to Research Object Selection.

Although the scope of field research is limited to the case study of cell 1, there are several potential technologies available for investigation. However, given the problem discussion and defined research questions, some techniques are more appropriate. The optimal case would be a TBSS that is neither too successful nor too unsuccessful. We want to choose technologies where customers' attitudes and adoption behaviour are different. The motivation to study customers with different levels of use of TBSS suggests that they would choose a technology that has not reached the desired level of users in the industry. (Anselmsson, 2001) proposed this criterion to create an opportunity to examine different responses to technology preferences and different characteristics of customers exposed to technology.

3.1.3 Selection criteria of customers

At airport boarding gates, respondents are first asked if they have heard of the Self-Check-in Machine before. Eligible respondents must have some knowledge of the self-registration machine to understand and answer the survey.

In conclusion, the respondents must satisfy one of the following conditions:

i) Travellers had used self-service check-in before;

ii) Travellers never used or avoid using self-service check-in but had to have some familiarity with self-service check-in.

Accordingly 1159 customers were sampled using detailed questionnaire.

Following hypothesis were tested.

Ho: 2.1 Customer satisfaction with TBSS check-in process is dependent on customer's gender.

Ho: 2.2 Customer satisfaction with TBSS check-in process is dependent on customer's age.

Ho: 2.3 Customer satisfaction with TBSS check-in process is dependent on customer's income

Ho: 2.4 Customer satisfaction with the TBSS check-in process is dependent on customer's education.

4. Results and Discussion

The customer satisfaction based on gender, age, education and income is discussed in this section.

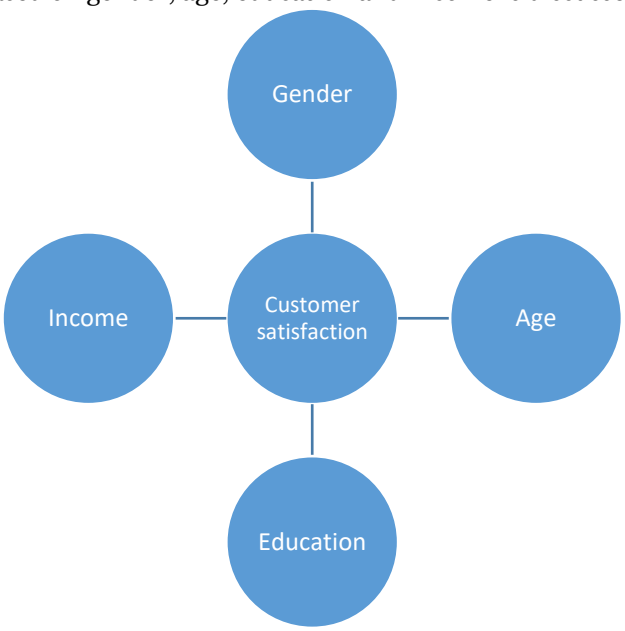

Figure 4.1 Customer characteristics and customer satisfaction.
(Source: Author's own source)

4.1 The Gender group

Table 4.1 Gender descriptive statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Customer Satisfaction	Female	630	2.9857	.39654	.01580
	Male	529	3.0055	.38326	.01666

Figure 4.2 Customer satisfaction mean value of gender

The plot shows the mean customer satisfaction by gender, with female customers having a higher mean satisfaction score than male customers. The mean satisfaction score for female customers is 3.01, while the mean satisfaction score for male customers is 2.985. This suggests that, on average, female customers are more satisfied with the company's service than male customers.

Table 4.2 Gender Levene's test and t test

		Levene's Test for Equality of Variances		**t-test for Equality of Means**				
		F	**Sig.**	**T**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Customer Satisfaction	Equal variances assumed	10.167	.043	-2.860	1157	.025	-.01981	.02303
	Equal variances not assumed			-2.863	1134.418	.031	-.01981	.02296

