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E-COMMERCE LOGISTICS SERVICE QUALITY ANALYSIS: A CASE STUDY

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ABSTRACT

India is a country with unique demographic, social and economic structure and is an early adopter of e-commerce during its transformative stages. The growth and the success of E-commerce sector mainly depend on the logistics that helps to serve the customer at rapid pace along with better experience to maintain customer loyalty. E-commerce logistics is the only key link of direct contact with the customers for network business. Incidences of the customer's complaints related to logistics services such as packaging damage, delivery time, attitude issues, payment difficulties etc. have increased off late. Defects in logistics services seriously affect customer's shopping experience. The aim of this research is to explore the E-commerce logistics service quality factors that influence customer satisfaction and in turn can help in improving service quality of E-commerce logistics by proper execution. Existing SERVQUAL model is suitably modified and SERVQUAL index for E-commerce logistics service is calculated for select Service Provider Company.

KEYWORDS: *E-commerce Logistics, SERVQUAL, Gap Analysis, Statistical analysis, Customer Satisfaction*

1. INTRODUCTION

There is a visible change in the buying behavior of customers in Indian FMCG and other sectors. Online purchase has penetrated into various customer segments and e-commerce logistics has gained unprecedented momentum. It is estimated to grow at 36% in the next five years. In 2018 the value of e-commerce retail logistics was 1.35 billion USD (KPMG India Analysis, 2018). As per World Bank survey 2018, India ranked 44th in global ranking of logistics performance index (The World Bank, Global Rankings 2018 Logistics performance index).

Logistics is the major driver creating difference in normal trading and e-trading firms. Logistics service provider acts as a bridge between retailers and customers and viewed as an important link to achieve customer satisfaction and productivity of the manufacturer.

In e-commerce, there is no direct contact between the buyer and the e-retailers but logistics provider who is essentially a third party representing the e-retailer at the time of delivery of parcel to customer acts as representative of the e- retailer. It has resulted in increased importance in the role of logistics provider. At times, delivery person's behavior becomes decisive factor for a repeat order. Therefore, it is no surprise that most e-commerce company view logistics as their core competency.

E-commerce logistics being a vital service attributing to customer satisfaction must be analyzed with utmost care. Ascertaining service quality has always been a complex issue and e-commerce logistics service quality is furthermore complicated to quantify as there are many new dimensions due to involved technology and very tight delivery schedules.

It is imperative that managers, researchers and academicians must analyze service quality of e-commerce logistics since it has a crucial role and great impact on performance of the company, customer satisfaction, customer loyalty and lower costs.

This study aims to carry out the analysis of the E-commerce logistics service quality from the perspectives of service provider as well as the end user of the service. For this standard SERVQUAL model as proposed by Parsuraman et al (1988) is used but with suitable modification to make it more relevant to the select industry. 3 more dimensions (ease in payment, pickup services and visibility) are added to 5 dimensions of SERVQUAL model that is tangibles, reliability, responsiveness, assurance and empathy (Parsuraman et al. 1988). The modified model is depicted in Figure 1.

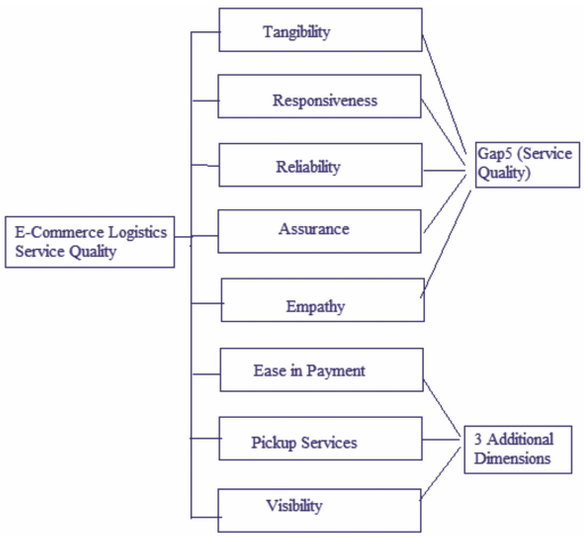

Fig.1: Modified E-commerce logistics service quality model

The objective of study is to analyze the customer's perception on the basis of various demographic variables such as age, gender, qualifications, background etc and to find logistics service quality index using paired comparison method as well as by gap analysis.

