

An in-depth analysis of tertiary packaging issues of e retailers and its impact on the e-retail customer perceptions

Alex Nero¹, Dr. Sreedhara Raman²

¹PhD Scholar, CHRIST (Deemed to be University), Bangalore, Karnataka, India

²Associate Professor, School of Business and Management, CHRIST (Deemed to be University), Housr Road, Bengaluru - 560 029, Karnataka, India.

Keywords: E-retailers, Tertiary Packaging, sustainability, repurchase Intention, Loyalty

Introduction:

The e-retail is one of the fastest growing business sectors in the world and in India. The percentage of e-retail is very less compared to offline business, but it is surely going to propel itself to tremendous growth. The e-retailers 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.

One of the major areas of concern is related to the tertiary packaging of e-retailers. The tertiary package is also called the transportation package which is the brown box in which the e-retail product arrives. The customer will order products of different size, but the tertiary packaging cannot be customized as it takes more times. This cause usage of oversized boxes. The e-retailers also want to make sure the products arrive safely, so they fill in oversized boxes with more filling material (Bird, 2018). Since the touch pints are higher in e –retail, they make sure the oversized packages protect the smaller products. But this leads to inefficacy in logistics and the packaging waste is becoming a bigger issue (Baker, 2018). This over packaging does not have any positive effect on the logistics, customer and the environment. The customers

get irritated when they get the large packages and large amount of packaging material which they have to dispose (Thorsén, 2018).

Finally, these issues bring us to the concept of sustainability. The e-retailers are giving importance only to the safety of the product. The tertiary packaging efficiency is not given any importance. This is because they have to make the customer happy, But the while system of packaging has to change and the e-retailers have to set up a sustainable tertiary packaging process (Allington, 2018).The current policy is the give more importance to product protection and quicker delivery which puts the tertiary packaging efficiency into negligence. The e-retailers do this as they think the customers are satisfied.

Research done by Vyas (2013) shows that the customers give a lot of importance to certain aspects of the tertiary packaging. This includes package size, package shape, package colour, information on the package, the packaging material and the graphics. The customer is attracted to the package and prefers to buy from the e-retailer when these factors are perfect. At the same time the customer become dissatisfied when there are issues related to these elements of the tertiary packaging process (Vyas, 2013). In this research we try to find the impact of tertiary packaging issues on the repurchase intention and the loyalty of the customers. This research tries to find if the customer demographic differences has an impact on the customer perceptions towards the tertiary packaging issues.

Literature Review:

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. Customers prefer packaging that is strong, neat and also right sized. They don't prefer oversized packaging. Customers also refer to packaging that is easy to dispose, after the product is received (Hogan P. B., 2001). The managers must consider all these factors while they design the package. There will also be certain trade-offs to be made while designing the package (McDaniel & Baker, 1977). The customer wants both the product and the package to be more environmentally friendly. (Baruk & Iwanicka, 2015).

Mohan (2014) mentions that in the e-retail process the package should be fit enough to deliver the product safely to the customers. This is one of the main concerns of the customer since they want to receive the products without any damage. Customers also look into the fitness of the product. They do not prefer to receive products in packages that are not fit for the product. The package fit leaves a better impression on the customer rather than an oversized unfit package. Most of the damage in e-retail takes place in the last mile delivery process. The package as to be designed in such a way that all issues occur during the last mile delivery are reduced (Mohan, 2014). Even though the damaged package may not lead to a damaged product, the customer will not be satisfied. In this research we try to find out if the extent of impact tertiary package damage has on the customers decision making. Chind & Sahachaisaeree (2012) explains that the visual, verbal and design elements of the packaging has a major concern area for the customer. Any issue related to the visual, verbal and design of the package can affect the customer perceptions towards the e-retailers. Most of the studies claim that visual elements of packaging have the most significant impact on the customers. Any issues reacted to the information and graphics on the package can negatively affect the customer's perceptions. This will also depend on the type of product the customers have ordered. This research also shows that the poor-quality visual elements will also affect the customers

perception about the quality of the products. (Chind & Sahachaisaeree, 2012).