According to the findings of table 4.1 & 4.2 the statistical study, there is a considerable relationship between gender and levels of consumer satisfaction. It is obvious that there is a statistically significant difference in the levels of customer satisfaction reported by female travellers and male passengers when the scores are compared. The findings of the t-test indicate a significant difference in means (p = 0.025), which indicates that on average, female passengers (Mean = 2.9857) have somewhat lower satisfaction ratings compared to male passengers (Mean = 3.0055). This is based on the assumption that the variances are the same for both groups. The results of the t-test still indicate a statistically significant difference between the means (p = 0.031), despite the fact that the significant outcome of Levene's test makes it impossible to assume that the variances are equal. This implies that, despite the assumption that variances are equal, there is still a statistically significant difference between the levels of customer satisfaction reported by male and female travellers. However, the data indicates that female passengers show higher levels of adaptability and a stronger inclination to become frequent users of the service. The significance of demographic factors in comprehending customer adoption and satisfaction within the context of TBSS is emphasised by these findings.

4.2 The Age group.

Table 4.3 Age Descriptive

Customer Satisfaction				
Age	N	Mean	Std. Deviation	Std. Error
<18	302	2.9949	.35940	.02068
18-45	260	2.9905	.41322	.02563
45-60	298	3.0052	.37612	.02179
>60	299	2.9879	.41534	.02402
Total	1159	2.9948	.39049	.01147

Figure 4.3 Age and Customer satisfaction

Customer satisfaction is generally high for all age groups, but it is highest for the 45-60 age group. This is shown in a Table 4.3 and plot that shows the mean customer satisfaction score for four different age groups: <18, 18-45, 45-60, and >60. The mean customer satisfaction score is a measure of how satisfied customers are with a product or service, on average. A higher score indicates higher satisfaction.

Table 4.4 Age ANOVA Analysis

Customer Satisfaction					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	.540	3	.017	9.111	.044
Within Groups	176.527	1155	.153		
Total	177.067	1158			

According to the statistical research, there is a considerable variance in consumer satisfaction between age groups. The ANOVA test [Table 4.4], also known as Analysis of Variance, reveals a statistically significant difference in customer satisfaction scores across various age groups (F= 9.111, p = 0.044). The descriptive statistics in Table 4.3 provide further light on this effect. The mean customer satisfaction score for customers aged greater than 60 is the lowest at 2.9879. On the other hand, customers in the age groups under 18, 18-45, and 45-60 have slightly higher mean scores. The data indicates that individuals aged 60 and above may have a lower tendency to use the TBSS self-service check-in system frequently.
Based on the study findings, it can be inferred that customers aged over 60 may need extra support or guidance to effectively utilise the TBSS self-service check-in. The significance of demographic factors, such as age, in the design and implementation of self-service systems is highlighted. This emphasises the need to create user-friendly and accessible systems that cater to a wide range of customers.

4.3 The Educational group.

Table 4.5 Education Descriptive

Customer Satisfaction				
	N	Mean	Std. Deviation	Std. Error
Upto 10th or SSC	130	2.9799	.39077	.03427
Upto graduate	334	2.9866	.39219	.02146
Post- graduate	695	3.0014	.39004	.01480
Total	1159	2.9948	.39049	.01147