2. LITERARY BACKGROUND

Many researchers have attempted to define logistics service quality and have variety of perspectives. Yang et al., (2009) have focused on multiple factors responsible for distribution of products keeping customer requirement in mind.

Micu et al. (2013) viewed logistics service quality as a differentiation tool and success factor, which influences the satisfaction level of e-customers and their retention rates. In other definition the scope of logistics service quality is considered extending beyond the mere physical distribution and covers after sales process also (Mentzer, 2001).

The role of logistics service quality is emphasized by many researchers. Cho et al. (2005) have identified it as a major factor of creating a suitable competitive advantage and performance enhancement. Logistics outsourcing performance depends on the logistics outsourcing practices (Zailani et al. 2017).

Yang et al. (2006) have considered it as a major SERVQUAL dimension in an e-commerce environment along with operations, marketing and collaborations services.

Tontini et al. (2010) found that customers evaluate the logistics service quality according to the following aspects: reliability of delivery deadline; agility in delivery; delivery of the correct quantity and correct product; no damage to goods; flexibility of the service rendered; overcoming problems; traceability; communication; trust and knowledge of the customer contact team; product and service availability; post-delivery support; and price.

Other researchers have directly linked logistics service quality with customer satisfaction and identified it as a core competency that needs to develop to remain competitive in e-commerce market (Saura et al., 2008; Yang et al. 2016). Salini et al. (2018) highlighted service recovery, delivery service and customer service as the main factors influencing e-shoppers satisfaction. Attempts have to make to design a scale for effective measurement of logistics service quality. Gil-Saura et al., (2011) emphasized on giving utmost weight-age to customer's perception regarding ordering and delivery process.

Maruntelu et al. (2008) advocated need of customized logistics system that addressed to customer's requirements of flexibility, speed of delivery and customer centric variety of products and service offered online. Use of information and communication technology in e-commerce logistics has made the process of distribution more transparent, safe and quick. Natase et al. (2009) argued about inevitable use of Information and communication technology (ICT) in logistics. Huang et al. (2009) regarded it as a weapon for retention of customers in the long run.

One of the most commonly used survey instrument for evaluating service quality is the SERVQUAL model (A. Parasuraman, V.A. Zeithaml, L.L. Berry. 1985: R. Ladhari, R. 2009). SERVQUAL analyses the difference between the user's expectation and perception using five dimensions of service quality namely tangibles, reliability, responsiveness, assurance and empathy. Philip Kotler (1999); Bitner, M. J., and Zeithaml, V. A. (2003) defines these dimensions as:

- Tangibles: Physical facilities, equipment and appearance of personnel.
- Reliability: Ability to perform the promised service dependably and accurately.
- Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence.
- Responsiveness: Willingness to help customers and provide prompt service.
- Empathy: Caring, individualized attention the firm provides for its customers.

In terms of relative importance that the customers of the services firms attach to them (Zeithaml, 1990) proposed a new equation that represents the weighted form of the measurement of service quality using the SERVQUAL scale (Hemmasi et al., 2010).

Service Quality = (Perceptions – Expectations) * Importance

There are many researchers who have cautioned to avoid the use of this generic model without fitting it to the context and type of service that is being analyzed (Akan, 1995; Boulding et al., 1993; Cronin & Taylor, 1992; Stafford, 1999; Parasuraman et al., 1991; 2005; Zeithaml et al., 1996). Taskin and Durmaz (2010) concluded that apart from the priority of the dimensions of the service quality, in every study concerning service quality, these dimensions should be prioritized accordingly. In context of the E-commerce logistics 'ease in payment', 'pickup service' and 'visibility' (three more dimensions) along with tangibles, responsiveness, reliability, assurance and empathy are added to make the model context specific and relevant.