Ahmed et al. (2014) States that several researched have been done to understand the various packaging issue and its impact on the customers. These issues are basically related to the characteristics and usage of the packaging. There are certain ways in which the package will affect the customers purchase decisions. The issues in the packaging will negatively impact the customers preference for the retailers. But Ahmed et al. (2014) mentions that e-retailers must identify which are the critical elements that have an impact on the customers decision making process. All the packaging issues may not have a significant impact on the customer. The package innovation includes factors like easy opening, easy storage and easy carrying facility. For certain products the information on the package becomes more significant. The customers will be not be satisfied if they do not find relevant information about the product on the package (Ahmed, Parmar, & Amin, 2014). We try to understand if their research finding can be applied for the tertiary packaging also. By this we can verify which are the most critical tertiary packaging issues that will affect the customer preference for the e-retailers.

The studies done by the experts say that age is the most important factor that affects the perception of customers to the e-retail tertiary packaging. As the age of a person increases there are several impacts on the thinking process and health. Thus, handling and carrying become one of the main concerns of the customers with age. To make sure they do not dissatisfy the aged customers, the e-retailer have to give importance to ergonomics. The packaging has to be user friendly and aged customers should not feel uncomfortable with the packaging (McDougall, 2011).

This research tries to find out the factors that are of most importance to customers when they consider the tertiary packaging issues. If these issues are eliminated one by one the customers will prefer to continuously buy from the same e-retailer. Some research has also used the Kano model to understand which packaging attributes have to be redesigned first (Lofgren & Witell, 2005). The e-retailer can also make use of this prior to redesigning the tertiary packages. By doing this the e-retailer can ensure the

repurchase intention and the loyalty towards the e-retailer will also improve.

Research hypotheses:

H1: There is a positive significant impact of tertiary packaging issues on repurchase intention.

H2: There is a positive significant impact of tertiary packaging issues on customer loyalty

H3: There is a positive significant impact of customer demographic difference on the customer perception towards the tertiary packaging issues.

Research Methodology

A quantitative research method was used in this study. Primary data was collected from the city of Bangalore, India. All the respondents were

living in the metro area of the city. A structured questionnaire was used to obtain the data from the respondents. This was done both in physical and online mod to collect the data. A pilot test was conducted initially, and the questionnaire was refined based on the pilot study. For the pilot study the data was collected form 150 customers. A five-point Likert scale was used to measure the items, with 1 indicating strongly disagree to 5 indicating strongly agree. The judgmental sampling method was used in the study. The sample size was selected based on the Krejcie Morgan formula and the total number of respondents were 400 for the final data collection. The data analysis was done to find out the latent variables and this was achieved by a factor analysis . EFA was done to find out the latent variables and extract them. Further Regression analysis was done to find out the extent to which the independent variables could predict the dependent variables. ANOVA was done to find out.

Data Analysis

Table 1: Descriptive Statistics of Demographics:

Gender	Frequency	Percentages (%)
Male	230	58%
Female	170	42%
Total	400	100%
Age	Frequency	Percentages (%)
18-30	152	38%
31-40	148	37%
41-50	52	13%
>51	48	12%
Total	400	100%

Empirical analysis and results:

Exploratory factor analysis: EFA was done on 33 items. Varimax method was used for the analysis. The KMO value for the 33 items was .915 which indicated a reliable and proper factor

analysis as mentioned by research done by Field (Field, 2005). The items loaded on to 7 factors as shown below with Eigen value above 1 and explained 60.481% of the variance after rotation.

Table 2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.900
	Approx. Chi-Square	6110.220
Bartlett's Test of Sphericity	df	534
	Sig.	.000

The seven factors were extracted from the exploratory factor analysis done. The seven factors extracted were package damage issues, package return issues, package delivery issues, package disposal issues, package material issues, package information issues and package un-boxing issues. The items loaded on to 7 factors with Eigen value above 1 and explained 60.481% of the total variance after rotation.

