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Customer Perceptions towards Tertiary Packaging Issues Based on Demography

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Abstract

The e-retail industry has been expanding quickly, and in the future, it will dominate the retail industry. In every region of the world, it is replacing the conventional brick and mortar retail industry. Customers find this type of business to be more comfortable due to a number of characteristics. The e-retailers also adapt very well to the shifting needs of the customer. But how will they handle this as competition among the e-retailers grows? To draw in customers, they turn to greater marketing, which pushes certain other sectors to the back burner. One of the most crucial steps in the e-retail process is the Tertiary packing. The paper examines the effect it has on consumer preference for the online shop in terms of intention to make another purchase. and loyalty. The results of this study will help the e-retailers find out how customer perceptions towards packaging issues differ with demography.

Keywords: Tertiary packaging issues, e-retail, Repurchase Intention, Customer Loyalty

Introduction:

The expansion of e-commerce has been accompanied by an unprecedented rise in demand worldwide. Despite having a very small percentage compared to the traditional retail industry, e-retail will undoubtedly become more dominant in the coming years. According to research, global e-commerce sales increased by almost 23% in 2018 over 2017 (Young, 2019). Similar circumstances exist in India, where e-retail is expanding quickly. The e-retail industry is boosted by a number of additional factors. India's e-commerce market is anticipated to grow from US$ 38.5 billion in 2017 to US$ 200 billion in 2026. The e-retail businesses compete fiercely with one another for market share and sales. The e-retail companies depend upon their Marketing strategies to be the market leader. As India is such a potential market for any e-retail company, they have always been attracted to capture the market share (Iyer, 2012). Since the number of companies is more in India they compete fiercely with each other. When Flipkart comes up with a plan of expansion and funding, it will be equally matched by Amazon. These companies have spent millions of dollar trying to expand themselves, constructing warehouses and improving their distribution channels. After Wal-Mart took over Flipkart this has been more interesting (Elementum, 2018).

The e-retail companies have different strategies when it comes to their marketing departments. The e-retailers give a lot of importance to the specific marketing tactics. They understand this is one of the most important ways to attract more customers. They advertise aggressively in all forms of media, The amount spent on advertisements increases during the festive seasons (Prasad & Rao, 2015).Some of the strategies employed by the e-retailers are classified as pricing strategies and non-pricing strategies. The e-retailers in the process of increasing the speed of delivery are compromising with the logistics efficiency, packaging efficiency and fuel efficiency. This study attempted to comprehend the function of tertiary packaging in e-retailers and how it influences how customers view e-retailers. The study will aid retailers in identifying any concerns customers may have with the current tertiary packaging procedure. The current method might not be practical in the long run, when sustainability must be prioritized (Pierce, 2017). Thus, the e-retailer is actually putting itself at risk by ignoring the various packaging-related issues like excessive packaging, overfilling, damage to the package, poor return logistics, environmental impact, etc. (Sherry, 2017). The study helps online retailers improve their packaging process by determining how customers feel about tertiary packaging used by them.

Literature review:

An extensive literature review was done to collect information on the research topic. Almost70 articles were referred to get a clear picture about the research topic The e-retailers have to understand the way the customer thinks about the package as this will have a direct impact on the sales of the products. The research shows that the packaging has a major influence on the customers purchase decisions. The colour, size, material of the package affects the purchase decisions. The customer also looks at the package for a variety of information. The research also shows that the customers are more interested in purchasing a package that is ecofriendly and has this information (Chung Lo, Tung, & Huang, 2013) .

The packaging is a very important process in the e-commerce supply chain but most of the Time it is being overlooked. But this can affect the business of the company as the customer gives a lot of importance to the packaging. The customers prefer packaging that is strong, neat and also right sized. They don't prefer oversized packaging. The customers also refer packaging that is easy to dispose after the product is received (Hogan P. B., 2001). The managers have to consider all these factors while they design the package. There will also be certain tradeoffs to be made while designing the package (McDaniel & Baker, 1977). The customer wants both the product and the package to be more environmental friendly. (Baruk & Iwanicka, 2015). When the decisions of the packaging design are taken the quality aspect also has to be given importance. The customer perception of quality can consider different aspects like strength of the package, the safety of the product, the aesthetics and also the environmental friendliness of the package. The Kano's Theory of attractive quality has been used to find which quality aspects are more important to the customer. The research shows that the quality attributes selected differs with gender. Also, the quality attributes keep changing with the customer as he keeps buying products (Lofgren & Witell, 2005).

