

The Role of Customer Psychology in Solving E-Commerce Problems

¹Dr. Satish R. Billewar, ²Dr. Amol P. Pande, ³Likhesh N. Kolhe

ABSTRACT--Online reviews and ratings have become an integral part of the purchase process which is beneficial not only for the online companies to understand the products but it also impacts customer psychology in buying process. In other words, reviews have real value for customers and people now depend on them. Nevertheless, bad reviews means a lot for improvements in the products and services are needed. Sometimes customer expects the repair facility like a service engineer nearby to his home. The biggest problem is there is no common platform to provide all services of the products. The online companies need to understand the impact of customer's psychology on the business. The paper suggests the modifications in current E-Commerce system with multiple facilities like unbiased product comparisons before purchase, after sales repair and real time **conversations** with the customer to sort out other service related issues of any brand.

KEYWORDS-- Classifier, E-Commerce, Online Ratings, Online Reviews, Negative Reviews, Psychology.

I. INTRODUCTION

What if an Indian customer has a laptop to get repaired through online support, what if an Indian customer needs comparisons of two brands of laptop with unbiased reviews and ratings on one platform, and what if an Indian customer would be able to find a service engineer nearest to my home? These are some of the common problems, which are yet to cover on a single online platform. E-Commerce companies need to understand the psychology of Indian customers. There can be an argument that there are different online solutions for different problems. The E-Commerce companies are not into these businesses. Then the time has come to ask the question that why E-Commerce companies are struggling for the survival in India even after two decades. The success of every business depends on the services provided to the customers (Parasuraman, 1988).

The internet usage statistics shows that internet penetration in India is just 40.9% (internetworldstats, 2019) which is lower than other Asian countries like China, Vietnam, Philippines, Indonesia, Bangladesh, Bhutan, Thailand and Nepal (internetworldstats, Internet Usage in Asia, 2019). E-Commerce penetration in India is just 10%. While if we compare these values with other countries, we will get that, the gap between these penetrations is quite less. Social network sites are quite new to E-Commerce sites. The social network sites have huge popularity in last decade. E-Commerce sites could not get that popularity (Lee, 2018).

Unfortunately, Indian market has not only become cemetery for local E-Commerce companies (economictimes, 2018), but Alibaba & eBay also could not yet established their business in India. An E-

¹ Vivekanand Institute of Management Studies & Research, Mumbai, India

² Head, Computer Engineering, Datta Meghe College of Engineering, Mumbai, India

³ Prof. Terna Engineering College, Mumbai, India

Commerce website should not only be attractive but also should be easy to use to satisfy all needs of customers at the same time (Sohaib, 2015). There is a need of new business model for E-Commerce in India where E-Commerce models successful in developed countries need to combine with offline traditional way of doing business in India (Chuang, 2004).

II. OBJECTIVES

1. To study the correlation of Ratings system on customer demographic and perception about online retailers in E-commerce industry.
2. To understand the impact of Review practices and customer satisfaction in E-commerce Industry.
3. To identify the scope of Customer Care platform and its impact on customer brand loyalty
4. To understand the scope in providing Repair Services process by online retailers and suggesting innovative suggestion to solve the major challenges.

III. MOTIVATION

Indian customers always prefer to save money, rather than directly purchasing new product. They still believe in purchasing products the traditional way rather than online. The developed countries call India as a third world country, but at the same time, they do not understand that the people from the third world will not have capacity to purchase a new product immediately.

The expected Future model for Indian E-Commerce platform is

1. Online Reviews and Online Ratings (Existing system)
2. Gap 1: Product features comparison
3. Gap 2: Customer Care platform to all brands (Not Available)
4. Gap 3: Repair Services (Not Available)
5. The Indian customers always find the platform common for all problems. There is a need of single platform to satisfy all needs of the customers before purchase & after sale of products, even to non-customers of a particular brand. The E-Commerce companies are facing the same issues compare to traditional market structure and are struggling for the survival in Indian market (Chong, 2015) (Minkinen, 2015) (Haaker, 2017).

1.1 Online Reviews and Online Ratings:

The recent studies show that almost 70% of customers go through the customer reviews and ratings to take final call of purchase and almost 60% of customers prefer to purchase the same product from the website having good reviews and ratings. Most of the customers read not more than five reviews and take the decision whether they should trust or not. Almost 80% customers make their mind not to purchase the product just because of the negative reviews. There are cases where some sellers have good service records than others. However, the customers always read the overall reviews and ratings about the products and make their positive or negative assumptions about the quality of the products. It also then adversely affects on E-Commerce Company. Some of the E-Commerce companies are swiped out of the market just because of the negligence of the bad reviews.

