

# Assessing The Impact Of Service- Quality On Customer Satisfaction In The Internet Of Things (Iot) Era: Survey-Based Evidence In Indian Smart Cities

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## Abstract

Use of IoT devices is gaining significant momentum in the recent era. Smart speakers are found to be one of the major breakthrough evolutions in this concern. Indian market for smart speakers is picking substantial pace. However, there is limited evidence on how consumers' experience with the service of the smart speakers can be enhanced. Thus, the current paper aims at outlining the satisfaction with services of a product .In this context, the current paper is directed towards understanding how SERVQUAL dimensions predict the satisfaction of the IoT smart devices in India. Moreover, it seeks to gain an insight whether demographic attributes play a role in enhancing or decreasing this associations. For this purpose, the study has used a primary approach and distributed quantitative surveys among 200 existing smart device users in India. SPSS 26 , AMOS 25 and Process Macro tools have been used to gauge the defined associations in the paper. Findings of the study affirm that service quality dimensions pertaining to reliability, assurance and empathy had a direct impact on customer satisfaction with regard to IoT enabled smart speakers. Significant moderation role of demographic variables namely age , education and income were observed in the association between service quality dimensions and customer satisfaction towards smart speakers .

**Keywords:** Internet of Things (IoT) , service-quality dimensions, SERVQUAL, Customer satisfaction, smart speakers.

## I. INTRODUCTION

In this era of increasing competitiveness, organisations are striving hard to survive in the market. For this purpose, innovation is recognized as the key to eliminating competition and improving the market position of a firm. Moreover, with technological advancements, customers are preferring to buy more and more innovative products that they can utilise for utility or entertainment purposes [1]. The fast-paced evolution of technology has led to the innovation of smaller, portable devices that provide higher performance and thereby, represent the significant transformation from the era of personal computers [2]. Along with this, the simultaneous improvement in connectivity has resulted in a common scaffold for mutually

connected smart devices. Thus, the term "Internet of Things" (IoT) is often used for referring to these smart devices that are found to compute, coordinate, interact, and deliver information to their users.

IoT is still a relatively new phenomenon and with its gradual development, smart speakers were launched very recently. Echo smart speaker along with the Alexa voice assistant, an Amazon product was launched in the year 2014. Since then, the smart speakers have been popular among customers [3]. The adoption of smart speakers is strategically increasing with an increasing notion of transforming one's home into smart avenues[4]. As per evidence from recent research, the use of smart speakers will strategically rise more than the use of wearable smart devices like smart glasses or

smartwatches. This is because smart speakers have become an inseparable part of homes and thereby, digital users have increased dependency on them [5].

In the USA, smart speakers are found in excessive use wherein the degree of consumer adoption of these gadgets has been on a significant rise in 2018. For instance, research conducted in January, 2018 outlined that there were nearly 47.3 million smart speaker users. Subsequently, by the end of 2018, it was found that there was a significant increase in the smart speaker users corresponding to 66.4 million. This indicates in aggregate 26.2% of the total US adults were found to access smart speakers [6]. In 2019, the users for smart speakers encompassed 74.2 million. The report published by Business Insider [7], affirmed that by the end of 2020, the smart speaker users will include 76.5 million active users and this number will be more than double accounting to 190 million by the end of 2023. Similarly, in the case of India, data reveals that nearly 7,53,000 units of IoT enabled smart speakers by Amazon were shipped. This confirms that in India, too, smart speakers are becoming popular devices and may be on the verge of reaching every Indian household [8].

The AI-based technology goods that are voice-enabled like "Amazon Echo, Apple HomePod, Google Home" and so on include a built-in digital assistant like "Alexa, Siri, Google Assistant" and so on. This built-in assistant facilitates the consumers for operating it in a hands-free manner through "voice-only communication". Along with smart speakers, other devices based on "Internet of Things" (IoT) like smart light bulbs are also becoming significantly popular [2, 9]. The use of these digital devices is rising due to the type of assistance it offers to its users and the ease of utilising it strategically makes it convenient for users to interact with it [10, 3]. The speakers are instrumental in accomplishing a diverse variety of tasks on the demands of the users i.e., acquiring weather information, music playback, ride-hailing service requests, to-do lists, restaurant ordering, simple question answering, product purchases, light bulb control, and other smart home digital items. When customers ask a smart speaker a question, they speak keywords such as "Alexa"

for Amazon Echo and "OK Google" for Google Home [11].