Regression Analysis:

Table 3 shows the regression analysis to find the effect of the tertiary package issues on the customer repurchase intention. The regression results can verify the hypothesis H₁.

Table 3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.624 ^d	.414	.404	.527

a. Predictors: (Constant), Damage issues, Disposal issues, Un-boxing issues, Handling issues, Delivery Issues, return issues, Material issues

Table 4ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	84.712	7	11.878	39.232	.000 ^a
	Residual	124.234	392	.301		
	Total	218.946	399			

a. Predictors: (Constant), Damage issues, Disposal issues, Un-boxing issues, Handling issues, Delivery Issues, return issues, Material issues

b. Dependent Variable: Repurchase Intention

The R Square value obtained is .414 which indicates that 41.4% of the repurchase intention is predicted by the various independent variables which is part of the study. This is the minimum requirement to be a good fit model. The ANOVA table shows that the research model reached statistical significance since Sig.= .000. From the results of the regression we can

observe that the hypothesis H1 is proved. There is a positive significant impact of tertiary packaging issues on repurchase intention.

Table 5 shows the regression analysis to find the effect of the tertiary package issues on the customer loyalty. The regression results can verify the hypothesis H₂.

Table 5**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.730 ^a	.492	.482	.567724

a. Predictors: (Constant), Damage issues, Disposal issues, Un-boxing issues, Handling issues, Delivery Issues, return issues, Material issues

Table 6**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	135.122	7	19.305	56.733	.000 ^a
	Residual	124.315	392	.313		
	Total	259.437	399			

a. Predictors: (Constant), Damage issues, Disposal issues, Un-boxing issues, Handling issues, Delivery Issues, return issues, Material issues

b. Dependent Variable: Customer Loyalty

The regression analysis shows the R Square value of .492 which indicates that 49.2% of the customer repurchase intention can be predicted by the independent variables. Along with this data the adjusted R square value is .485 which shows that the model is a good fit .From the ANOVA table we understand that the model reached statistical significance since Sig.= .000. From the results of the regression we can observe that the hypothesis H2 is proved. There is a positive significant impact of tertiary packaging issues on customer loyalty.

Testing of statistical significance: ANOVA

Analysis of variance (ANOVA) is a statistical technique that is used to check if the means of two or more groups are significantly different from each other. Thus an one-way analysis of variance was done to explore the influence of difference in demographics variable: age of the respondents, on the perception towards tertiary packaging issues.

ANOVA of perception towards tertiary packaging issues based on respondents age level:

Table 7

	Age Level (Mean)				Test of Homogeneity of Variances			
	18-30	31-40	41-50	51-60	Levene Statistic	df1	df2	Sig.
Package damage issues	3.051	3.147	3.740	3.083	2.662	3	396	.171
Package Disposal issues	3.930	3.932	3.930	3.931	2.041	3	396	.260
Package unboxing issues	3.561	3.561	3.561	3.561	1.241	3	396	.240
Package handling and information issues	3.656	3.723	4.029	3.645	1.725	3	396	.133
Package Delivery issues	3.781	3.726	3.759	3.583	1.212	3	396	.321
Package Return issues	3.875	3.875	3.875	3.875	1.805	3	396	.190
Package material issues	4.039	3.789	3.912	3.938	1.862	3	396	.135

As contained in Table 41, the assumption of homogeneity of variance is tested by Levene's test for equality of variances on the Age levels of respondents. As contained in Table IV, Levene's statistic on tertiary packaging issues ,namely package damage issues (F =2.662, p=.171), package disposal issues (F= 2.041, p=.260), package unboxing issues (F =1.241, p=0.240), package handling and information issues (F =1.725, p=1.33), package delivery issues (F=1.212, p=.321) , package return issues (F= 1.805, p=.190), and package 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 42.