The frustrations of the customers convert to bad experiences, which lead to bad reviews and ratings of the customers. The business with too many bad reviews and ratings cannot survive in the market (Cui, 2012). In other words, the reviews and the ratings give the information about the expectations of the customers, become one of the most important data set to understand the customers, and expected modifications in system (Besterfield, 2019).

1.2 Gap 1: Product features comparison:

Every customer is different. Traditional market has its own advantages to the company also (Kaushik, 2018). There are hundreds of companies in India doing their business with traditional way and still very successful. These companies could reach huge customers but prefer to do business traditionally due to limitations in E-Commerce model (Gunasekaran, 2007) (Natarajan, 2018). The most important reason behind it is the habit to compare the features. Nevertheless, they compare different brands to finalize the new product with cost effectiveness. There are certain online companies show the comparison of the features of the products. But it is observed that online reviews and ratings of the customers are not taken into consideration. So their comparisons are completely biased. E-Commerce companies need “to modify” the current E-Commerce model in Indian context. The current E-Commerce format cannot satisfy all needs of Indian customer’s traditional way to purchase the product.

1.3 Gap 2: Customer Care platform to all brands:

High rate of online purchase is a reflection of rich community. India is not having high rate of E-Commerce purchase. However, high sale of smart phones and intense use of facebook and WhatsApp shows that they are technology savvy (Ruotsalainen, 2018). Now there is a need of collaborative businesses among the E-Commerce companies. Indian market is completely different from US or European market. Indian customers still believe in traditional way to purchase the products (Groß, 2018) (Natarajan, 2018).

1.4 Gap 3: Repair Services:

E-Commerce statistics proves a need of modifications with respect to service required to check the possibility to get repair product first, and if not, then they will purchase the new one. This facility is not there on E-Commerce platform. Sometimes the customer expects the repair facility like a service engineer nearby to his home. Purchasing a new product is always the last option for Indian customers. They first find the possibility to get the product repaired from nearby shops. If repairing is not worth then only they will think of purchasing new product.

IV. PROPOSED SYSTEM ARCHITECTURE

Amazon provides its cloud services and provides its data also[20]. Few researchers uses data of Amazon.com authentic as it is utilized by various researchers including Neeraj et al. [21] to validate their research. Amazon.com is an E-Commerce company allows crawling the reviews for study and research (Cui, 2012). About 10,000 reviews were crawled from www.amazon.com. The k-nearest neighbor algorithm (KNN) is used for

classification (Dey, 2016). The Naive Bayes classifier helps to calculate the class conditional probability followed by the classification probability or posterior probability to be used by the trained classifier to predict the class of any document. There are other algorithms available. The Modified Max Entropy Classifier is also one of the simplest algorithms, which uses the weighting methods of the keywords used by the customer (Deshmukh, 2018). Gini Index and Chi square test are the most widely used methods in it.

The proposed system will use both Naïve Bayes Algorithm and Modified Max Entropy Classifier simultaneously and the proposed process consists of the following steps (Jain, 2016)

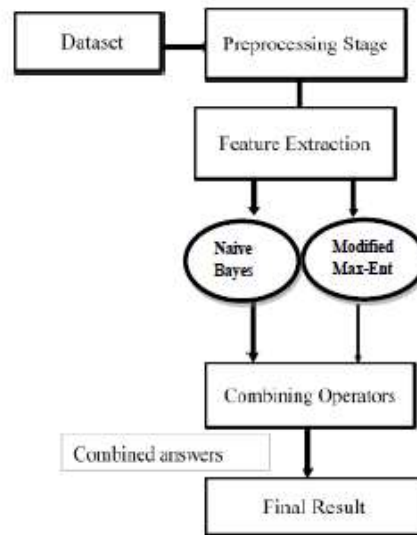


Figure 1: Combined Classifier

Now the next step is to combine both the algorithms and to find the results on the basis of three different criteria, viz. Average, Harmonic Mean and Max.

$$Average(d) = avg(NB(d).ME(d))$$

$$Max(d) = \max(NB(d).ME(d))$$

$$Harmonic(d) = \frac{(2.0 * NB(d) * ME(d))}{(NB(d) + ME(d))}$$

These operators minimize the errors and improve the performance” (Jain, 2016). Then it creates the final value of the calculations and gives final results.

V. RUN TIME ANALYSIS

There are some limitations in ME Classifier. The improved ME classifier helps to work on difficulties in training time. The training time and the testing times are measured to the added features. The figure 2 & 3 shows the variations from 20 to 500 with the help of value K for the classifiers – MEG, MED and MEC. It shows that the value of K is increasing linearly.