Despite such an increase in the use of smart speakers, the literature still fails to provide empirical evidence with regard to the factors that impact the satisfaction level of consumers using IoT devices. Moreover, the prevailing studies on customer satisfaction have outlined that quality of service plays a pivotal role in determining their loyalty towards a brand or product [12-15]. Nonetheless, these studies are not conducted in the context of IoT enabled smart devices and provide a more general view on the factors affecting the customer satisfaction level [16,17]. As a result, there is a need to understand how service quality attributes impact customer satisfaction with regard to IoT based smart speakers (Google, Alexa, Siri). The central aim that drives the current study is to comprehend the attributes of "service-quality" that influence satisfaction level of the consumers in the Internet of Things (IoT) era with regard to Indian smart cities. For addressing the above research aim, the following objectives will be empirically assessed.

1. To reveal the service quality dimensions in IoT based smart speakers (Google, Alexa, Siri).
2. To unveil which service quality dimensions impact customer satisfaction related to IoT based smart speakers.
3. To examine the moderating role of demographic variables in reviewing the correlation between service quality dimensions and customer satisfaction related to IoT based smart speakers.

## 2. Literature Review

### 2.1 Understanding the Concept of Service Quality and Its Growing Importance

Undoubtedly, the most significant and crucial component of corporate strategy is quality. Quality is a point of dispute for businesses, a point of interest for customers, and a point of renewal for markets. The only crucial element that predicts a company's long-term success is the quality of its service [18]. Because consumer perception of a company's services is so crucial, service quality has always been a

determining factor for successful efforts [19,20].

In comparison to physical product features, judging the quality of services is challenging due to their multidimensional and subjective nature. With the expansion of the tertiary sector, assessing the quality of service has become a prerequisite. The "SERVQUAL model" is a multidimensional instrument that is widely perceived as one of the effective instruments for assessing service quality [21]. In 1985, one of the initial service quality models was outlined by Parasuraman et al.[22] for measuring it. The scale was abbreviated as SERVQUAL. The study had outlined ten dimensions of service quality. Further, in 1988, one more study was conducted by Parasuraman et al.[23] wherein they limited the SERVQUAL scale to five major factors of "Tangibles, Reliability, Responsiveness, Assurance, and Empathy". The scale provides a comprehensive measurement tool to every industry in order to help manage with credibility and efficiency, as well as fulfil the objective of service development [24].

In a day of ever-increasingly diverse requirements, one of the cornerstones of customer satisfaction in a business network is service quality. In a competitive economy, the capacity of the organisation, to satisfy consumer requirements and delight is crucial [25]. A firm's ability to suffice the demands of its consumers is significantly forecasted by the quality of service provided to its customers. As a result, if there is a discrepancy between the firm's level of quality and the real expectations of the consumers, it will lead to customer discontent. This will be solely due to the difference in quality of the product or service. For which the firm must take necessary actions or it may lead to a decrease in consumer base by the company [26].

## **2.2 Highlighting the Service Quality Dimensions for IoT devices**

Service Quality comprises five major dimensions. These dimensions are tangibility, empathy, responsiveness, assurance and reliability. In addition to this, since IoT devices are largely accounted for acquiring and providing information, the additional dimension of privacy should also be considered for measuring the service quality.

These dimensions are individually discussed and defined as follows:

### **2.2.1 Reliability**

The extent to which smart speakers can supply trustworthy services that meet consumers' expectations is referred to as reliability. "Standardization, interoperability, and compatibility" of technology and commodities all pose substantial challenges to reliability[27].The reliability of smart speakers can be determined in two phases. On the one hand, the gadgets should do the exact function that its user desires. In other words, even if the system is excellent in technical execution, it will be seen as unreliable if it cannot comprehend and behave precisely as instructed. On the other hand, reliability in the context of IoT technology would mean to meet consumers' needs in an optimal manner [28].