3. METHODOLOGY

Initial instrument was developed by generating a questionnaire after a thorough understanding of concepts of the service quality construct in e-commerce logistics industry. The original SERVQUAL model used to evaluate service quality is from Parasuraman et al. (1988) that had five dimensions, namely 'tangibles', 'reliability', 'responsiveness', 'assurance', and 'empathy'. However, to make it more relevant to e-commerce logistics service sectors, three additional factors 'ease in payment', 'pickup service' and 'visibility' are added. The questionnaire includes four attributes relating to tangibles factor, five attributes relating to reliability factor, five attributes relating to responsiveness factor, four attributes relating to assurance factor, four attributes relating to empathy factor, 2 attributes related to ease in payment, 3 attributes related to pickup service and 3 attributes related to visibility. All the closed-ended questions were designed to generate responses on a five-point Likert scale (Likert & Rensis, 1932) ranging from 1 (strongly disagree) to 5 (strongly agree) to measure the perception of service quality.

Suitable demographic variables like age, gender, income, qualifications, residential background, occupation etc are also added to make study more worthwhile.

A sample size of 300 was taken that is the ten times of the no. of

questions (Babbie, 2004). The sample respondents for the study were selected from the different demographic background.

4. DATA COLLECTION

The questionnaire was prepared with the help of extensive literature review. A pilot study was conducted amongst peer researchers at U.E.C Ujjain. Suggested modifications by peers, research supervisor, and industry experts were incorporated. Using Google form online questionnaire is prepared and was shared among approximately 600 various respondents through internet. 306 questionnaires complete in all respects were finally received. Out of them 52 questionnaires were from employees/service providers and rest 254 were from customers/ end-users. Figure 2 provides the demographic classification of the respondents in the form of pie charts.