Even though e-commerce accounts for a very small percentage of all retail sales at the moment, data suggests that this proportion will increase over time. There will also be a greater need for packaging. Additionally, this will lead to an increase in packaging-related waste. The quantity of packages and the packaging materials that go with them increase as more customers start making frequent purchases from online retailers. Customers will undoubtedly favor companies that offer more efficient packaging. Businesses are putting these future realities into place. We must think holistically when considering ways to enhance the packaging for online sales. The entire supply chain must be considered. Research

must be conducted to determine which package features are most important to customers before redesigning the tertiary package with customer requirements in mind. This necessitates a thorough examination of how customers view the packages. Additionally, the frequency of purchases and time can alter these perceptions. 2013 (Dennen).

Research Methodology:

The study uses quantitative research method which refers to the systematic empirical research via statistical, mathematical or computational techniques. Survey Method is used to collect the data. This type of research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation. The sampling method used in this study was the nonprobability sampling approach, with the sampling technique used is Judgement Sampling

Hypothesis Development:

H1: The tertiary packaging issues has a significant impact on the repurchase intention

H2: The tertiary packaging issues has a significant impact on the customer loyalty.

H3: The demographic differences have a significant impact on customer perception towards tertiary packaging issues.

Data Collection and Analysis procedure:

A well-structured questionnaire was used as the research instrument in the present study. The scale to measure the independent variables were adopted well-established scales from previous studies. This was used to measure the repurchase intention and customer loyalty. Wording was modified to fit our current study context. All items were evaluated using a five-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree).To measure repurchase intention we used scales adapted from Lee and Lee, 2015 and the customer loyalty was measured form the scale developed by Lou and Lee's scale (1999).

Data analysis and Interpretation:

Descriptive Statistics of Demographics:

Table 1

Age	Frequency	Percentages(%)
18-30	152	38%
31-40	148	37%
41-50	52	13%
>51	48	12%
Total	400	100%
Education	Frequency	Percentages(%)
Higher secondary	51	13%
Under Graduate	131	33%
Post Graduate	163	40%
PhD	55	14%

Total	400	100%
Profession	Frequency	Percentages(%)
Student	106	27%
Employee	159	39%
Self Employed	87	23%
Housewife	48	11%
Total	400	100%

Data Analysis: Validity and reliability

The acceptability of the measurement model was appraised based on the overall fit with the data, reliability and validities . A Cronbach's alpha coefficient was developed to test reliability. The value of Cronbach's alpha of each question has to be greater than .70 which shows the reliability of questions (Field, 2005).To test the measurement model, we conducted a two-stage assessment that included convergent validity and discriminant validity. Convergent validity can be assessed by examining the item factor loading, the composite reliability (CR), and the average variance extracted (AVE) for each variable. Discriminant validity can be assessed by checking if the square root of the AVE for each construct is larger than the correlations shared between that construct and all other constructs in the model (Barclay et al., 1995) . In this study the Cronbach's alpha for all constructs was above .7, the CR values are above .6 and the AVE values are more than .7 as shown in the table.

Factor analysis was used to reduce the items and identify the latent variables.

In this study, 7 independent variables were measured by 33 items related to these variables. In order to investigate the relations between measured items and research variables, exploratory factor analysis was used. The Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measured sampling adequacy and confirmed the appropriateness of exploratory factor analysis to components analysis. Generally KMO scores over .60 are accepted, over .70 are good and over .80 are admirable (Henry,Sharma, Lapenu, & Zeller, 2003).

The KMO and Bartlett's Test:

Table 2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.875	
Bartlett's Test of Sphericity	Approx. Chi-Square	6034.660
	df	528
	Sig.	.000

KMO value between 0.8 and 1 indicate that the sampling is adequate. The factor analysis is appropriate. In this study we have taken first 7 components as Eigen value for them is more than one and account for a cumulative variance of 60.418 %.The 7 factors shown in above table explain the perceptual factors to the cumulative percentage 60.418%. The first important factor in tertiary packaging issues is package

damage issues with the reliability coefficients of 0.823. The Eigen value of this factor is 10.171. The percentage of variance explained by this factor is to 30.82%

Table 3

No:	Factor	Cronbach's Alpha (α)	No of items
1	Tertiary Package Damage issues	.823	6
2	Package Disposal issues	.810	6
3	Package un-boxing issues	.793	6
4	Package Handling and Information issues	.738	4
5	Package Delivery Issues	.670	3
6	Package return issues	.649	3
7	Package material issues.	.630	3

9.7 ANOVA

Analysis of variance is a statistical technique that is used to check if the means of two or more groups are significantly different from each other. Thus, a one-way analysis of variance was done to explore the influence of difference in demographics of the respondents on the perception towards tertiary packaging issues. In the study, the relationship of demographic variables like age, gender education, profession and monthly income is considered. This section of the research tries to find the impact of the different demographic groups on the dependent variables.