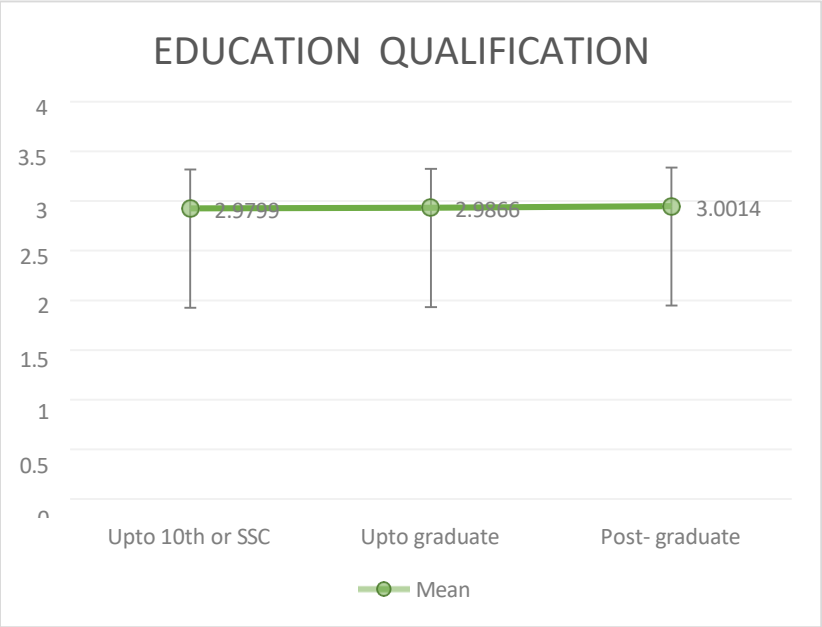

Figure 4.4 Education and customer satisfaction

Customer satisfaction is generally higher for customers with higher levels of education, with the mean customer satisfaction score being highest for the Post-graduate education level. This may be because customers with higher levels of education have higher expectations for products and services, or because they are more likely to be able to afford higher quality products and services.

Table 4.6 ANOVA analysis of Education

Customer Satisfaction					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	0.482	2	0.041	9.268	.025
Within Groups	176.496	1156	0.153		
Total	176.878	1158			

According to the statistical study, consumer happiness is significantly impacted by education level. The ANOVA test, also known as Analysis of Variance, indicates that there is a statistically significant difference ($F = 9.268$, $p = 0.025$) in customer satisfaction scores across
various education groups. The data implies that there is a correlation between customers' educational backgrounds and their satisfaction levels with the service. According to Table 4.5 descriptive data, clients with post-graduate degrees had the highest mean customer satisfaction scores (Mean = 3.0014), followed by those with just high school diplomas (Mean = 2.9866). Customers who have completed education up to the 10th grade or SSC (Secondary School Certificate) exhibit the lowest mean satisfaction score, which is calculated to be 2.9799.
The study's findings show that in order for the medium education group—those whose education ranges from SSC to graduation—to utilize the TBSS check-in successfully, there may be a need for further facilitation or encouragement. The research highlights the importance of demographic factors, specifically education level, in influencing the adoption of self-service technologies such as TBSS and their impact on customer satisfaction. The implementation of tailored assistance and user-friendly interfaces has the potential to greatly benefit customers within the education group. These improvements can enhance their overall experience and satisfaction with the service.

4.4 The Income group.

Table 4.7 Income Descriptive

Customer satisfaction				
	N	Mean	Std. Deviation	Std. Error
Don’t want to disclose	180	2.9812	.41385	.03085
5 - 15 lakhs	293	2.9913	.35920	.02098
15 - 25 lakhs	340	2.9925	.38518	.02089
above 25 lakh	346	3.0069	.40952	.02202
Total	1159	2.9948	.39049	.01147

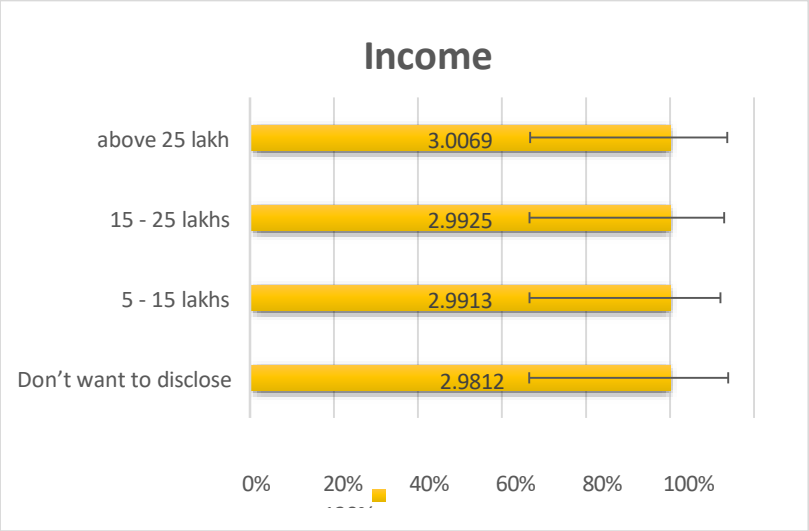

Figure 4.5 Income and Customer Satisfaction

Table 4.8 ANOVA analysis of Income

Customer Satisfaction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.153	4	.038	11.250	.010
Within Groups	176.425	1154	.153		
Total	176.578	1158			