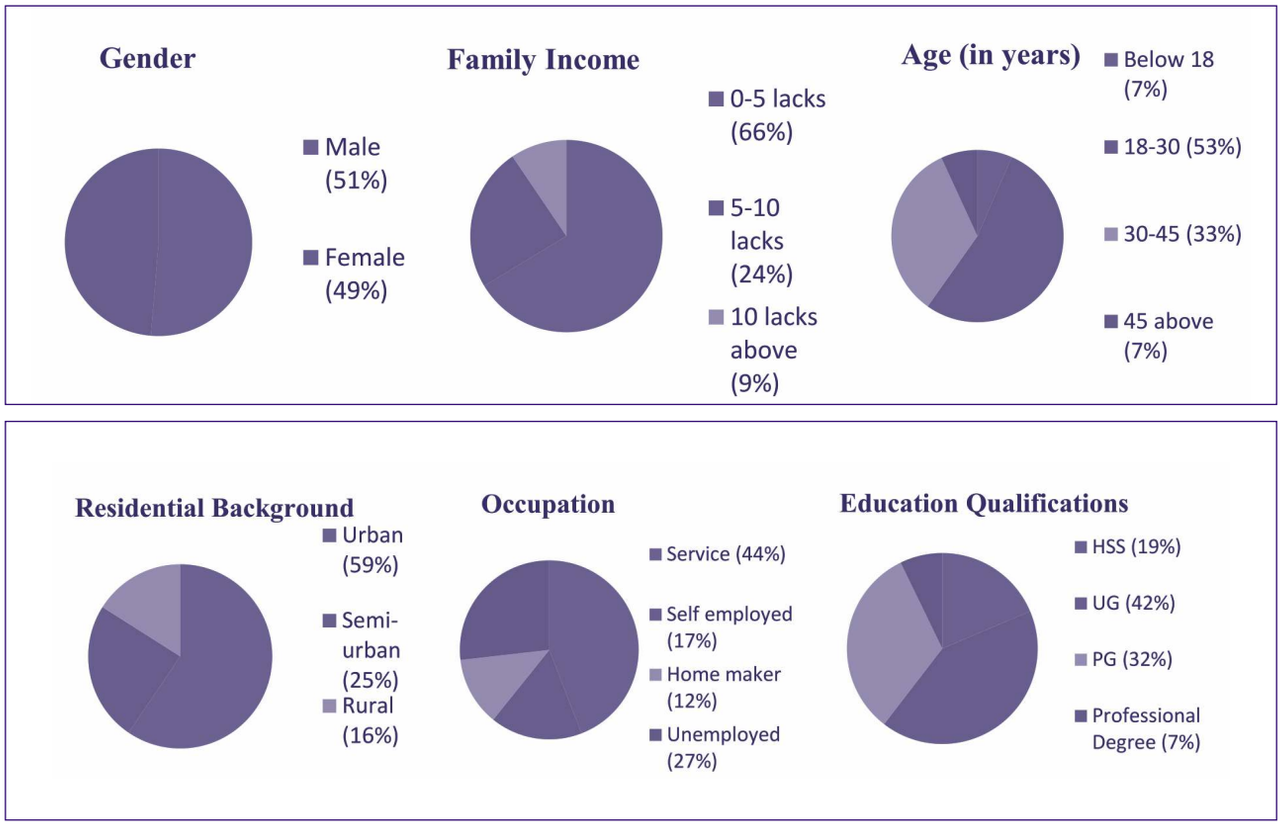

Fig. 2- Demographic details of respondents

5. CALCULATIONS AND RESULTS

The final data that is collected from the questionnaires is fed to the IBM SPSS 25 software for its analysis. The data from employees (i.e. service providers, managers of logistics firms, delivery staff etc.) and customers from different demographic background is analyzed separately in IBM SPSS 25 to know the customers' expectations and marketer's perceptions and then by finding their differences, we got the service quality of the system. Each dimension was analyzed separately to get the service quality of each dimension. Statistical results from SPSS are presented in Table 1:

Table 1 –Descriptive Statistics

Dimensions	N	Sum	Mean	Std. Deviation	Variance
Tangibles	306	1175.50	3.8415	.91156	.831
Reliability	306	1210.60	3.9562	.91101	.830
Responsiveness	306	1214.60	3.9693	.93218	.869
Assurance	306	1224.75	4.0025	.92871	.862
Empathy	306	1195.50	3.9069	.90959	.827
Ease in payment	306	1241.00	4.0556	.98855	.977
Pickup services	306	1244.00	4.0654	.94015	.884
Visibility	306	1244.67	4.0675	.91883	.844

Analysis on the basis of Demographic Details:

Table 2- Analysis on the basis of demographic variable Age

Age	Below 18 years; N=21			18-30 years; N=162			30-45 years; N=103			45 years and above; N=20		
Statistics	**Mean**	.	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**
Tangibles	3.9125	.80816	.653	3.6188	1.0227	1.046	4.1845	.66325	.440	3.8095	.61189	.374
Reliability	3.9900	0.8595	.739	3.7272	.97592	.952	4.3107	.73015	.533	3.9524	.70400	.496
Responsiveness	3.9500	0.8678	.753	3.7198	.98925	.979	4.3767	.71252	.508	3.9143	.84041	.706
Assurance	3.9500	1.0656	1.136	3.8009	.99109	.982	4.3568	.69540	.484	3.8690	.83897	.704
Empathy	3.9000	1.0240	1.049	3.6744	.95557	.913	4.2937	.67376	.454	3.8095	.85843	.737
Ease in payment	4.0750	.97704	.955	3.8210	1.0886	1.185	4.4515	.71919	.517	3.9048	.73517	.540
Pickup services	3.9833	1.0786	1.163	3.8539	1.0241	1.049	4.4239	.67349	.454	4.0159	.76359	.583
Visibility	3.9167	.94203	.887	3.8374	.98592	.972	4.4466	.69944	.489	4.1270	.71861	.516

Table 3- Analysis on the basis of demographic variable Educational Qualifications

Qualifications	Higher Secondary; N=57			Graduation; N=128			Post Graduation; N=99			Professional Qualifications; N=22		
Statistics	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**	**Mean**	.	**V**
Tangibles	3.7325	1.0164	1.033	3.8027	.88048	.775	3.9394	.87488	.765	3.9091	.98060	.962
Reliability	3.8000	.93656	.877	3.9172	.88719	.787	4.1071	.89776	.806	3.9091	1.0042	1.008
Responsiveness	3.7439	1.0147	1.030	3.8953	.88876	.790	4.2101	.89597	.803	3.9000	.94969	.902
Assurance	3.7807	1.1349	1.288	3.9375	.89674	.804	4.1995	.84438	.713	4.0682	.74475	.555
Empathy	3.6711	1.1301	1.277	3.8672	.85742	.735	4.0783	.84186	.709	3.9773	.74366	.553
Ease in payment	3.8070	1.2091	1.462	4.0195	.98493	.970	4.2374	.85816	.736	4.0909	.81118	.658
Pickup services	3.8596	1.1648	1.357	3.9870	.91206	.832	4.2626	.84014	.706	4.1667	.74001	.548
Visibility	3.6959	1.0934	1.196	4.0964	.89144	.795	4.2357	.82925	.688	4.1061	.73741	.544