Table 8**ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.	
Package issues	Damage	Between Groups	19.171	3	6.390	6.732	.000
		Within Groups	375.922	396	.949		
		Total	395.092	399			
Package issues	Disposal	Between Groups	3.010	3	1.003	1.805	.146
		Within Groups	220.098	396	.556		
		Total	223.108	399			
Package issues	unboxing	Between Groups	16.987	3	5.662	7.869	.000
		Within Groups	284.946	396	.720		
		Total	301.932	399			
Package Handling and Information issues		Between Groups	5.743	3	1.914	3.020	.030
		Within Groups	251.054	396	.634		
		Total	256.798	399			
Package issues	Delivery	Between Groups	1.471	3	.490	.859	.462
		Within Groups	225.994	396	.571		
		Total	227.465	399			
Package return issues		Between Groups	6.368	3	2.123	3.607	.014
		Within Groups	233.052	396	.589		
		Total	239.420	399			
Package issues.	material	Between Groups	4.758	3	1.586	2.301	.077
		Within Groups	273.019	396	.689		
		Total	277.778	399			

Findings, as contained in Table 42, 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 ($p=0.014$) due to difference in customer age. Whereas other tertiary packaging issues were not statistically significant, they were not impacted by the difference in customer age.

From the results of the regression we can observe that the hypothesis H3 is proved. There is a positive significant impact of demographic difference on the customer perception towards tertiary packaging issues.

Discussion and Findings:

The research gives information regarding issues are all related to the tertiary packaging as this is the scope of our research. From the factor analysis all the major tertiary packaging issues was found out. From the regression analysis the research explains how the tertiary packaging issues impact the repurchase intention and the loyalty of the customers. The two dependant variables measured in this research were Repurchase Intention and Customer Loyalty. From Regression model1 we understand which of the tertiary packaging issues have a significant effect on Repurchase Intention. From regression model2 we understand that tertiary package damage issues, package unboxing issues, package delivery issues, and package return issues have a significant effect on the customer loyalty. These issues must be removed from the tertiary packages. The e-retailers have to consider all the significant variables when they design their tertiary packages in the future.

The research by Chung Lo, Tung and Huang (2013) signifies the role of packaging on repurchase intention. They mention that factors like package damage, packaging material etc. have a significant influence on repurchase intention. In his study, Kotler mentions that packaging factors like size, form, shape, material, colour and brand name affect the customer perceptions. These research outputs support the findings of this study. Package unboxing is an area that is mostly overlooked but it is of great significance in customer retention. The study done by Kajetan (2021) supports this finding. The customers put up videos of unboxing in social media and it has a major role in customer retention (Kajetan, 2021). These findings support this research.

The research by Gomez, David and Molina mentions the packaging factors like package damage, information, weight, colour etc. have a major effect on the customer loyalty during purchase and post purchase (Gomez, David, Molina, 2015). These findings support this research and shows how important the packaging aspects is for customers loyalty. This study is extensively supported by the research done in the packaging process, but this research extends to the tertiary packaging process in e-retail. In his research Tyndall (2017) mentions

that e-retailers are trying to pass on the packaging issues to the customer. The customer is aware of this and it negatively influences the loyalty towards the company. To prevent this issue and the increase loyalty the e-retailers have to address all the packaging related issues. This research finds out the issues related to tertiary packaging that has to be addressed by the e-retailers. According to Dhurup, Mafini and Dumasi (2014) the companies have to continuously enhance their product packaging as it has a significant influence on the customer loyalty. The study supports our findings and cements the fact that packaging plays a major role in increasing the loyalty towards the company.

The study finds that differences in Age causes significant influence on the perception towards tertiary packaging issues. The ANOVA shows that the difference in customer age has a significant impact on the customer perception towards the e-retail tertiary packaging issues. The results are consistent with the findings of Louconova et al. (2016) that shows how the difference in demographic variables like age affects the perception of customers towards ease of handling and unboxing the packages (Loucanova, Parobek, Kalamarova, 2016). The research done by a market research firm states that with increase in age the customers demand packaging that is easy for unboxing and easy for handling and with clear instructions (Caliendo, 2014). These findings support the result of this study. Thus, we can say that the perception of the customers towards issues like package unboxing, package handling and package damage with vary with Age.