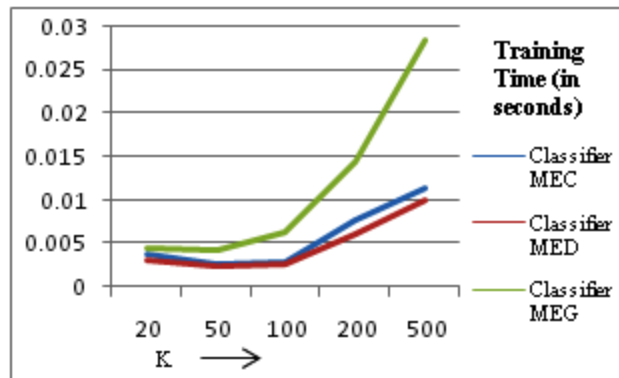


Figure 2: Training Time

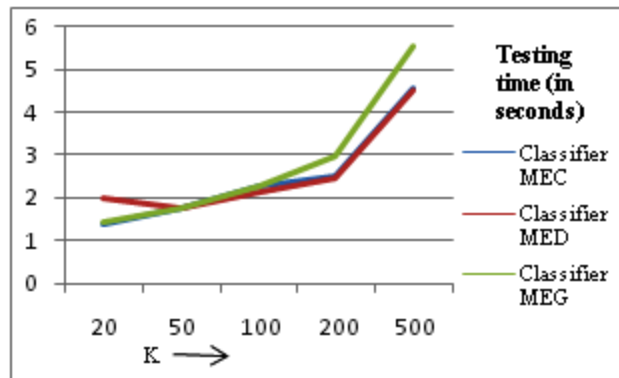


Figure 3: Testing Time

Thus, it is concluded that the runtime growth is not based on weighting feature and changes made in ME classifier is not creating the trouble to complexity.

VI. REVIEW CLUSTERING (SENTIMENT ANALYSIS)

Our suggested algorithm works on user reviews. Here we are mentioning for analysis purpose some of the customer reviews.

For sentiment analysis, 252 reviews related to a battery product are considered here. We classify these reviews into 2 classes first class is customer review is positive and it labeled under class Yes. Second class is the customer review was negative and labeled it as No.

As pie chart fig. 4 is showing overall analysis of sentiments of user based on their reviews is that this battery product is having 70% negative reviews and 20% positive reviews.



Figure 4: Sentiment Analysis of users based on their reviews (Battery)

The new users will come to know about overall user reviews from this study and based on this analysis he/she will be able to make decisions to purchase this product or not.

We will apply the proposed algorithm to another RAM product which displays user experience as 100% no. Which is summarized in fig. 5 Potential users will be able to understand the sentiments of the consumers of this item and to assist them in making the right decision as to whether or not to purchase the product.

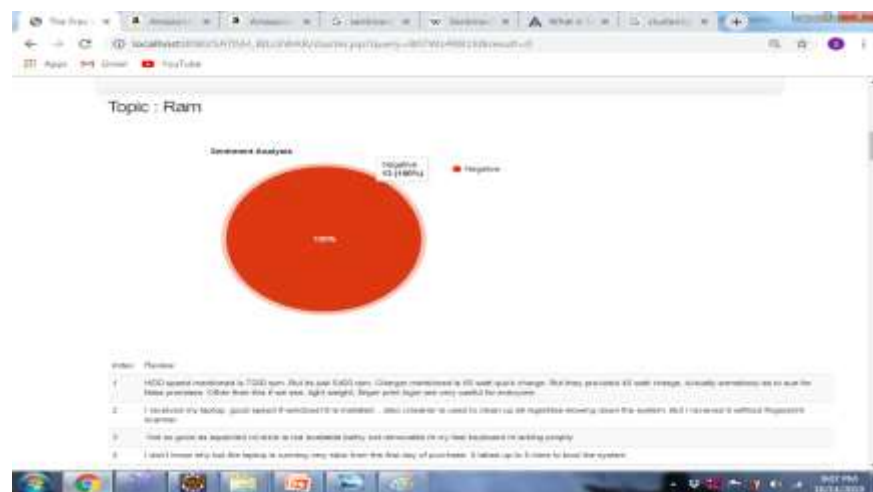


Figure 5: User Experience in making right decision

VII. CONCLUSION

The psychology of the customer plays an important role. Online and Offline systems are not the competitors (Zhang, 2014). Indian customers are psychologically connected with the traditional offline way to confirm all quality norms personally during the purchase process. No system is perfect in the world. We should accept it then only we will try to modify it (Trist, 1980). Change is an inevitable process of an environment. There is always a chance of improvements (Pirages, 1994). The standard model is not a guarantee of ideal system to get success in every market in the world (Negrotti, 1984). The present study makes a moderate attempt to explore

and evaluate strategic components like the quality expectations of the customers, the problems during transactions and the risk involved. The entire process can be used to compare the product features to provide after sale service to any user. There should not be a need of technical knowledge of products to a user to fulfill his technical requirements.

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