Table 4- Analysis on the basis of demographic variable Gender

Gender	Male; N=157			Female; N=149		
Statistics	**Mean**	.	**V**	**Mean**	**σ**	**V**
Tangibles	3.7866	.93233	.869	3.8993	.88861	.790
Reliability	3.9172	.90215	.814	3.9973	.92151	.849
Responsiveness	3.9338	.89310	.798	4.0067	.97327	.947
Assurance	4.0096	.88383	.781	3.9950	.97670	.954
Empathy	3.8424	.86245	.744	3.9748	.95496	.912
Ease in payment	4.0191	.98039	.961	4.0940	.99893	.998
Pickup services	4.0446	.90825	.825	4.0872	.97522	.951
Visibility	4.0340	.91302	.834	4.1029	.92666	.859

Table 5- Analysis on the basis of demographic variable Income

Income	0-5 lacks; N=203			5-10 lacks; N=74			10 lacks above; N=29		
Statistics	**Mean**	.	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**
Tangibles	3.7155	.96923	.939	4.1757	.64470	.416	3.8707	.88293	.780
Reliability	3.8493	.95105	.904	4.2405	.73278	.537	3.9793	.90450	.818
Responsiveness	3.8394	.97677	.954	4.2865	.71161	.506	4.0690	.92933	.864
Assurance	3.8929	.98531	.971	4.2939	.72782	.530	4.0259	.83544	.698
Empathy	3.8067	.95466	.911	4.2027	.71275	.508	3.8534	.89771	.806
Ease in payment	3.9360	1.04873	1.100	4.3378	.76350	.583	4.1724	.92848	.862
Pickup services	3.9442	.97952	.959	4.3423	.78411	.615	4.2069	.87928	.773
Visibility	3.9327	.96493	.931	4.4099	.67921	.461	4.1379	.91077	.830

Table 6- Analysis on the basis of demographic variable Occupation

Occupation	Service; N=135			Self Employed; N=51			Home maker; N=38			Unemployed; N=82		
Statistics	**Mean**	.	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**
Tangibles	4.0407	.88584	.785	3.8431	.74324	.552	3.7434	.85520	.731	3.5579	1.0018	1.004
Reliability	4.1674	.92566	.857	3.8627	.81436	.663	3.8684	.72377	.524	3.7073	.95540	.913
Responsiveness	4.2548	.87295	.762	3.7843	.82253	.677	3.7684	.96369	.929	3.7073	.96107	.924
Assurance	4.2704	.83814	.702	3.8775	.82367	.678	3.7895	.93636	.877	3.7378	1.0221	1.045
Empathy	4.1426	.85001	.723	3.7647	.85792	.736	3.8355	.87433	.764	3.6402	.96793	.937
Ease in payment	4.2370	.95969	.921	3.9118	.88151	.777	4.1579	.72695	.528	3.7988	1.1382	1.295
Pickup services	4.2741	.90224	.814	3.9216	.87835	.772	3.9386	.92303	.852	3.8699	.99209	.984
Visibility	4.3210	.87190	.760	3.9673	.81990	.672	3.9386	.73052	.534	3.7724	1.0262	1.053

Table 7- Analysis on the basis of demographic variable Residential Background

Residential Background	Urban; N=182			Semi-urban; N=75			Rural; N=49		
Statistics	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**	**Mean**	**σ**	**V**
Tangibles	3.8805	.87464	.765	3.8533	.83534	.698	3.6786	1.13422	1.286
Reliability	4.0187	.91584	.839	3.9387	.82000	.672	3.7510	1.00791	1.016
Responsiveness	4.0209	.92037	.847	3.8720	.96738	.936	3.9265	.92619	.858
Assurance	4.0604	.90184	.813	3.8967	.97094	.943	3.9490	.96282	.927
Empathy	3.9698	.88561	.784	3.7833	.95182	.906	3.8622	.92851	.862
Ease in payment	4.1154	.97504	.951	3.9533	.98699	.974	3.9898	1.04328	1.088
Pickup services	4.1227	.94162	.887	3.9244	.92118	.849	4.0680	.95979	.921
Visibility	4.1337	.94207	.887	3.9467	.86653	.751	4.0068	.90393	.817

