

PalArch's Journal of Archaeology of Egypt / Egyptology

SOCIAL MEDIA SENTIMENT ANALYSIS FOR MONITORING ONLINE PRESENCE OF COSMETIC BRANDS

Shreya Rawat¹, Sujata Joshi²

Symbiosis Institute of Digital and Telecom Management,
Symbiosis International (Deemed University), Pune, India.

Email: sjoshi@sidtm.edu.in

Shreya Rawat, Sujata Joshi: Social Media Sentiment Analysis for Monitoring Online Presence of Cosmetic Brands -- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(6). ISSN 1567-214x

Keywords: Sentiment Analysis, Social media, Customer Engagement, Cosmetic Brands.

ABSTRACT

Technological evolution has recognized the potential of online social media channels in building strong brand reputation. Companies are leveraging analytical methods like Sentiment analysis to monitor the brand reputation. With an increase in digitalization, E-commerce has become the need of the hour and has compelled many industries to go digital. Cosmetic Industry being one, rightly leveraging the use of digital technologies to tailor its products based on consumer's demands.

The objective of the paper is to study the consumer's reviews and feedback on the cosmetic brand over different social media platforms and further analyzing the impact of positive, negative, or neutral sentiments over brand reputation using sentiment analysis.

This study is based on an Indian cosmetic brand, Nykaa. Three diverse social media platforms are utilized for data collection and gain insight on customer reviews by conducting sentimental analysis on the user-generated reviews thereby, further concluding the impact over brand reputation.

1. Introduction

Social networking websites have upgraded the delivery of information to customers, shifting from a traditional one-to-many to one-to-one communication, thus becoming more customer-centric [1]. Such real-time engagement in the digital world works the same as face to face communication, thereby enhancing the speed of marketing operations [2]. We spend most of our time attached to our devices surfing through the internet generating a tremendous amount of data that can be utilized to understand a customer's perspective towards a brand, product, or service. Reviews and ratings by customers are playing an important role for the companies to know where their product stands and finally to predict the purchasing decision of the customers. Monitoring Social media activities is a process to stay connected to our customers and with the metrics generated, we can measure the customer sentiment towards services offered [3]. Sentiment Analysis helps to interpret and classify emotions and opinions into positive, negative, and neutral sentiments within text data, using Natural Language Processing. Analysis of feedback and comments through social media can help businesses to maintain Customer Relationship and enhance Customer Experience [4]. It can also be useful while introducing a new product or service in the market, by doing competitor analysis and analyse where they stand by making an informed decision.

Internet has now become a mainstream platform for conducting business. People are avoiding visiting any physical store as everything is easily accessible virtually and at very good deals [5]. Cosmetic being a nascent industry of this e-commerce business is gaining a lot of consumer interest and is tending to grow at a faster pace. These businesses are making proper use of social media by keeping their customers updated and providing timely replies to the frequent questions asked. Consumers are actively participating in discussions and sharing knowledge with other consumers about the products or services. This active behaviour is changing the marketing approach of companies as consumers are invading the marketing sphere of many companies [6].

Objective of research:

Hence the objective of this paper is to study the consumer's reviews and feedback on cosmetic brands over different social media platforms and further analysing the impact of positive, negative, or neutral sentiments over brand reputation using sentiment analysis. Thus, helping the brand to understand the product popularity and take appropriate action to improve product services. This study is based on an online cosmetic brand Nykaa. Nykaa, an Indian brand launched in 2012 is very proactive in managing its social media handles. In this research paper we will look into an alternate approach where Nykaa can work to gain more customers and know their weak points. This analysis will be done using Sentiment Analysis of social media reviews and feedbacks of consumers over posts. The two best social media applications used to collect data are Facebook and Twitter.

2. Literature Review

2.1) Social Media:

Today it is more important to maintain customer relationships at an individual level to engage them for a longer period. Social media plays a vital role here by decreasing the gap of communication between a company and a customer and, by doing so, facilitates increased revenue, cost reduction, and efficiencies. Social media has become the lens through which observing human behaviour is easier and better [7]. According to [8], the management of different social media changes the way we gather information and utilize it, for communication or collaboration. Thus, researchers employ social media to attain a deeper insight into human behaviour. The article by [9] claims that customer experience expectations are moving in upward trajectory motion. It stated that in 2019, 84% of customers responded that experience a company provides is as essential as the product or the service it offers. By actively updating and responding on social media channels companies are trying to maintain a real-time relationship but eventually, it is the customers who are driving the conversation and creating a highly influential virtual network amongst themselves. Such a conversation can trump a company's marketing, sales, and service efforts with its modern and active reach [10].

