TEXT MINING OF THE COMMENTS OF CUSTOMERS OF SAMSUNG MOBILE PHONE BRAND WITH THE APPROACH OF DISCOUNTED E- PURCHASES

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1. INTRODUCTION

Data mining science, with the powerful tools can identify and classify the effective features of a text from thousands of writings (Kim et al., 2017, p 939). So by using it, the important negative and positive capabilities and features of comments can be identified. It can identify, classify and analyze customers and measure the level of satisfaction and the manner of customer satisfaction using its applied techniques such as text mining (Sezgen et al., 2019, p 68). For this purpose, it is necessary to compare two similar products with each other under a specific brand with almost identical features that have a lot of opinions from customers in a discounted and non-discounted mode, so that the effectiveness of the discount on satisfaction can be better and clearly measured. On the other hand, measuring satisfaction in online stores is more difficult and complicated due to the lack of understanding of consumer behavior in person and face-to-face, and the components of its measurement will be wider, as well as the one-way discount and pricing process from the seller's side, fixed and inflexible. This factor causes uncertainty in the understanding and measurement of buyer satisfaction (Faryabi et al., 2012, p 197; Hawaldar et al., 2019, p 49).

In addition, the effectiveness of discounts among customers is not clear (Tan and Chen, 2021, p 112) and pricing managers cannot create accurate insight into how to discount in a one-way communication path (Hinterhuber and Quancard, 2019, p 47). In this case, the most important option for immediate understanding of users' satisfaction with the effectiveness of discounting is based on their comments (Ostadi and Abdullahi, 1400, p 107). The present study sheds light on how consumers' reactions to price discounts vary during a shopping trip. In addition, the results of the present study provide solutions and insights to managers about important discounting decisions, such as when to offer discounts at different scales in online stores or on what products with what range, price discounts at different scales in online stores can be applied.

2. MATERIALS AND METHODS

This research is postmodern in terms of paradigm (Ghorbani and Torabi, 2022, p 150), applied in terms of purpose, laboratory-simulation in terms of nature, and qualitative-quantitative (mixed) in terms of implementation. The collecting information tool of the theoretical foundations and background of the research was documentary and library studies and for analyzing customer satisfaction from their comments was text mining techniques.

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3. RESULTS AND DISCUSSION

In this research, the pre-processing of the data has been done first; In such a way that texts are broken into phrases, words, symbols or other symbolic elements called tokens, then, after cleaning; indexing and homogenization of words, stop words are removed and finally integration and weighting of words or TF-IDF algorithm has been done.

Table 1. Assignment of subjects to factors and the effect of each in the whole model

Factor	Symbol	Negative words used with high probability	Positive words used with high probability	Rank	Impact factor
Discount time	DT[3]	Soon, it's over, discount deadline, discount not taken, price now, extension	amazing, end of season, clearance, high, on sale, discounted, on sale, on sale, high value	5	0.1
Discount amount	DA[4]	Market price, the price is high, too much, at this price, the discount is small, considering the price, the price is high, cheaper, expensive, the price difference is very high, not bad, quite ordinary, in other places, higher, in the market, within its limits, The discount is small	Market price, discount percentage, suitable price, outside price, value, the discount is good, compared to the price, in this range, in terms of price, good, price range, price range, cheap price, more suitable	2	0.25
Discount campaign	DC[5]	Fike, it doesn't matter, it has no effect	Yalda, Black Friday, Eid Eve, the end of the season	3	0.15
WOM discounts	DWOM[6]	Don't buy it, no one will buy it, don't buy it, it's a waste of money	Introduction, my friend, my mother, my father, my wife, you will not regret, I recommend, buy, I suggest,	3	0.15
Perception of discount	PD[7]	It's not worth it, you shouldn't expect more, it costs more, it's the same price, it will be found, it's a loss, I'm sorry, it's a waste of money	Great discount, the price is great, the discount is great, good discount, great discount, affordable, worth it, good purchase value, cost-effective, good price, satisfied, economical, best option, satisfactory, economical	1	0.3
All kinds of discounts	TD[8]	It didn't work, it's a lie, it didn't apply	Discount code, first purchase, code, gift code	6	0.05

[3] Discount time
[4] Discount amount
[5] Discount campaign
[6] Discount WOM
[7] Perception of discount
[8] Types of discounts

Based on the above table, the influence coefficients of each of the important parameters of the customer satisfaction model are extracted from the discount and presented in the form of a model or function below:

S (DT, DA, DC, DWOM, PD, TD) =0.1DT+0.25DA+0.15DC+0.15DWOM+0.15PD+0.05TD

S: Customer satisfaction with the discount

4. CONCLUSION

The purpose of this research was to analyze the opinions of customers and provide a model of customer satisfaction from discounted electronic purchases by measuring and identifying its constituent factors. For this purpose, first, all the data obtained from customer comments in the Digikala online store were refined and pre-processed, and then, using text mining optimization methods and algorithms, 20 frequent words were identified, and in the next step, convergence techniques was used. It was determined that the number of six topic categories is efficient for this data set, and finally, using the text mining algorithm, the most frequent word was assigned to each and the final model was presented based on the discovered factors. The process of this research specifically determined that six key and important factors of discount time, discount amount, discount campaign, discount word-of-mouth communication, perception of discount and finally types of discount are decisive and influential in customers' perceived satisfaction with discounted electronic purchases.

Keywords: Customer Satisfaction, Electronic Purchases, Discount Purchases, Discounts, Text Mining, Customer Comments