The statistical analysis indicates that there is a notable correlation between the income group and customer satisfaction. By conducting an ANOVA test [Table 4.8], it was determined that there is a significant difference ($F = 11.250$, $p = 0.010$) in customer satisfaction scores across various income groups. The data indicates that there is a correlation between customers' income levels and their satisfaction levels while using the service.
Upon analysing the data presented in Table 4.7, it is apparent that customers belonging to the highest income group (earning more than 25 lakh per annum) exhibit the highest average customer satisfaction score (Mean = 3.0069). This suggests a stronger preference for utilising the self-service check-in (TBSS) system. On the other hand, it can be observed that customers belonging to lower income groups, even those who opt not to reveal their income, tend to have comparatively lower average satisfaction scores. The group with an income between 5-15 lakhs per annum exhibits a slightly lower mean satisfaction score, with a value of 2.9913.

5. Recommendations and Implications of the Study

Based on the findings of this study, it can be inferred that individuals belonging to the highest income bracket exhibit a greater propensity towards utilizing TBSS check-in services. Lower income groups may face challenges in effectively utilizing TBSS check-in and may benefit from additional encouragement or facilitation. The findings highlight the importance of demographic factors, specifically income, in influencing the adoption of self-service technologies and the overall satisfaction of customers with the service.
The below table 4.9 shows frequency and descriptive of the demographic variables.

Table 4.9 Overall frequency table

Demographic variables		**Frequency**	**Percent**	**Mean**
Gender	Male	778	67.1	1.3287
	Female	381	32.9	
	Total	1159	100.0	
Age	<18	17	1.5	2.1053
	18-45	1007	86.9	
	45-60	131	11.3	
	>60	4	0.3	
	Total	1159	100.0	
Education	Upto 10th or SSC	130	11.2	2.4875
	Upto Graduate	334	28.8	
	Post-Graduate	695	60.0	
	Total	1159	100.0	

Income	Don't want to disclose	953	82.2	1.2925
	3-5lakh	95	8.2	
	5-15lakh	94	8.1	
	15-25lakh	12	1.0	
	Above 25lakh	5	0.4	
	Total	1159	100.0	
Customer adaptation	New user	398	34.3	2.0017
	Trail user	361	31.1	
	Frequent User	400	34.5	
	Total	1159	100.0	

The below pie chart displays the gender wise percent of the customers participated in the study. Out of 100%, 32.87% of the customers participated in the study are male and 67.13% are female customers. Most of the customers participated in the study are female customers.

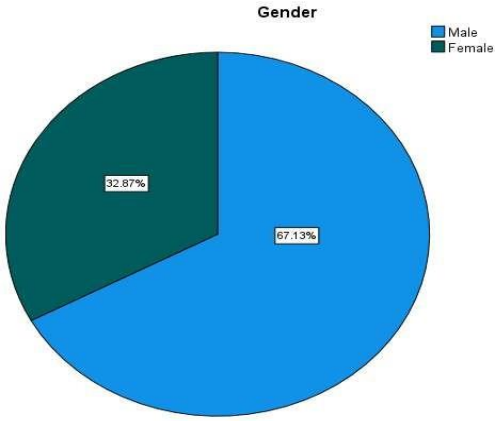

Figure 4.6 Gender wise percent of the customers participated in the study

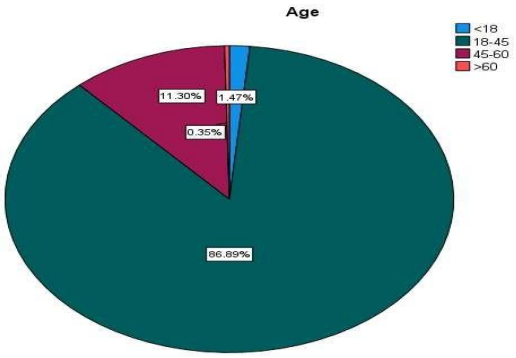

Figure 4.7 Age wise percent of the customers participated in the study.

