Analysis of problems in tertiary packaging of e retail companies and its impact on repurchase intention and loyalty

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Introduction

The growth of e-retail business has been following an unprecedented growth across the Globe. Even though the percentage of e-retail is very less compared to the traditional retail business, in the coming years it will surely emerge as force. Research shows that the global e –commerce sales were almost 23% higher in 2018 than 2017 (Young, 2019). The scenario in India is also similar and the e-retail is growing at a very fast rate. -retail companies in India like Snapdeal, Myntra, Shopclues, Jabong, e bay and many other smaller players (Shettar, 2016).

This study tried to understand the role of tertiary packaging in e-retailer and how it affects the customer perception towards the e-retailer. The study will help the retailers understand whether the customers have any issues when it comes to the current tertiary packaging process. The process used now may not be feasible for long term, where sustainability has to be given importance (Pierce, 2017).Thus by neglecting the various packaging related issues like over packaging, overfilling, damage to package, poor return logistics, environmental impact etc the e-retailer is actually putting itself in risk (Sherry, 2017).The study finds out the customer perception towards e –retail tertiary packaging.

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

Theoretical basis of the idea:

The theoretical basis comes from the research done on the customer perception towards the primary product packaging. The design of the primary product package takes into consideration a lot of inputs from the way the customer thinks about the package. This has immense effect on the product purchase decision of the customer. There are various factors like product shape, form, color, material used etc. that affect the customers purchase decision. This research tries to find how the customers think about the e-retailer tertiary packages. The research will help find the main aspects of the packaging that the customers are interested in and how the packaging affects the purchase decisions of the customer. The Kano model can be used to identify the functionalities of the package that is of importance to the customer. Based on the data obtained the designers can use a QFD to develop the most efficient tertiary package. The perception the customer has towards the e-commerce packaging will form the customer attitude towards the E-commerce company. This will then define the behavior of the customer finally leading to purchase intentions.

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. Most of the literature was on the perception of the customers towards the product packaging and how it affected the success of the product in the market. The companies 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 majority of the articles cover the areas of customer perception towards packaging and the environmental aspects of the packaging materials. There is also research done on packaging related to Kano's attractive theory, value chain and the logistics process. In most of the articles the research does include all these variables as they are connected in the study of packaging supply chain.

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 should give importance to these factors and not keep sending products in oversized boxes with lot of packaging materials as the customers may not be happy with this. The customer gives most importance to the safety of the product inside the package, but he also gives importance to the package. This depends on the type of material purchased also. When purchasing food related products the customers give more importance to packaging and its safety functions. 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 customers are also more and more aware today when it comes to purchase decision. They do look for such information on the packages. The customer wants both the product and the package to be more environmental friendly. (Baruk & Iwanicka, 2015). The managers need to know the knowledge levels of the customers and design packages that are more environmental friendly. As we know that the e-commerce companies like Amazon and Flipkart are trying to venture into the food segment also, there has to be proper research on the packaging of food materials and the customer perceptions towards it. This is an area of concern as the packaging here has to maintain the quality of the food materials which is not easy s food gets spoiled faster than other goods. The customers prefer food packaging that is strong, protective, easy to open, easy to reuse and also prefer packages that are biodegradable. This is a real challenge when it comes to packaging design. The managers can make use of the conjoint analysis and the CUB model in this situation (Giancristofaro & Bordignon, 2015). The customers are not the same and so is their preferences. The perception of the customers is different towards packaging. A lot of factor like demographics, income level etc. can affect this. The managers can use this data to actually segment the market. We can say that the differences in customer perception towards package can be used as a tool to segment the market (Armstrong, Hollywood, Wells, & Farley, 2013).

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 form 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   package damage issues on repurchase intention.
H2:There is a positive significant impact of   package disposal issues on repurchase intention.
H3:There is a positive significant impact of   package unboxing issues on repurchase intention.
H4:There is a positive significant impact of   package handling issues on repurchase intention.
H5:There is a positive significant impact of   package delivery issues on repurchase intention.
H6:There is a positive significant impact of   package return issues on repurchase intention.
H7:There is a positive significant impact of   package material issues on repurchase intention.
H8:There is a positive significant impact of   package damage issues on customer loyalty.
H9: There is a positive significant impact of   package disposal issues on customer loyalty.
H10:There is a positive significant impact of   package unboxing issues on customer loyalty.
H11:There is a positive significant impact of   package handling issues on customer loyalty.
H12:There is a positive significant impact of   package delivery issues on customer loyalty.
H13: There is a positive significant impact of   package return issues on customer loyalty.

H14:There is a positive significant impact of package material issues on customer loyalty.