### **2.2.2 Responsiveness**

Hizam and Ahmed [19], outlines responsiveness as the degree to which service sources are dedicated for helping consumers and providing timely service. The ability to assist clients and provide service in a prompt manner is referred to as responsiveness. This dimension focuses on how customers' requests, questions, complaints, and difficulties are addressed and how quickly they are resolved. Additionally, it emphasises the employees' punctuality, presence, professional zeal, and so forth. Responsiveness reflects if customers had to wait for a substantial amount of time to get their query resolved. Regularly observing the service delivery process and staff attitudes toward client demands can improve the circumstances of responsiveness [29]. Thus, the promptness of IoT enabled smart speakers and device ability to respond to the users' demand and deliver service accordingly is defined as responsiveness in context of IOT enabled smart speakers [30].

### **2.2.3 Assurance**

Accuracy is recognised as one of the major attributes that predict the quality of service and often used criteria for scrutinising quality of information. The user expects the information recorded and provided to be correct, clear, and precise. For accessing the intricate quality of

the information, meaningfulness is thereby, one of the major attributes that is considered for ensuring assurance of the data. This means that the data must be objective, in addition to being sensible and rationale [27]. The assurance of information reflects the level of trust the user has in the technology with regard to the information generated by it.

#### **2.2.4 Tangibility**

The tangibility dimension refers to the service's physical look, which users will use to judge its quality. The physical facilities, tools, systems, and so on that are used to provide the service are connected to the tangibility dimension [15]. It has been shown that equipment that appears current and visually appealing is effective in encouraging customers to use it [31]. As a result, it can be stated that with regard to IoT devices, the appearance of the device, its visible interface and functionalities may play a pivotal role in impacting the satisfaction of the consumers [32].

#### **2.2.5 Empathy**

Another level of service excellence is the Empathy dimension. It is defined as the care and personalised attention provided by banks or service providers to their customers. By delivering personalised or bespoke services, this dimension seeks to express the notion that consumers are unique and special to the organisation. This dimension focuses on a variety of services that cater to a wide range of client needs, such as bespoke or personalised services. Service providers must be aware of the clients' individual needs, interests, and preferences in this case [29]. Thus, empathy in context of IOT enabled smart speakers is the ability to meet the customer needs, preferences and interests to ensure personalised or bespoke services.

#### **2.2.6 Privacy**

Perceived security or privacy is a significant aspect in the success of many firms that are engaged in management of monetary and personal information of their customers. Such companies are entitled with a responsibility to prevent unauthorised parties from accessing such information. Concerns about privacy and

security have risen in relevance as more users reveal such information with the gadgets used [28].

### **2.3 Outlining Customer Satisfaction and its nexus with Service Quality**

Consumer satisfaction is an essential component of both marketing theory and practise [33]. Consumer satisfaction has been framed in a variety of ways by academics and marketing specialists. However, Oliver's [34] concept is often utilised as a foundation when creating models of customer satisfaction. According to Oliver [34], consumer satisfaction is the gap between expectations or perceptions about a product or service and its actual value. Thus, when customers' expectations or perceptions match the real usefulness, their perception is high, and vice versa [35,10,3]. Consumer satisfaction is the key to gaining a larger market share and, as a result, increasing an organization's profitability [36]. Furthermore, research from multiple studies shows that better levels of customer satisfaction directly mean attainment of their loyalty [37] and strengthening its brand equity [38].