9.7.1 ANOVA of Perception towards Tertiary Packaging IssuesBased on Age Level

The assumption of homogeneity of variance is tested by Levene's test for equality of variances on the Age levels of respondents. Levene's statistic on tertiary packaging issues , namely damage issues (F =2.662, p=.171), disposal issues (F= 2.041, p=.260), unboxing issues (F =1.241, p=0.240), handling and information issues (F =1.725, p=1.33), delivery issues (F=1.212, p=.321) , return issues (F= 1.805, p=.190), and material issues (F=1.862, p=.135) showed that the assumption of homogeneity of variance has not been violated because the p-values were greater than 0.05, and the equality of variances was, therefore, assumed. A one-way analysis of variance was, therefore, conducted to explore the influence of the Age levels of the respondents on their perception towards tertiary packaging issues, and the result is presented in Table 4.

Table 4. ANOVA of Packaging Issues Perception Based on Age

		Sum of Squares	df	Mean Square	F	Sig.
Damage issues	Between Groups	19.17	3	6.39	6.73	0.000
	Within Groups	375.92	396	0.95		
	Total	395.09	399			
Disposal issues	Between Groups	3.01	3	1.00	1.81	0.146
	Within Groups	220.10	396	0.56		
	Total	223.11	399			

Unboxing issues	Between Groups	16.99	3	5.66	7.87	0.000
	Within Groups	284.95	396	0.72		
	Total	301.93	399			
Handing issues	Between Groups	5.74	3	1.91	3.02	0.030
	Within Groups	251.05	396	0.63		
	Total	256.80	399			
Delivery issues	Between Groups	1.47	3	0.49	0.86	0.462
	Within Groups	225.99	396	0.57		
	Total	227.47	399			
Return issues	Between Groups	6.37	3	2.12	3.61	0.014
	Within Groups	233.05	396	0.59		
	Total	239.42	399			
Material issues.	Between Groups	4.76	3	1.59	2.30	0.077
	Within Groups	273.02	396	0.69		
	Total	277.78	399			

Findings, as contained in Table 4, showed that there was a statistically significant difference on four of the tertiary packaging issues , namely, package damage issues (p=0.00), package unboxing issues (p=0.00), package Handling issues (p= 0.030) and package return issues (p=0.014), whereas other tertiary packaging issues were not statistically significant.

Post hoc analysis: Tukey post hoc tests were conducted to actually determine where the difference in the Age level influenced the tertiary packaging issues of the e-retailers, this data is obtained in the multiple comparison table. Tukey post hoc tests were conducted to actually determine where the difference in the Age level of the respondents influenced the package damage issue factor .Results showed that mean scores for respondents of Age level :18-30 was significantly different from respondents with Age level :41-50(M =3.83, p = 0.00). The scores for respondents of Age level 31-40 was significantly different from respondents with Age level :41-50((M =3.83, p = 0.00). The scores for respondents of Age level 41-50 was significantly different from respondents with Age level :>50 (M =3.08, p = 0.05). Result showed that mean scores for respondents of Age level :41-50 was significantly different from respondents with Age level :18-30(M =3.63, p = 0.00), 30-41(M =4.18, p = 0.00) and Age level >50 (M =3.50, p = 0.00).However, there was no statistically significant difference in mean scores between the other Age levels in the package unboxing dimension.

Tukey post hoc tests showed where the difference in the Age level of the respondents influenced the package handling and information issues .The mean scores for respondents of Age level :18-30 was significantly different from respondents with Age level :41-50(M =4.02, p = 0.021). However, there was no statistically significant difference in mean scores between the other Age levels in the package handling and information issues dimension. Tukey post hoc tests were conducted to determine where the difference in the Age level influenced the package return issue factor. Result showed that mean scores for respondents of Age level :41-50 was significantly different from respondents with Age level: >50(M =3.63, p = 0.006). However, there was no statistically significant difference in mean scores between the other Age levels in the package return issue dimension.

9.7.2 ANOVA Of Perception Towards Packaging Issues Based on Education

The assumption of homogeneity of variance is tested by Levene's test for equality of variances on the Education levels of respondents. Levene's statistic on the tertiary packaging issues showed that the assumption of homogeneity of variance has not been violated because the p-values were greater than 0.05, and the equality of variances was, therefore, assumed.

