

Determination of E-service Quality Dimensions: An Exploratory Factor Analysis

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Abstract

The purpose of the present study is to determine the dimensions of e-service quality and to develop the scale to measure the dimensions. The research design used is descriptive research and the sampling technique used is purposive sampling technique. The sample size is 315 respondents. The primary data was collected by the survey method using a structured questionnaire. The Exploratory Factor Analysis was used to extract the factors and group the items which were loaded into the factors. On the whole, 22 items were framed. They were grouped into 5 factors which represent the dimensions of e-service quality. The dimensions are Ease of Use, Compensation, Website Design, Personalisation, and Contact & Communication.

Keywords: Compensation, Contact & Communication, Ease of Use, E-service quality, Personalisation and Website design

Introduction

E-tailing is an inevitable factor in the current scenario where there is a barrier to the customers to purchase from brick and mortar stores due to the pandemic environment (Economic times, April 2021). E-service quality is the most significant factor to influence the customer satisfaction (Shou et al, 2018). The objective of the present study is to determine the dimensions of e-service quality and to frame a scale to measure the e-service quality in e-tailing industry.

Review of Literature

Santos (2003) proposed a model with the following dimensions: Content, Structure and Layout, Linkage, Appearance, and Ease of Use. According to Parasuraman et al (2005), System Availability, Efficiency, Order Fulfilment, Privacy, Responsiveness, Communication, and Contact are the dimensions of e-service quality. Swaid and Wigand (2009) proposed a scale which has Website Usability, Information Quality, Reliability, Responsiveness, Assurance, and Personalisation as the dimensions of e-service quality. Li and Suomi (2009) framed a set of dimensions which includes Reliability, Website Design, Responsiveness, Security, Information, Personalisation, and Empathy.

According to Zemblyte (2015), Compensation, Reliability, Website Operation, Responsiveness, and Fulfilment are the dimensions used to measure e-service quality. Kaur (2018) framed a model

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which has Personalisation, Ease of Use, Website Design, Security, Reliability, and Responsiveness as the dimensions to measure the e-service quality. Iqbal et al (2018) developed a model named e-SQF to measure e-service quality which has Website Design and Functionality, E-transaction, E-search, E-response, Assurance and Trust, Post Sales Support, and E-technologies as the dimensions. Shou et al (2018) constructed a scale to measure the e-service quality. The dimensions included are Security, Functional Competencies, Interaction Quality, Performance, and Information Quality.

Research Methodology

The research design of the current paper is descriptive. The population of the study is from Chennai, India. Purposive Sampling Technique is adapted. The sample size of the study is 315 respondents. The sampling frame is the respondents who already have experience in online shopping. The primary data was collected using a structured questionnaire through survey method. The data collection period is around two months, i.e., from June 1, 2021 to the end of July 2021. Exploratory Factor Analysis tool is applied in the present research using SPSS software. Reliability test is conducted using Cronbach's alpha co-efficient. There are 22 items with 5 point Likert scale constructed to measure the e-service quality in the present study. The developed scale is as follows:

Table 1 – List of items

Item No.	Item
I1	The customer care is approachable.
I2	The website looks aesthetic.
I3	The web page contains all product details.
I4	Products are displayed according to my preferences.
I5	Ordering the product is simple.
I6	Payment procedure is easy.
I7	Product exchange facility is always available.
I8	Refund policy is clear and simple.
I9	Searching the relevant product is easy.
I10	The website design is user friendly.
I11	The content in the website is understandable.
I12	The contact number is easily available.
I13	The e-mail id responds very promptly.
I14	Exclusive offers are provided to the customers based on their product choice.
I15	The IVRS facility is simple to handle.
I16	The website is designed to navigate freely.
I17	Refunding is done instantly after the product is received.
I18	Relevant products are shown according to my choice.
I19	Customised product combos are available.
I20	Instant chat system is available.
I21	Product delivery period can be customised according to our choice.
I22	Exchange of old products with good condition is entertained.

Source: Parasuraman et al (2005), Kaur (2018), Shou et al (2018)

Data Analysis and Interpretation

The Cronbach's alpha co-efficient is used to test the reliability of the instrument. It ranges from 0.0 to 1.0. The recommended value is more than 0.7. The actual value for this study is 0.822.

Table 2 – KMO and Bartlett's test of sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.855
Bartlett's Test of Sphericity	Approx. Chi-Square	5821.941
	Df	231
	Sig.	0.000

Source: Computed primary data

The above table indicates the KMO measure. The value is .855 which is above the recommended value of .5. This table also shows that the Bartlett's test of sphericity is significant with the probability value equal to .000 which is lesser than .05. The output of the above two tests denote that the collected data is valid for EFA.