As per research by Hussain et al.[39] service quality dimensions are found to interpret consumers' satisfaction level. It was further elucidated that service quality is strategically predicted by corporate image and thereby, perceived value of the products. Further, the service quality impacts customer satisfaction level which aggregately determines brand loyalty. According to Rita et al.[13], design of the website, its security/privacy provisions, and fulfilment all reflect the quality of e-service. Additionally, customer behaviour is found to be statistically connected to the quality of e-services. Thus, basis the previous literature review following hypotheses have been formulated :

- 1. H<sub>1</sub>: Reliability dimension associated with services of smart speakers significantly influences Customer Satisfaction.**
- 2. H<sub>2</sub>: Assurance dimension associated with services of smart speakers significantly influences Customer Satisfaction.**

3. **H<sub>3</sub>: Tangibility dimension associated with the services of smart speakers significantly influences Customer Satisfaction.**
4. **H<sub>4</sub>: Empathy dimension associated with services of smart speakers significantly influences Customer Satisfaction.**
5. **H<sub>5</sub>: Responsiveness dimension associated with services of smart speakers significantly influences Customer Satisfaction.**
6. **H<sub>6</sub>: Privacy dimension associated with services of smart speakers significantly influences Customer Satisfaction.**

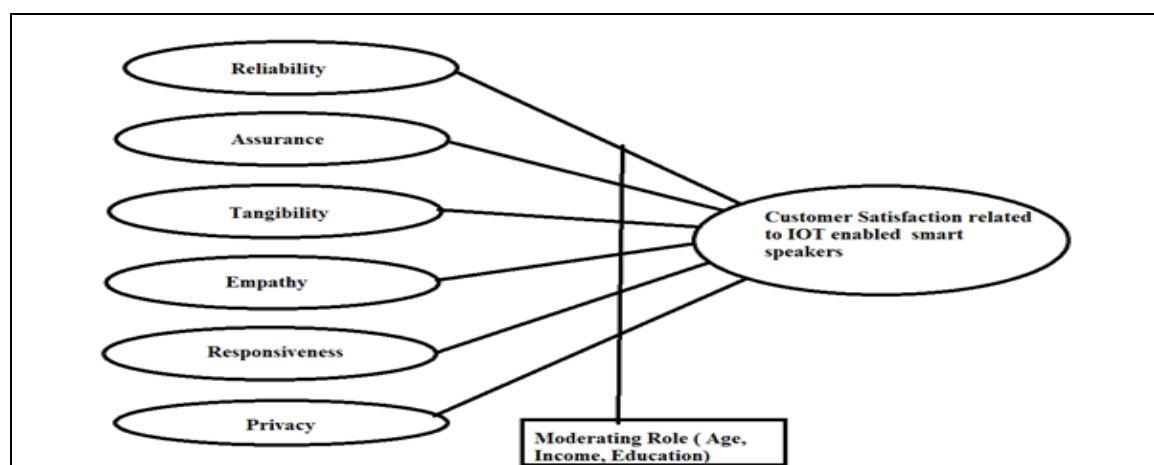
Furthermore, a study conducted by Sivakumar and Gunasekaran[40], revealed that age had a significant role in moderating the customer satisfaction level with regard to online shopping. On similar grounds, Christia and Ard [41], highlighted that gender, age, income, educational level can moderate the correlation that exists between perceived service quality and customer satisfaction level. Moreover, study conducted by Trabelsi-Zoghalmi et al.[42]highlighted that service quality

dimensions impact on satisfaction is moderated by the demographic characteristics of age, gender and education[43-45]. Hence, basis the previous literature review, the following have been hypothesised :

7. **H<sub>7</sub>: Age moderates the association between service quality dimensions and Customer Satisfaction.**
8. **H<sub>8</sub>: Income moderates the association between service quality dimensions and Customer Satisfaction.**
9. **H<sub>9</sub>: Education moderates the association between service quality dimensions and Customer Satisfaction.**

#### 2.4 Conceptual Framework

The conceptual framework presented in Fig. 1 defines the directions of the relationships the study will analyse. With reliability, assurance, tangibility, empathy, responsiveness and Privacy comprising as the independent variables of the study. Further, service quality is determined by these variables. Customer satisfaction is the dependent variable of the study. Moreover, age, income and education are the moderating variables of the study.