A one-way analysis of variance was, therefore, conducted to explore the influence of the education levels of the respondents on their perception towards tertiary packaging issues, and the result is presented in Table 5.

Table 5. ANOVA of Tertiary Packaging Issues Perception Based on Education

		Sum of Squares	df	Mean Square	F	Sig.
Damage issues	Between Groups	36.56	3	12.19	13.46	0.000
	Within Groups	358.53	396	0.91		
	Total	395.09	399			
Disposal issues	Between Groups	1.35	3	0.45	0.81	0.491
	Within Groups	221.76	396	0.56		
	Total	223.11	399			
Unboxing issues	Between Groups	6.65	3	2.22	2.97	0.032
	Within Groups	295.28	396	0.75		
	Total	301.93	399			
Handing issues	Between Groups	8.42	3	2.81	4.47	0.004
	Within Groups	248.38	396	0.63		
	Total	256.80	399			
Delivery issues	Between Groups	3.07	3	1.02	1.81	0.146
	Within Groups	224.40	396	0.57		
	Total	227.47	399			
Return issues	Between Groups	1.61	3	0.54	0.89	0.444
	Within Groups	237.81	396	0.60		
	Total	239.42	399			
Material issues	Between Groups	2.57	3	0.86	1.23	0.298
	Within Groups	275.21	396	0.70		
	Total	277.78	399			

Findings, as contained in Table 5 shows ANOVA of tertiary packaging issues based on respondents' educational level. The analysis showed that there was a statistically significant difference on three of the tertiary packaging dimensions, namely, package damage issues (p=0.00), package unboxing issues (p=0.00), package Handling and information issues (p= 0.030) .The other tertiary packaging issues were not statistically significant.

Post hoc Analysis: Tukey post hoc tests were conducted to actually determine where the difference in the education level of the respondents influenced the tertiary packaging issues of the e-retailers and the result is presented in the multiple comparison table. Tukey post hoc tests were conducted to actually determine where the difference in the education level of the respondents influenced the package damage issues .Result showed that mean scores for respondents of education level : PG was significantly different from respondents with education level : Higher secondary (M =3.31, p = 0.009), UG (M =3.51, p = 0.000). and PhD (M =3.28, p = 0.012). However, there was no statistically significant difference in mean scores between the other education levels in the package damage issues dimensions. Tukey post hoc tests were conducted to actually determine where the difference in the education level of the respondents influenced the package unboxing issues.

Result showed that mean scores for respondents of education level: UG was significantly different from respondents with education level: PG (M =3.511, p = 0.030). However, there was no statistically significant difference in mean scores between the other education levels in the package unboxing issues dimension. Tukey post hoc tests were conducted to actually determine where the difference in the education level of the respondents influenced the package handling and information issues .Result showed that mean scores for respondents of education level :PG was significantly different from respondents with education level : UG (M =3.82, p = 0.020) and PhD (M =3.92, p = 0.016) .However, there was no statistically significant difference in mean scores between the other education levels in the package handling and information issues dimension.

9.7.3 ANOVA of Perceptions towards Tertiary Packaging Issues Based on Profession

As contained in Table 6, the assumption of homogeneity of variance is tested by Levene's test for equality of variances on the profession levels of respondents. Levene's statistic on the tertiary packaging issues showed that the assumption of homogeneity of variance has not been violated because the p-values were greater than 0.05, and the equality of variances was, therefore, assumed. A one-way analysis of variance was, therefore, conducted to explore the influence of the profession levels of the respondents on their perception towards tertiary packaging issues

Table 6. ANOVA of Packaging Issues Perception Based on Profession

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.
Damage issues	Between Groups	4.80	4	1.20	1.21	0.305
	Within Groups	390.30	395	0.99		
	Total	395.09	399			
Disposal issues	Between Groups	6.69	4	1.67	3.05	0.017
	Within Groups	216.42	395	0.55		
	Total	223.11	399			
Unboxing issues	Between Groups	3.91	4	0.98	1.30	0.271
	Within Groups	298.02	395	0.75		
	Total	301.93	399			
Handling issues	Between Groups	7.43	4	1.86	2.94	0.020
	Within Groups	249.37	395	0.63		
	Total	256.80	399			
Delivery issues	Between Groups	2.68	4	0.67	1.18	0.321

	Within Groups	224.79	395	0.57		
	Total	227.47	399			
Return issues	Between Groups	4.12	4	1.03	1.73	0.143
	Within Groups	235.30	395	0.60		
	Total	239.42	399			
Material issues	Between Groups	11.31	4	2.83	4.19	0.002
	Within Groups	266.47	395	0.68		
	Total	277.78	399			

Findings in Table 6 shows ANOVA of tertiary packaging issues based on profession level. The analysis showed that there was a statistically significant difference on three of the tertiary packaging dimensions, namely, package disposal issues (p=0.017), package Handling and information issues (p= 0.020) and package material issues (p=0.002).The other tertiary packaging issues were not statistically significant.