Now for the measurement of reliability of the model, value of Cronbach's Alpha (α) is calculated. If the value of α is greater than 0.6 than it can be said that the instrument used is reliable (Nunnally, 1978) and will give proper results that are also reliable. Table 8 presents the value of Cronbach's alpha for various factors showing adequate reliability

Table 8-Reliability Analysis using Cronbach's alpha value

S.N.	Dimensions	No. of questions	Cronbach's α
1.	Tangibles	4	0.869
2.	Reliability	5	0.892
3.	Responsiveness	5	0.912
4.	Assurance	4	0.911
5.	Empathy	4	0.895
6.	Ease in payment	2	0.795
7.	Pickup services	3	0.876
8.	Visibility	3	0.859

After checking the reliability of the instrument the service quality gap i.e. gap-5 (Parsuraman et al. 1985) for each dimension of the model is evaluated. For finding the service quality the following formula is used:

Service Quality Gap = (P-E)……...Eq. 1

Where, P = Perceptions from service provider/employees (52 in number).

E = Expectations from customers (254 in number).

Using this formula the (P-E) value on each dimension is found. This evaluation is depicted in Table 9.

Table 9-Gap analysis

S.N.	Dimensions	Perceptions (P)	Expectations (E)	Gap=(P-E)
1.	Tangibles	3.8654	3.8366	0.0288
2.	Reliability	3.8154	3.9850	-0.1696
3.	Responsiveness	3.8846	3.9866	-0.102
4.	Assurance	3.8798	4.0276	-0.1478
5.	Empathy	3.7212	3.9449	-0.2237
6.	Ease in payment	3.7788	4.1122	-0.3334
7.	Pickup services	3.8077	4.1181	-0.3104
8.	Visibility	3.8397	4.1142	-0.2745

From the above values we can conclude the following: The Gap value for all the attributes except tangibles are negative which means that the provided service is better than the expected service. The Gap value of Tangibles is near about 0, which means that the perceived and expected service tangibles are almost same. Pearson Correlation Coefficients between the various dimensions of the SERVQUAL model are calculated which are shown in Table 10.

Table 10- Pearson Correlation Coefficients between the various dimensions

Dimensions	Tangibles	Reliability	Responsive--ness	Assurance	Empathy	Ease in payment	Pickup services	Visibility
Tangibles	1	.825**	.841**	.803**	.825**	.720**	.772**	.761**
Reliability		1	.876**	.832**	.846**	.736**	.790**	.824**
Responsiveness			1	.895**	.868**	.782**	.852**	.836**
Assurance				1	.886**	.760**	.850**	.834**
Empathy					1	.751**	.863**	.815**
Ease in payment						1	.782**	.759**
Pickup services							1	.823**
Visibility								1

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficients are very high showing that there is a significant positive correlation between various dimensions. The service index of the E-commerce logistics system from (P-E) values has been found using the following formula:

$$[\sum_1^n \frac{\text{No.of questions in the dimension}}{\text{Total no.of questions}} \times (\mathbf{P-E})\text{value of the dimension}]/\text{Total no. of dimensions} \ldots\ldots \text{Eq. 2}$$

Putting the obtained data in the above formula, the service index is obtained as given below:

$[(4/30\times0.0288)+(5/30\times-0.1696)+(5/30\times-0.102)+(4/30\times-0.1478)+(4/30\times-0.2237)+(2/30\times-0.3334)+(3/30\times-0.3104)+(3/30\times-0.2745)]\div8=-0.02146$

Service quality deemed low when expectations are greater than perceptions. Service quality will be better when perceptions exceed expectations.

In the ideal case, the P-E value should be zero, so the service index value should also be zero. And in this study, the value of **Service Index is -0.02146**, which is close to zero. So it can be said that the e-commerce logistics provides satisfactory services.

Service index is also calculated by using paired comparison method and the importance assigned here are from the experts opinions are shown in Table 11.