**Figure 1. Conceptual framework**

(Source: Author's self-compilation)

#### 4. Research Methodology

In order to test the proposed model, a quantitative research approach was implemented. In this regard, the study used a well-structured questionnaire instrument. The study adapted and modified the

existing scales on the service quality attributes and customer satisfaction in accordance with IoT enabled smart speaker. The existing scales that were referred to while development of the research instrument have been summarised in the Table 1.

**Table 1: Scales Adapted**

Variables	References
Reliability	Chu (2019); Nguyen et al., (2020)
Assurance	Kumar & Hundal (2020)
Empathy	Choi (2019); Nguyen et al., (2020)
Tangibility	Nguyen et al., (2020)
Responsiveness	Choi (2019)
Privacy	Chu (2019)
Customer Satisfaction	Gu et al., (2019)

**Source:** Author's self-compilation.

### 3.1 Sampling Design and Sample Size

The study primarily utilised the purposive sampling method wherein the questionnaires were distributed to existing IoT enabled smart speaker users in selected four Indian smart cities namely Amritsar, Chandigarh and Faridabad and Jalandhar. No potential IoT enabled smart devices consumers were considered as respondents for maintaining the accuracy of the results for the current study. The target population of the current study was 200 respondents, with bifurcation of 50 respondents from each of selected Indian smart cities .

### 3.2 Research Instrument

In this study, the survey questionnaire was segregated into eight categories. The first category comprised multiple-choice inquiries for comprehending the demographic characteristics of the consumers. Further, the next six sections were directed towards

gaining the perspectives of the consumers about service quality dimensions and finally, the last section aimed at gauging the consumers' satisfaction pertaining to IoT enabled smart speaker. The study used Likert scale in this concern which ranged from "1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree". A pilot study was carried out with 30 respondents from the original sample size for outlining the reliability of the instrument.

To check the reliability of the tool, the Cronbach reliability statistics was used. The reliability in statistics measures the interitem consistency. The Cronbach's alpha in this research ranged from 0.700 to 0.768 which is deemed to be good, as presented in Table 2 . The discriminant validity indicated by correlation matrix where majority of the constructs had a correlation coefficient of less than 0.85 and also by using the path analysis where the correlations among the latent constructs were less than 1.

**Table2 : Factor Loading, Average Variance Extracted (AVE ) and Construct Reliability(CR)**

Constructs	Items	Standardised Loading	CR	AVE
Reliability ( $\alpha = 0.724$ )	1. IoT devices provide reliable information.	0.723	0.838	0.515
	2. Smart speakers can accurately perform their functions at any time.	0.711		
	3. Smart speakers are highly reliable.	0.709		
	4. IoT devices cannot provide all functions I need.	0.718		

	5. IoT technology is able to perform all the functions that it promises	0.711		
<b>Assurance ( <math>\alpha = 0.768</math> )</b>	1. Smart Speakers provides good functionality.	.712		
	2. I feel safe in utilizing IoT-enabled smart devices.	.771		
	3. Smart Speakers are polite in their approach.	.741	0.821	0.535
	4. Smart Speakers have the required knowledge to answer my questions.	.701		
<b>Tangibility ( <math>\alpha = 0.703</math> )</b>	1. IoT devices are instrumental in providing valuable information.	.711		
	2. Smart speakers facilitate to find information easily.	.745	0.765	0.521
	3. The interface offered by IoT devices is attractive.	.710		
<b>Empathy ( <math>\alpha = 0.716</math> )</b>	1. Smart Speakers are able to provide requested information.	.756		
	2. Accomplishing the needs of the users is the major goal of IoT devices.	.718		
	3. Smart Speakers always understands the needs of users.	.729	0.856	0.544
	4. IoT devices consider the needs of each user differently.	.761		
	5. IoT devices can operate for up to many hours conveniently for addressing the needs of all the users.	.723		
<b>Responsiveness ( <math>\alpha = 0.708</math> )</b>	1. The IoT devices have a swift responsiveness system.	.700		
	2. The IoT devices provide accurate information delivery.	.789	0.774	0.534
	3. The IoT technology provides a fast response to the requirements	.700		
<b>Privacy ( <math>\alpha = 0.700</math> )</b>	1. IoT technology will not keep my personal information safe.	.702		
	2. I assume my personal information might be utilized in unrelated areas.	.700		
	3. I assume that my personal information will not be manipulated or used by other users in any way.	.690	0.791	0.487
	4. I do not think anyone can access and utilize my personal information stored in smart speakers.	.701		