Conclusion and Scope for Further Research:

This research finds out the different issue that affect the e-retail tertiary packaging. The findings of this research are very significant since packaging is one of the e-retail areas that is often not given importance. But from this research it is clear that the tertiary packaging has a significant impact on the repurchase intention and the loyalty of the customers. This means that the e-retailers have to give more importance to the tertiary packaging issues. They will also have to try and solve the different packaging issues that impact the customer. The retailers can use the findings of this research to improve

their tertiary packaging design. The main issues of the packages have to be reduced to attract the customers. By ensuring the packaging issues are reduced the e-retailers can make sure that the customers will not switch fast. The changes can help the e-retailers improve the Customer Loyalty. There is further scope for research as this study focuses on the Tertiary packaging process. The future research can analyse each of the individual packaging issue and their impact on the customer repurchase intention and loyalty. The future studies can include various other variables like transportation and sustainability. The research can be expanded by analysing the other demographic variables like gender, income, and education also. The scope of the research can be increased by conducting similar study outside the National Boundaries. The e-retailer can implement the results of this study in their system. The benefit can be analysed and studied.

Bibliography

- [1] Ahmed, R., Parmar, V., & Amin, M. (2014). IMPACT OF PRODUCT PACKAGING ON CONSUMER'S BUYING BEHAVIOR. *European Journal of Scientific Research*.
- [2] McDougall, A. (2011). *Age matters: demographic influences on product and packaging*. Retrieved from <https://www.cosmeticsdesign.com:https://www.cosmeticsdesign.com/Article/2011/08/31/Age-matters-demographic-influences-on-product-and-packaging>
- [3] Vyas, N. (2013). The effect of profession over buying behavior towards cars. *PARIPEX - INDIAN JOURNAL OF RESEARCH*.
- [4] Allington, A. (2018). 'Overboxing' Becomes Enemy No. 1 in Amazon-Led Web-Shopping Boom. Retrieved from <https://news.bloomberglaw.com/environment-and-energy/overboxing-becomes-enemy-no-1-in-amazon-led-web-shopping-boom>.
- [5] Armstrong, G., Hollywood, L., Wells, L., & Farley, H. (2013). Thinking outside the carton: Attitudes towards milk packaging. *British Food Journal-Emerald publishing group*.
- [6] Baker, P. (2018). *E-commerce packaging waste becoming a bigger issue*. Retrieved from <https://searcherp.techtargget.com/feature/E-commerce-packaging-waste-becoming-a-bigger-issue>.
- [7] Baruk, A. I., & Iwanicka, A. (2015). The effect of age, gender and level of education on the consumers expectation towards diary product packaging. *British Food Journal, Emerald Group Publishing Limited*.
- [8] Bird, J. (2018). What A Waste: Online Retail's Big Packaging Problem. *Forbes*.
- [9] Chind, K., & Sahachaisaeree, N. (2012). Purchasers' Perception on Packaging Formal Design: A Comparative Case Study on Luxury Goods Merchandizing. *Procedia-Social and Behavioral Sciences*.
- [10] Chung Lo, S., Tung, J., & Huang, K.-P. (2013). Customer Perception and preference on product packaging. *International journal of organizational innovation*.
- [11] Giancristofaro, R. A., & Bordignon, P. (2015). Consumer preferences in food packaging: CUB models and conjoint analysis. *British Food Journal, Emerald group publishing*.
- [12] Hogan, P. B. (2001). Packaging: Fast way to improve customer satisfaction and reduce cost of fulfillment. *Material Handling Management journal*.
- [13] McDaniel, C., & Baker, R. (1977). Convenience food packaging and the perception of quality. *Journal of Marketing*.
- [14] Mohan, A. M. (2014, December 4). Retrieved from Packaging World.
- [15] Pierce, L. (2017). <https://www.packagingdigest.com/sustainability/sustainability-ecommerce-packaging-question>. Retrieved from <https://www.packagingdigest.com>.
- [16] Sherry, G. (2017). *3BL Blogs: Unwrapping the Packaging Issue in E-commerce*.
- [17] Thorsén, A. (2018). *PACKAGING DESIGN FORE-COMMERCE*.