The above pie chart displays the Age wise percent of the customers participated in the study. Out of 100%, 86.89% of the customers participated in the study are belongs to 18-45 age group, 11.30% are belongs to 45-60 age group, 1.47% are below 18 years and 0.35% are above 60 years. Most of the customers participated in the study are belongs to 18-45 age group.

The pie chart figure 46 displays the Education wise percent of the customers participated in the study. Out of 100%, 59.97% of the customers participated in the study Education level is Post- graduate, 28.82% are graduate customers and 11.22% are 10th or SSC customers. Most of the customers participated in the study are post-graduate customers.

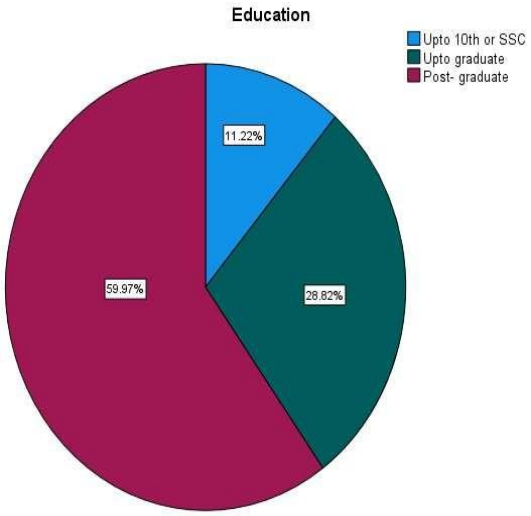

Figure 4.8 the Education wise percent of the customers participated in the study.

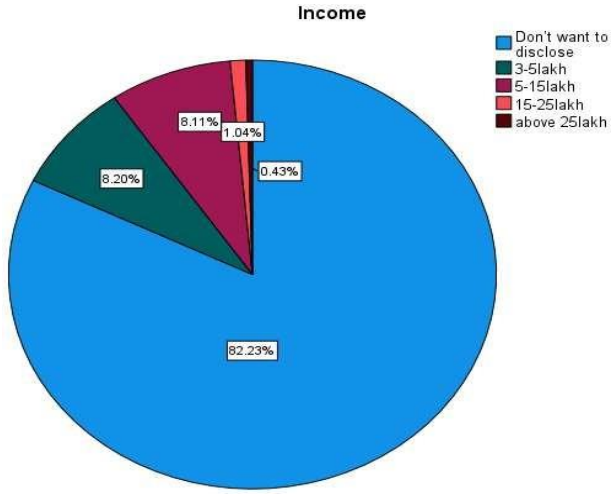

Figure 4.9 Income wise percent of the customers participated in the study

The above pie chart displays the Income wise percent of the customers participated in the study. Out of 100%, 82.23% of the customers, they don't want to disclose their income, 8.20% of the customer's income was 3-5lakh, 8.11% of the customer's income was 5-15lakh, 1.04% of the customer's income was 15-25lakh and 0.43% of the customer's income was above 25lakh.

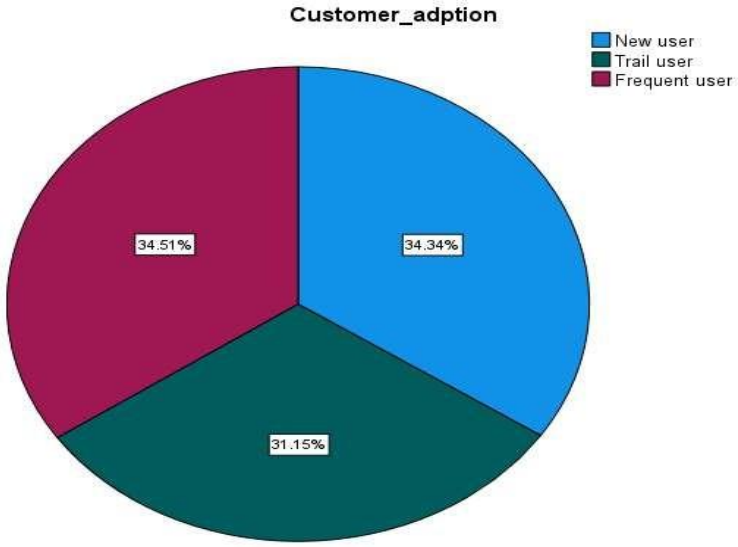

Figure 4.10 Customers' adaptation wise percent of the customers

The above pie chart displays the Customers adaptation wise percent of the customers participated in the study. Out of 100%, 34.51% are Frequent users, 34.34% are New users, and 31.15% are Trail users. Most of the customers participated in the study are Frequent users.