<b>Customer Satisfaction ( <math>\alpha = 0.705</math> )</b>	1. I am extremely pleased with the IoT enabled devices.	.716	0.813	0.521
	2. I am extremely contented with IoT enabled devices.	.691		
	3. I am extremely satisfied with the IoT enabled devices.	.769		
	4. I am absolutely delighted with the smart speaker service.	.711		

**Source:** Author's calculations based on primary data.

### 3.3 Data Analysis Method

The data acquired from the sample size of 200 respondents were analysed using statistical software of SPSS , AMOS and Process Macro tools. The study used descriptive statistics for outlining the demographic characteristics of the consumers. On the other hand, multivariate analysis, regression analysis and moderation analysis were used to assess the impact of different service quality dimensions on customer satisfaction and the moderating role of the demographic variables.

## 4. Results and Discussion

### 4.1 Demographic Information

For addressing the aim of the study, data was collected from a total of 200 respondents. Table 3 presents the demographic characteristics of respondents comprising of 60.5% of males while 39.5% of them were females.

**Table 3 : Demographic Characteristics of Respondents ( N=200)**

Demographics		Frequency
Gender	Male	121
	Female	79
	Total	200
Qualification	Highschool	25
	Diploma	12
	Graduate	47
	Post graduate	83
	Above post graduate	33
	Total	200
Age	18 - 29 years	46
	30 - 39 years	17
	40 - 49 years	39
	50 - 59 years	70
	More than 60 years	28
	Total	200
Income	Less than Rs. 10,000	45
	Rs. 10,000 - Rs. 20,000	29
	Rs. 20,000 - Rs. 30,000	50
	Rs. 30,000 - Rs. 40,000	76
	Total	200

**Source:** Author's calculations based on primary data.



#### 4.1 Factor Analysis

With a view to develop a single factor, all items were forced for formation of a single factor. In this regard, the test helped in extracting 12 components with a variance of 61.356%. Additionally, confirmatory factor analysis (CFA) was conducted to check both convergent validity and discriminant validity. Also, the requirements for convergent validity are met, as values of composite reliability exceeds value of 0.70 and Average Variance extracted (AVE) values are above 0.50. The model provided a good fit to the data. The goodness of fit index (GFI) is acceptable at .906 (>.900), the comparative fit index (CFI) is acceptable at .932 (>.900), and also the

normed fit index (NFI) is acceptable at .926 (>.900). The root mean square error of approximation (RMSEA) is .064 (<.080). The analysis outcome proved that the research model and the data were suitable for further analysis.

To test the validity of measures, exploratory factor analysis (EFA) was executed with the VARIMAX rotation option by using the principal component analysis (PCA) method. The structural paths in the model were tested using SEM techniques. As indicated in Table 4, assurance, empathy and reliability associated with the services provided by IOT enabled smart speakers positively influenced the customer satisfaction.

**Table 4 : Results of Structural Model Analysis**

	Estimate	S.E.	C.R.	p-value	Decision
Tangibility > Customer Satisfaction	0.003	0.006	0.54	0.589	Rejected
Privacy > Customer Satisfaction	0.007	0.006	1.278	0.201	Rejected
Responsiveness > Customer Satisfaction	0.003	0.005	0.536	0.592	Rejected
Assurance > Customer Satisfaction	0.033	0.008	3.963	***	Accepted
Empathy > Customer Satisfaction	0.018	0.006	2.945	0.003	Accepted
Reliability > Customer Satisfaction	0.023	0.007	3.435	***	Accepted

**Source:** Author's calculations based on primary data.

From Table 5, it can be accentuated that age plays a moderating role between the service quality dimensions considered and customer satisfaction level, except for the dimension of empathy. Thus, it can be stated that irrespective of the age group a consumer belongs to, empathy plays a pivotal role in predicting customer satisfaction level with regard to IoT devices.