Research Methodology

A quantitative research methodology was used in this study. Primary data was collected from the city of Bangalore, India. The respondents were all e-retail customers living in Bangalore city. The data was collected using a structured questionnaire. The questionnaire was pilot tested by sending to 100 customers before distributing it. A structured questionnaire was used for data collection. The scale designed to measure the items used a 5-point Likert scale with 1 indicating strongly disagree to 5 indicating strongly agree. The sampling method used was judgmental sampling. 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. The term package used in the research paper refers to tertiary package only.

Data Analysis

Table 1: Descriptive Statistics of Demographics:

Gender	Frequency	Percentages(%)
Male	228	58%
Female	172	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%
Education	Frequency	Percentages(%)
Higher secondary	51	13%
Under Graduate	131	33%
Post Graduate	163	40%
PhD	55	14%
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.		.910
Bartlett's Test of Sphericity	Approx. Chi-Square	6022.660
	df	528
	Sig.	.000

Cronbach's Reliability Test:

The Cronbach's alpha coefficient for each construct was calculated as shown in the table below. The seven factors extracted from the factors analysis are also mentioned in the table. The seven factors extracted were

Table 3

No:	Constructs	Cronbach's Alpha (α)	No of items
1	Package Damage issues	.852	6
2	Package Disposal issues	.810	6
3	Package un-boxing issues	.791	6
4	Package Handling issues	.734	4
5	Package Delivery Issues	.658	3
6	Package return issues	.624	3
7	Package material issues.	.609	3

The items loaded on to 7 factors as shown with Eigen value above 1 and explained 60.481% of the total variance after rotation.

Regression Analysis:

Table 4 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 H_1,H_2,H_3,H_4,H_5,H_6 and H_7.

Table 4   Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.639[d]	.408	.402	.549

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

Table 5   ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82.824	7	11.968	39.452	.000[a]
	Residual	118.952	392	.301		
	Total	200.776	399			

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

b. Dependent Variable: Repurchase Intention

Table 6 **Coefficients^a**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.123	.200		25.546	.000
Package Damage issues	.000	.036	-.001	-.022	.975
Package Disposal issues	-.129	.044	-.137	-2.770	.006
Package un-boxing issues	-.068	.043	-.084	-1.617	.022
Package Handling and Information issues	-.033	.045	-.037	-.723	.470
Package Delivery Issues	-.258	.042	-.281	-6.039	.000
Package return issues	-.258	.041	-.286	-6.057	.000
Package material issues.	-.019	.034	-.021	-.633	.527

a. Dependent Variable: Repurchase Intention

The regression analysis shows the R Square value of .413 which indicates that 40.8% of the customer repurchase intention is able to be predicted by the independent variables. This is the minimum requirement to be a good fit model. From the ANOVA table we understand that the model reached statistical significance since Sig.= .000. From the coefficients table we observe that Package return issues   is the variable that makes strongest unique contribution in explaining the dependent variable. The delivery issues , disposal issues and package unboxing issues   also have a significant impact on the dependent variable. The other variables don't have any significant impact on the dependent variable   . The unstandardized   beta coefficients can be used to form the regression equation.

Table 7 Summary of Hypothesis:

Hypothesis	Beta Coefficient	Significance value (p< 0.05)	Results
H$_1$:There is a positive significant impact of tertiary package damage issues on repurchase intention.	-.001	.983	Rejected

H₂:There is a positive significant impact of package disposal issues on repurchase intention.		-.137	.006	Accepted
H₃:There is a positive significant impact of package unboxing issues on repurchase intention.		-.086	.022	Accepted
H₄:There is a positive significant impact of package handling and information issues on repurchase intention.		-.037	.470	Rejected
H₅:There is a positive significant impact of package delivery issues on repurchase intention.		-.281	.000	Accepted
H₆:There is a positive significant impact of package return issues on repurchase intention.		-.288	.000	Accepted
H₇:There is a positive significant impact of package material issues on repurchase intention.		-.027	.527	Rejected

Table 8 shows the regression analysis to find the effect of the tertiary package issues on the customer loyalty . The regression results can verify the hypothesis H₈,H₉,H₁₀,H₁₁,H₁₂,H₁₃ and H₁₄.

Table 8 **Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718ᵃ	.485	.472	.569929

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

Table9 **ANOVAᵇ**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	135.122	7	19.305	59.433	.000ᵃ
	Residual	127.319	392	.325		
	Total	262.441	399			

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

b. Dependent Variable: Customer Loyalty

Table10   **Coefficients**[a]

Model		B	Std. Error	Beta	t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
1	(Constant)	5.314	.207		25.741	.000
Package issues	Damage	-.361	.040	-.445	-9.050	.000
Package issues	Disposal	-.058	.049	-.060	-1.327	.185
Package issues	un-boxing	-.189	.045	-.206	-4.255	.000
Package issues	Handling	.072	.047	.075	1.619	.106
Package Issues	Delivery	-.081	.045	-.080	-1.890	.039
Package issues	return	-.207	.045	-.198	-4.568	.000
Package issues.	material	.028	.037	.033	.865	.388

a. Dependent Variable: Customer Loyalty

The regression analysis shows the R Square value of .515 which indicates that 48.5% 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 coefficient table we observe that package damage issues is the variable that makes strongest unique contribution in explaining the dependent variable. Package unboxing issues, delivery issues and return issues also have a significant impact on the dependent variable. The other variables don't have any significant impact on the dependent variable. The unstandardized beta coefficients can be used to form the regression equation.