5.1 Recommendation for Hypothesis H0: 2.1 (Customer satisfaction with TBSS check-in process is dependent on customer's gender):

The T-test results reveal a significant difference in customer satisfaction between male and female customers. Notably, female customers exhibit higher satisfaction levels. To capitalize on this insight, service providers should consider gender-specific initiatives, promotions, or amenities that resonate with female customers. Understanding and addressing gender-related preferences can contribute to a more tailored and satisfying experience for all customers. Additionally, further research into the specific aspects influencing gender-based satisfaction can inform targeted improvements in service delivery.

The outcomes of the T-test conducted to scrutinize the disparity in customer satisfaction between male and female customers have unveiled a noteworthy and statistically significant difference. Specifically, the findings underscore that female customers tend to express higher levels of satisfaction compared to their male counterparts. This nuanced insight offers service providers a valuable opportunity to refine their strategies and enhance the overall customer experience by recognizing and addressing gender-related preferences.

Given the observed variance in satisfaction levels, service providers are advised to consider the implementation of gender-specific initiatives, promotions, or amenities that cater to the unique preferences of female customers. This could involve designing promotional campaigns that resonate with the interests and expectations of female clientele, thereby fostering a more inclusive and appealing customer experience. Tailoring initiatives to specific gender segments acknowledges diversity in customer preferences and contributes to a more customized and satisfying service.

In conclusion, the T-test results revealing a significant difference in satisfaction levels between male and female customers represent a call to action for service providers. Embracing this insight entails not only recognizing the observed gender-based variations but proactively tailoring strategies to create a more inclusive, responsive, and ultimately satisfying customer experience. This approach, rooted in a nuanced understanding of customer diversity, can pave the way for enduring customer loyalty and positive brand advocacy.

5.2 Recommendation for Hypothesis H0: 2.2 (Customer satisfaction with TBSS check-in process is dependent on customer's age):

The ANOVA test highlights a significant mean difference in customer satisfaction based on age groups. Customers aged less than 18 express the highest satisfaction. To leverage this insight, service providers should focus on creating age-appropriate amenities, services, or engagement strategies that resonate with younger customers. Understanding the unique needs and preferences of different age groups is crucial for ensuring a positive and satisfying experience. Tailoring services to the specific age demographics could result in increased customer satisfaction and improved overall service perception.

The findings derived from the ANOVA test, discerning the variation in customer satisfaction across different age groups, have uncovered a substantial and statistically significant mean difference. Specifically, customers aged less than 18 have emerged as expressing the highest levels of satisfaction. This revelation presents a valuable opportunity for service providers to refine and tailor their strategies, with a focus on creating offerings that resonate specifically with younger clientele.

In conclusion, the ANOVA test results signaling a significant mean difference in satisfaction levels among age groups prompt service providers to embrace a more targeted and age-appropriate approach. By tailoring amenities, services, and engagement strategies to the unique needs of customers aged less than 18, providers can create a more resonant and gratifying experience. This commitment to understanding and addressing age-specific preferences contributes to a service environment that is not only customer-centric but adaptive to the evolving expectations of diverse demographic segments.

5.3 Recommendation for Hypothesis H0: 2.3 (Customer satisfaction with TBSS check-in process is dependent on customer's income):

The ANOVA test indicates a significant mean difference in customer satisfaction based on income levels. Notably, customers with an income between 3-5 lakhs exhibit the highest satisfaction levels. In response to this, service providers should consider offering targeted promotions, benefits, or services that cater to the financial preferences of this income group. Acknowledging and accommodating the specific needs of customers within different income brackets can contribute to heightened satisfaction and foster a positive perception of the check-in process.