Table 3 – Communalities

Item No.	Items	Communalities
I1	The customer care is approachable.	.641
I2	The website looks aesthetic.	.542
I3	The web page contains all product details.	.723
I4	Products are displayed according to my preferences.	.854
I5	Ordering the product is simple.	.761
I6	Payment procedure is easy.	.872
I7	Product exchange facility is always available.	.594
I8	Refund policy is clear and simple.	.648
I9	Searching the relevant product is easy.	.675
I10	The website design is user friendly.	.924
I11	The content in the website is understandable.	.826
I12	The contact number is easily available.	.763
I13	The e-mail id responds very promptly.	.749
I14	Exclusive offers are provided to the customers based on their product choice.	.814
I15	The IVRS facility is simple to handle.	.742
I16	The website is designed to navigate freely.	.638
I17	Refunding is done instantly after the product is received.	.625
I18	Relevant products are shown according to my choice.	.742
I19	Customised product combos are available.	.843
I20	Instant chat system is available.	.911
I21	Product delivery period can be customised according to our choice.	.618
I22	Exchange of old products with good condition is entertained.	.728
Extraction Method: Principle component method		

Source: Computed primary data

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From the table 3, it is inferred that the communality values of all the 22 items are greater than 0.4 which indicates that each and every item in the scale shares a common variance with the other one. The total cumulative percentage of variance is 76.82%

Table 4 – Items with factor loadings

Item No.	Items with their Factors	Factor loadings
	Ease of use	
I5	Ordering the product is simple.	.841
I6	Payment procedure is easy.	.763
I9	Searching the relevant product is easy.	.894
	Compensation	
I7	Product exchange facility is always available.	.915
I8	Refund policy is clear and simple.	.827
I17	Exchange of old products with good condition is entertained.	.735
I22	Refunding is done instantly after the product is received.	.821
	Website Design	
I2	The website looks aesthetic.	.769
I3	The web page contains all product details.	.873
I10	The website design is user friendly.	.794
I11	The content in the website is understanding.	.834
I16	The website is designed to navigate freely.	.927
	Personalisation	
I4	Products are displayed according to my preferences.	.864
I14	Exclusive offers are provided to the customers based on their product choice.	.943
I18	Relevant products are shown according to my choice.	.761
I19	Customised product combos are available.	.782
I21	Product delivery period can be customised according to our choice.	.851
	Contact & Communication	
I1	The customer care is approachable.	.794
I12	The contact number is easily available.	.861
I13	The e-mail id responds very promptly.	.924
I15	The IVRS facility is simple to handle.	.845
I20	Instant chat system is available.	.829

Source: Computed primary data

The table 4 displays the factors, items, and their corresponding factor loading values. It is inferred that all the items have the factor loading value greater than 0.7, which is the recommended value. The 22 items are grouped into 5 factors. They are as follows:

FACTOR 1- The first factor is named as Ease of Use. There are 3 items loaded in this factor. They are: Ordering the product is simple; Payment procedure is easy; and searching the relevant product is easy. The above items represent the factor Ease of Use.

FACTOR 2 – The second factor is named as Compensation. There are 4 items loaded into this factor. They are: Product exchange facility is always available; Refund policy is clear and simple;

Exchange of old products with good condition is entertained; and Refunding is done instantly after the product is received. The above items collectively represent the factor Compensation.

FACTOR 3 – The third factor is named as Website Design. There are 5 items loaded into this factor. They are: The website looks aesthetic; The web page contains all product details; The website design is user friendly; The content in the website is understandable; and The website is designed to navigate freely. The above items collectively represent the factor Website Design.

FACTOR 4 – The fourth factor is named as Personalisation. There are 5 items loaded into this factor. They are: Products are displayed according to my preferences; Exclusive offers are provided to the customers based on their product choice; Relevant products are shown according to my choice; Customised product combos are available; and Product delivery period can be customised according to our choice. The above items collectively represent the factor Personalisation.

FACTOR 5 - The fifth factor is named as Contact & Communication. There are 5 items loaded into this factor. They are: The customer care is approachable; The contact number is easily available; The e-mail id responds very promptly; The IVRS facility is simple to handle; and The instant chat system is available. The above items are collectively representing the factor Contact & Compensation.

Table 5 - Pattern Matrix

Items	Factors				
	1	2	3	4	5
EU1	.841				
EU2	.763				
EU3	.894				
C1		.915			
C2		.827			
C3		.735			
C4		.821			
WD1			.769		
WD2			.873		
WD3			.794		
WD4			.834		
WD5			.927		
P1				.864	
P2				.943	
P3				.761	
P4				.782	
P5				.851	
CC1					.794
CC2					.861
CC3					.924
CC4					.845
CC5					.829
Extraction Method: Principle component method					

Rotation method: Varimax rotation

Source: Computed primary data

The above table 5 clearly explains how the items are grouped and loaded into their factors with their factor loading values which are greater than the recommended value 0.7.

Conclusion

Five dimensions of e-service quality are identified in the present study. They are Ease of Use, Compensation, Website design, Personalisation, and Contact & Communication. In these, Ease of Use refers to the extent to which it is easy to buy the product; Compensation discusses the refunds and exchange policies offered to the customers; Website design relates to the content, aesthetic factors, and layout of the website; Personalisation deals with how the customers are provided with the customised offers; and Contact & Communication is about the way of interaction between the customer and the seller before and after the sales. This proposed set of dimensions can be used to measure the e-service quality in online shopping domain with different sets of samples in different geographical boundaries. In further studies, this scale can be used to frame new models to study its impact on customer satisfaction, perceived value, trust, and loyalty.

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