Post hoc analysis: Tukey post hoc tests were conducted to actually determine where the difference in the profession level of the respondents influenced the tertiary packaging issues of the e-retailers, and the data is obtained in the multiple comparison chart. Tukey post hoc tests were conducted to actually determine where the difference in the profession level of the respondents influenced the package disposal issues. Result showed that mean scores for respondents of profession level : Housewife was significantly different from respondents with profession level : self-employed (M =4.05,p = 0.027), and others (M =4.31, p = 0.030).However, there was no statistically significant difference in mean scores between the other profession levels in the package disposal issues dimension. Tukey post hoc tests were conducted to actually determine where the difference in the profession level of the respondents influenced the package handling and information issues. Result showed that mean scores for respondents of profession level: Employee was significantly different from respondents with profession level: self-employed (M =3.95, p = 0.008).Tukey post hoc tests were conducted to actually determine where the difference in the profession level of the respondents influenced the package material issues. Results showed that mean scores for respondents of profession level, Employee was significantly different from respondents with profession level : Student (M =3.041, p = 0.020) and self-employed (M =3.900, p = 0.003) .

Findings and Discussions

The seven factors extracted explain the issues faced by customers in e-retail tertiary packaging. These factors affect the customer repurchase intention and loyalty towards the e-retailer. The factors cover a number of variables like damage, disposal, weight, returns, information, handling, filling material etc. The effect of demographic variables like age, gender, education, profession and monthly income were analyzed to understand if their difference have a significant effect on the variables The significant difference is caused due to difference between some of the groups as shown by the post hoc analysis . Previous research supports this finding showing that there are significant differences between groups in demographic variable (Erika Loucanova, Jan parobek,Martina kalamarova,2016).

The study finds that differences in age have a significant impact on how people perceive secondary packaging problems. The results are in line with those of Louconova et al. (2016), who found that age differences among demographic variables have an impact on how customers perceive how simple it is

to handle and unbox packages (Loucanova, Parobek, Kalamarova, 2016). The study demonstrates how the perception of customer loyalty toward secondary packaging issues is impacted by differences in educational attainment. The respondents' opinions on package damage, package unboxing, and package handling issues vary depending on their educational backgrounds. The study conducted by Baruk et al. lends credence to this. In the case of the product, there was noticeable statistical diversity among the respondents who were chosen based on their level of education. The study done by Vyas et al. mention that professionals gave a higher response to like the product based on packaging and selected the product choose product because of packaging, shape of packaging, graphics on package, storage of the packages compared to students (Vyas, Bhuvanesh, 2015).These findings supports our study that shows how difference in profession affects customer perception towards packaging issues. The previous research in packaging shows how the attitude of the customers vary based on their income levels (Boz, Korhonen , Sand, 2020).These findings support this research ,which shows that difference in income have a significant impact on perception towards tertiary packaging issues. They show how the perception towards packaging design changes with increase in income (Tilahum ,Beshaw, 2019).

Limitations of the Study:

To check whether the findings are consistent with this research, we can replicate similar studies in other geographical areas. 400 respondents total were used to collect the study's data. The information was only gathered from one particular geographic area. The study's variables may not be the only ones causing customers problems because of secondary packaging problems. Only the effects of tertiary packaging issues on customer loyalty and repurchase intention are considered in the study.

Conclusion and Scope for further research

The primary problems that are present in the tertiary packaging process for e-retail have been thoroughly examined in the research. The study demonstrates that tertiary packaging is not a field that e-retailers can ignore. To gain a competitive edge in the e-retail market, tertiary packaging is a possibility for e-retailers. The data can be used by e-retailers to modify the current tertiary packaging procedure as needed. The modifications can assist online retailers in increasing customer intent to repurchase. The e-retailer's packaging strategy can be created using the demographic analysis. The various demographic groups have different perspectives on the secondary packaging problems. When creating their tertiary packages, e-retailers must take this into account.

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