Table 11- Paired comparison of Dimensions

Dimensions	Reliability	Responsiveness	Assurance	Empathy	Ease in Payment	Pickup Services	Visibility
Tangibles(T)	RL2	RS3	A1	T1	EP1	PS1	T1
Reliability(RL)		RS1	RL1	RL3	RL2	RL1	RL3
Responsiveness(RS)			RS2	RS3	RS2	RS2	RS3
Assurance(A)				A2	A1	A1	A2
Empathy(E)					EP2	PS2	V2
Ease in payment(EP)						PS2	EP2
Pickup services(PS)							PS2

In the above matrix 1 denotes minor difference, 2 medium difference and 3 major difference between the importance of two dimensions considered for comparison. Weight is determined by the formula:

(Priority dimension sum+1) / ∑ (Priority dimension sum+1)……..Eq. 3

Then service index is determined by using equation:

$$\sum_1^n(\mathbf{weight} * \mathbf{Avg\ value\ of\ the\ dimension})$$

.....Eq. 4

Dimensions	Total Score	Total Score+1 (TS)	Weight (Wi)	Mean (Si)	WiSi
Tangibles(T)	2	3	0.0508	3.9125	0.1987
Reliability(RL)	12	13	0.2203	3.9900	0.8789
Responsiveness(RS)	16	17	0.2881	3.9500	1.1379
Assurance(A)	7	8	0.1356	3.9500	0.5356
Empathy(E)	0	1	0.0169	3.9000	0.0659
Ease in payment(EP)	5	6	0.1017	4.0750	0.4364
Pickup services(PS)	7	8	0.1356	3.9833	0.5401
Visibility	2	3	0.0508	3.9167	0.1989
		∑(TS)=59			∑(WiSi)=3.9924

Hence the **E-commerce Logistics Service Index=3.9924** as shown in Table 12. This index is close to 4 on the scale of 5 showing higher satisfaction level of end users with the E-commerce logistics service being provided to them.

6. DISCUSSION

The results show the significant difference in customer's satisfaction as per their demographic variability.

- The respondents having age 30-45 years are mature enough to assess the service and the difference is clearly seen in Table 2.
- The respondents having PG degree agreed with the all the dimensions of service quality as compared with the other three groups (Table 3).
- There is very little or negligible gender differences in customer behavior in context with the e-commerce logistics (Table 4)
- Customers having annual income 5-10 lack having better acceptance level towards the e-commerce logistics service (Table 5).
- Respondents in service occupation rated the service quality better than other 3 groups (Table 6).
- Residential background has a significant effect on customer perception that can be clearly identified in Table 7.

We calculated the e-commerce logistics service index based on:

1. The gap between perception and expectation, which shows the negative value of service index i.e, **-0.02146** (near to zero) that implies towards quite satisfactory services.
2. The paired comparison method to know the priority of dimensions, which shows the value =**3.99** that shows the service is good.

Above mentioned two methods yields similar results and this shows that the service quality of e-commerce logistics is quite satisfactory and there is little gap between perceived and expected service.

7. CONCLUSION

This research is conducted to quantify the quality of e-commerce logistics services. An empirical research methodology was followed and data is collected using a primary questionnaire. In order to capture the pertinent factors and attributes, the generic SERVQUAL model has been modified and three new dimensions are added which are extremely relevant to the e-commerce logistics services. Factors like 'Ease in payment', 'pickup services' and 'visibility' are not only relevant but covers many attributes related to user friendly technology involved. The design of the questionnaire itself adds to the novelty of the research. Analysis of the data using SPSS software brought out that there is no much gap between perceived service by the customers and the service that is rendered by the logistics companies. However, the study indicates that there is scope of further improvement as the growing awareness is resulting in the higher expectations from the customers that may lead to increase in gap between expectation and perceived service quality level in the future. It is brought out explicitly that for e-commerce companies, logistics will play a role of differentiator and competitive advantage can only be maintained if there is a continuous effort for increasing the quality standards using advanced technological interventions. The managers from the e-commerce companies can identify multiple focal points where they can emphasize for further improvement. Academicians can use this study as a basis for more extensive and all encompassing research on e-commerce logistics services.

Major limitations of this research are:

- The sample consists of the end users who use internet as Google forms was used for carrying out the survey.
- More responses from service provider could have been sought but due to limitation of the time available, it was not possible.

SERVQUAL is an important aspect of growth of service industry. As the service sector in India is growing at the fastest pace more such studies will help in a great way to provide necessary impetus to the service sector growth in the country.

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