**Table 5: Results of Moderation analysis for Age**

Moderation ( Age )	Coefficient	Sig.	Label
Reliability >Age > CS	0.105	0.015*	Accepted
Assurance >Age > CS	0.081	0.028*	Accepted
Tangibility >Age > CS	0.200	0.000**	Accepted
Empathy >Age > CS	0.069	0.178	Rejected
Responsiveness >Age > CS	0.175	0.000**	Accepted
Privacy > Age > CS	0.228	0.000**	Accepted

**Please Note :** CS means Customer Satisfaction in the Table 5

**Source:** Author's calculations based on primary data.

The moderation analysis conducted to predict the role of income in affecting the association between service quality dimensions and customer satisfaction level. In this regard, it can be observed from the results acquired in Table 6, that except for two dimensions i.e reliability and assurance, income moderates the association between all the other service quality dimensions and customer satisfaction level in context of smart speakers.

**Table 6: Results of Moderation Analysis for Income**

Moderation ( Income )	Coefficient	Sig.	Label
Reliability > Income > CS	0.099	0.117	Rejected
Assurance > Income > CS	0.061	0.267	Rejected
Tangibility > Income > CS	0.228	0.000**	Accepted
Empathy > Income > CS	0.146	0.015	Accepted
Responsiveness > Income > CS	0.291	0.000**	Accepted
Privacy > Income > CS	0.218	0.002*	Accepted

**Please Note :** CS means Customer Satisfaction in the Table 6

**Source:** Author's calculations based on primary data.

Finally, to assess if education plays a moderating role in the relationship between service quality dimensions and customer satisfaction level, moderation analysis was conducted. Table 7 presents the results gained, it can be affirmed that education moderates the association between the service quality dimensions of tangibility, responsiveness, privacy and customer satisfaction level. On the other hand, education does not moderate the association between the service quality dimensions of reliability, assurance, empathy and customer satisfaction level. Hence, it can be stated that the level of education does make a significant difference pertaining how consumers weigh the tangibility, responsiveness and privacy dimensions while determining the utility of IoT devices in specific to smart speakers , and thereby, predicting their satisfaction level.

**Table 7: Results of Moderation Analysis for Education**

Moderation ( Education )	Coefficient	Sig.	Label
Reliability > Education > CS	-0.029	0.624	Rejected
Assurance > Education > CS	-0.046	0.354	Rejected
Tangibility > Education > CS	0.172	0.000*	Accepted
Empathy > Education > CS	-0.092	0.204	Rejected
Responsiveness > Education > CS	0.196	0.000*	Accepted
Privacy > Education > CS	0.140	0.003*	Accepted

**Source:** Author's calculations based on primary data.

## 5. Conclusion

The survey results acquired confirms that only the service quality dimensions of reliability, assurance and empathy had a direct impact on customer satisfaction level with regard to smart speakers . On the other hand, dimensions such as tangibility, responsiveness and privacy were not instrumental in predicting the customer satisfaction level for IoT enabled smart speakers. In addition to this, it was found except for empathy, age moderates the association between service quality dimensions and customer satisfaction. Moreover, income and education are found to moderate the association between service dimensions of tangibility, responsiveness and privacy with customer satisfaction which are not found to directly predict customer satisfaction level for IoT devices. As a result, it can be outlined that differences in demographic characteristics of the consumers

does alter their satisfaction level when taking into account smart speakers.

Based on the findings of the current study, it can be stated that future research can be conducted to explore the additional related factors in context of service quality dimensions which may affect customers' satisfaction level towards IoT devices in specific smart speakers . Furthermore, demographic variables have played a crucial role as a moderating variable in the present study, which needs to be further explored in context of other potential IOT devices in Indian context .

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