The outcomes of the ANOVA test, which discerns variations in customer satisfaction across different income levels, reveal a significant and noteworthy mean difference. Specifically, customers falling within the income range of 3-5 lakhs emerge as exhibiting the highest levels of satisfaction. This pivotal revelation prompts a strategic recommendation for service providers to tailor their offerings and engagement strategies to resonate specifically with the financial preferences and expectations of this income group.

To capitalize on this insight, service providers are advised to adopt a nuanced approach in crafting targeted promotions, benefits, or services that align with the economic profile of customers earning between 3-5 lakhs.

Understanding and catering to the specific financial considerations and expectations of this income bracket is instrumental in creating an experience that not only meets but exceeds their unique needs.
In response to the significant mean difference identified in the ANOVA test, providers may consider developing promotions or benefits that offer tangible value to customers with an income of 3-5 lakhs. This could involve exclusive discounts, tailored loyalty programs, or personalized services that resonate with the financial expectations of this demographic. The goal is to create a symbiotic relationship where the services provided align seamlessly with the financial capacities and preferences of the target audience.
In conclusion, the ANOVA test results signalling a significant mean difference in satisfaction levels based on income underscore the importance of a targeted and income-appropriate approach. By tailoring promotions, benefits, and services to the specific financial considerations of customers earning between 3-5 lakhs, providers can create a more resonant and gratifying experience. This commitment to understanding and addressing income-specific preferences contributes to a service environment that is not only customer-centric but adaptive to the diverse financial expectations of their clientele.

5.4 Recommendation for Hypothesis H0: 2.4 (Customer satisfaction with the TBSS check-in process is dependent on customer's education):

The ANOVA test reveals a significant mean difference in customer satisfaction based on educational levels, with customers up to graduate level expressing the highest satisfaction. To enhance customer satisfaction, service providers should tailor communication, services, and amenities to align with the educational background of their customers. Recognizing and addressing the preferences of customers with varying education levels can contribute to a more personalized and satisfying experience. Furthermore, ongoing research into the evolving expectations of different educational demographics can inform continuous improvements in the check-in process.
The findings from the ANOVA test shed light on a substantial mean difference in customer satisfaction predicated on educational levels, highlighting a particularly noteworthy observation—customers up to the graduate level register the highest levels of satisfaction. This key revelation underscores the importance of crafting targeted strategies and initiatives by service providers to accommodate and appeal to the distinct needs and expectations associated with varying educational backgrounds.
In conclusion, the ANOVA test results, pointing to a significant mean difference in customer satisfaction across educational levels, provide a valuable foundation for tailored strategies. The recommendation encourages service providers to embrace a nuanced approach that aligns communication, services, and amenities with the educational backgrounds of their customers. Continuous research into the evolving expectations of different educational demographics positions providers to stay agile and responsive, creating an environment that not only meets but anticipates the unique needs of their diverse clientele.

Table 4.7 Summary table of Hypothesis

Hypothesis	Test	Results	Recommendation	Status
H0: 2 (Customer satisfaction with TBSS check-in process is dependent on customer's adaptation of the process)	ANOVA	Significant mean difference; Frequent users show highest satisfaction	Tailor strategies for frequent users, offer personalized benefits	Rejected
H0: 2.1 (Customer satisfaction with TBSS check-in process is not dependent on customer's gender)	T-test	Significant difference; Female customers have higher satisfaction	Implement gender-specific initiatives, promotions, or amenities	Accepted
H0: 2.2 (Customer satisfaction with TBSS check-in process is not dependent on customer's age)	ANOVA	Significant mean difference; Age <18 shows highest satisfaction	Develop age-appropriate amenities, services, and engagement strategies	Rejected
H0: 2.3 (Customer satisfaction with TBSS check-in process is not dependent on customer's income)	ANOVA	Significant mean difference; Income 3-5 lakhs shows highest satisfaction	Offer targeted promotions, benefits, or services for this income group	Rejected
H0: 2.4 (Customer satisfaction with the TBSS check-in process is not dependent on customer's education)	ANOVA	Significant mean difference; Up to graduate level shows highest satisfaction	Tailor communication, services, and amenities to educational levels	Rejected

5.5 Strategies for Enhancing Service Customer Satisfaction

Organizations can implement various strategies to enhance service customer satisfaction across all touch points:

5.5.1 Employee Training: Investing in comprehensive training programs can equip employees with the skills and knowledge to deliver exceptional service. This includes training on customer service best practices, communication skills, and conflict resolution (Kim & Park, 2019).