Table 11   Summary of Hypothesis

Hypothesis	Beta Coefficient	Significance value (p< 0.05)	Results
H[8]:There is a positive significant impact of tertiary package damage issues on customer loyalty.	-.437	.000	Accepted

H$_9$: There is a positive significant impact of package disposal issues on customer loyalty.	-.058	.185	Rejected
H$_{10}$:There is a positive significant impact of package unboxing issues on customer loyalty.	-.204	.000	Accepted
H$_{11}$:There is a positive significant impact of package handling and information issues on customer loyalty.	.072	.106	Rejected
H$_{12}$:There is a positive significant impact of package delivery issues on customer loyalty.	-.078	.039	Accepted
H$_{13}$: There is a positive significant impact of package return issues on customer loyalty.	-.193	.000	Accepted
H$_{14}$:There is a positive significant impact of package material issues on customer loyalty.	.033	.388	Rejected

Discussion and Findings:

The research provides significant information regarding the issues faced by the online customers when they make purchases from the e-retailers. These issues are all related to the tertiary packaging as this is the scope of our research. As a result of the factor analysis we were able to identify the 7 factors which gives us clarity about the variables considered for the research. The regression analysis gave more clarity about the relationship between these independent variables and the dependant variables. The two dependant variables measured in this research were Repurchase Intention and Customer Loyalty. From Regression model 1 we understand which of the factors have a significant effect on Repurchase Intention. Package return issues   has the most significant impact on the repurchase intention. The delivery issues , disposal issues and package unboxing issues   also have a significant impact on the dependent variable. The e-retailers have to give more importance to tertiary package disposal issues, package delivery issues, package return issues and package unboxing issues. These four factors have a significant effect on the Repurchase intention. This is highlighted by Table 7 which show the hypothesis that has been accepted.H$_2$, ,H$_3$,H$_5$,H$_6$ are accepted which shows that disposal, delivery, return and package unboxing have a significant impact on the customer repurchase intention. The factors like disposal, returns, damage etc   directly affect the customer perceptions about the brand and leads to making purchase decisions (Olga Ampuero,Natalia Vila, 2006). The research by   Deasy (2000) mentions packaging   disposal   as an important factor that attracts customers along with storage, package opening, package closing etc. These factors further affects the   customer repurchase intention.

From regression model 2 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. This is stated by the hypothesis statements   H$_8$,H$_{10}$,H$_{12}$ and H$_{13}$ respectively. The results of both these models have to be considered by the e-retailers when they decide their tertiary packaging strategy and tertiary package designs. 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 are for customers. By correcting any issues in these areas they can significantly improve the customers repurchase intention and increase the customer loyalty. The e-retailers have to consider all the significant variables when they design their tertiary packages in the future.

Conclusion and Scope for Further Research:

The research has analysed in detail the main issues that are prevalent in the e-retail tertiary packaging process. The e-retailers can use the data to make required changes in the current tertiary packaging process. The changes can help the e-retailers improve the Customer Repurchase Intention. 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 studies can include various other variables like transportation and sustainability. The scope of the research can be increased by conducting similar study outside the National Boundaries. The Results of the study can be implemented at the e-retailer premises and understand the improvement.

Bibliography

1. Armstrong, G., Hollywood, L., Wells, L., & Farley, H. (2013). Thinking outside the carton:Attitudes towards milk packaging. *British Food Journal-Emerald publishing group*.
2. 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*.
3. Chung Lo, S., Tung, J., & Huang, K.-P. (2013). Customer Perception and preference on product packaging. *International journal of organizational innovation*.
4. Giancristofaro, R. A., & Bordignon, P. (2015). Consumer preferences in food packaging: CUB models and conjoint analysis. *British Food Journal,Emerald group publishing*.
5. Hogan, P. B. (2001). Packaging: Fast way to improve customer satisfaction and reduce cost of fulfillment. *Material Handling Management journal*.
6. McDaniel, C., & Baker, R. (1977). Conveniance food packaging and the perception of quality. *Journal of Marketing*.
7. Pierce, L. (2017). *https://www.packagingdigest.com/sustainability/sustainability-ecommerce-packaging-question*. Retrieved from https://www.packagingdigest.com.
8. Sherry, G. (2017). *3BL Blogs: Unwrapping the Packaging Issue in E-commerce.*