5.5.2 Service Recovery: Effective service recovery practices are crucial for mitigating the negative effects of service failures. (Brown et al., 1993) emphasize responding promptly and empathetically to customer complaints.

5.5.3 Service facilitation: There is a need to recognise the need for assistance to certain age, education group customers which can be fulfilled by providing assistance.

6. References

1. Abdelaziz, S., Abdelfatah, H., & Elabbassy, A. (2010). Study of Airport Self-service Technology within Experimental Research of Check-in Techniques Case Study and Concept. *International Journal of Computer Science Issues*, *7*.
2. Anderson, E. W., & Mittal, V. (2000). Strengthening the Satisfaction-Profit Chain. *Journal of Service Research*, *3*, 107–120.
3. Anselmsson, J. (2001). *Customer-perceived service quality and technology-based self-service, doctoral dissertation*. Lund Business Press, Lund University.
4. Beatson, A., Lee, N., & Coote, L. V. (2007). Self-Service Technology and the Service Encounter. *The Service Industries Journal*, *27*(1), 75–89. https://doi.org/10.1080/02642060601038700
5. Bitner, M. J., Booms, B. H., & Mohr, L. A. (1994). Critical Service Encounters: The Employee's Viewpoint. *Journal of Marketing*, *58*, 95–106.
6. Brown, M. R., Garland, C. D., Jeffrey, S. W., Jameson, I. D., & Leroi, J. M. (1993). The gross and amino acid compositions of batch and semi-continuous cultures ofIsochrysis sp. (Clone T.ISO),Pavlova lutheri andNannochloropsis oculata. *Journal of Applied Phycology*, *5*(3), 285–296. https://doi.org/10.1007/BF02186231
7. Dabholkar, P. A. (1996). Consumer evaluations of new technology-based self-service options: An investigation of alternative models of service quality. *International Journal of Research in Marketing*, *13*(1), 29–51. https://doi.org/10.1016/0167-8116(95)00027-5
8. Dabholkar, P., Bobbitt, M., & Lee, E. (2003). Understanding Consumer Motivation and Behavior Related to Self-Scanning in Retailing: Implications for Strategy and Research on Technology-Based Self-Service. *International Journal of Service Industry Management*, *14*(1), 59–95.
9. Huang, T.-L., & Liao, S. (2015). A model of acceptance of augmented-reality interactive technology: The moderating role of cognitive innovativeness. *Electronic Commerce Research*, *15*(2), 269–295. https://doi.org/10.1007/s10660-014-9163-2
10. Kim, J.-H., & Park, J.-W. (2019). The Effect of Airport Self-Service Characteristics on Passengers' Perceived Value, Satisfaction, and Behavioral Intention: Based on the SOR Model. *Sustainability*, *11*(19), 5352. https://doi.org/10.3390/su11195352
11. Oliver, R. L. (1997). *Satisfaction: A Behavioral Perspective on the Consumer*. The McGraw-Hill Companies, Inc.
12. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing*, *49*(4), 41–50. https://doi.org/10.1177/002224298504900403
13. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Marketing*.
14. Reichheld, F. (2003). The One Number You Need to Grow. *Harward Business Review*. https://hbr.org/2003/12/the-one-number-you-need-to-grow
15. Roelen, M. (2016). *Next-generation airport check-in process development from a market requirement perspective*. https://api.semanticscholar.org/CorpusID:199415248
16. Saunders, M., Lewis, P., & Thornhill, A. (2003). Research Methods for Business Students, Pearson Education Limited.
17. Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, *68*(1), 1–17. https://doi.org/10.1509/jmkg.68.1.1.24036
18. Yin, R. K. (1994). *Case study Research. Design and Methods* (Second). Sage Publications, Inc.
19. Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2009). *Services Marketing: Integrating Customer Focus across the Firm* (5th ed.). McGraw-Hill and Irwin.