2.2 Sentiment Analysis:

Sentiment analysis is a technology that can help in quantifying the sentiment of a text by using natural language processing, computational linguistics, text analytics, and classifying the polarity of the opinion into positive, negative, and neutral sentiments. These opinions can be about any product, individual, event, topic, or any kind of service, thus collecting text data over these entities can help in understanding the sentiments of people. The text data are majorly the reviews that are helpful for the management to take business decisions. The paper by [11] explains the value of consumer reviews which is a part of the purchase decision and acts as a nudge to make the customer buy any product. It can be about what product to buy, which vacation to book, which movie to watch and many more, people tend to turn towards the internet to read what their fellow consumers want to comment on that purchase. Sentiment Analysis is not only limited to product or service but can also be applied to the stock market, news article, political debates, new regulations, or any current event which affects the life of people. The main source to collect these text data are social networking or microblogging sites because people share and discuss very freely on these sites. [12]

2.3 Previous Studies:

A study [2] how social media can be utilized to engage more customers before the festive season. The paper explains how e-tailers namely, Flipkart, Snapdeal, Amazon India, e –Bay India, and Jabong develop their customer engagement strategies, and the main focus was on the big billion-day sale. Sample frame of 100 was selected separately from platforms like Facebook, Quora, YouTube,

and Twitter and social media analytics tools like Text Clouiding and sentiment analysis is used for the research. The outcome was that social CRM adopted by the mentioned companies can be improved and the e-tailers need to pull up their sock and improve delivery system, customer engagement, and logistic systems with utilizing technology properly. The paper also tells that customers have different sentiments on different social media platforms and accordingly the marketing strategies should be adopted. By understanding the sentiment of people using social media analytics, companies can rethink their business strategies and personalize marketing messages for the target audience. Sentiment analysis is beyond the interaction of the public and the brand, it is the perception a customer has about the brand [13]. So, to make the social media strategy more effective and productive we should clearly define the objective and evaluate the opportunities thus making the right use of the web for communication [14]. The firms have to be very clear about the content that should be posted and have to be regularly active with their social presence. It can be promotions, advertisements, news, or any other information. The consumers act as the major dissemination today, more they engage with the posts more are the chances of our product or service being bought. By increasing the views and comments and thereby making the product visible to a larger population [15]. [16] investigate twitter sentiment analysis of real-time feedbacks by customers on Indian Telecom companies. In total 153,651 distinct tweets for 5 months were extracted for five popular telecom companies in India. The need for research was to develop a prediction model for telecom subscriber addition using the sentiment score obtained. The results were validated by correlation analysis later, and the predicted and actual growth rate showed a high correlation thereby validating the experiment. The paper also shows that Reliance Jio had the highest revenue generation amongst the Indian operators and gained the highest number of new subscribers which was a result of customer churn of subscribers, shifting to new operators from pre-existing ones, who failed to monitor the customer sentiments timely. The paper concludes that a positive sentiment must be maintained for companies to maintain their lead and reduce customer churn. Twitter is one of the most popular micro-blogging sites, with millions of active users sharing data every minute. The paper by [17] says twitter gives the most interactive user experience and a person can tweet about 140 characters, it is easy to connect with like-minded people using twitter and thereby, sharing information. Even government officials update their twitter account from time to time to keep their voters updated and gain more voters. E-commerce is making the right use of twitter by maintaining the brand image, flash important sales, talk to customers, and learn what other businesses are doing. These companies study user sentiment and reply to them according to their needs [18]. The study by [19] was done after implementation of Goods and Service Tax (GST) in India, wherein by using twitter, opinions were collected, and its sentiments were analysed using supervised machine learning. According to the authors GST has always been a debatable topic with a lot of confusion among the citizens. The result of the experiment gave a 73.28% accuracy of the binary classifier

created. The paper says that by doing manual analysis author found that people still have a state of confusion amongst them about GST, so in future authors will perform multiclass classification to get an improved result.

Web contains an ocean of data that is unstructured and has to be cleansed first to derive useful information, thus helping in taking proper decisions. In sentiment analysis the texts which are not useful are also omitted, it can be a reply by the business personnel or repeated comments [20]. In the paper by [21] sentiment analysis is done for stock market prediction which is the most challenging field in Finance. The author collected data for a period from Really Simple Syndication (RSS) and stock market for the analysis of sentiment for just one company. The correlation between the Sensex points and sentiment in RSS news feeds were established for the prediction of stock market rates. The paper concludes that Sensex points for the stock market were calculated using the moving average stock level indicator, and thus by combining sentiment polarity news and the Sensex points provide an efficient result to stock market forecasters regarding the right time to buy or sell the stocks. Sentiment analysis is not only limited to text of audio but can be used on the emoticons also. [22] in her study says that users use electronic emotions thereby marking up their text. This marked-up text can be used to indicate the sentiment of users using a classifier where a smile indicates positive sentiment whereas a frown may indicate a negative sentiment. A corpus of text marked with emotions was collected and by many supervised approaches, the authors concluded that by just using unigram a result can be obtained but it can be improved using a combination of both unigram and bigram. So, we can say that if sentiment analysis of customer reviews and comments is done properly the business can have the benefit of giving more personalized services by understanding consumer behaviour and gaining their trust. Customer satisfaction is the key to maintain loyalty and by giving personalized services one can encourage the belief of customers towards the firm [23]. Thereby, mining customer sentiments from social media can support in marketing and consumer service activities. Companies can understand the viewpoint of the customer and enhance their services, and also know what the competitor is doing [24]. E-commerce is one industry which is promoting itself using social media and other online means and adding a good percentage of customer each year as consumers expect more from e-commerce in fulfilling their needs and preferences. Fortunately, the unique point of implementing e-commerce is the ability to tailor personalization which is can be developed by easily changing some content according to the customer preference [25]. The paper by [26] focusses on the price prediction of house property and electronic products using the filtered news collected on sale from a website and sentiment analysis is done to get a result. According to the author, the model proposed by them was better than traditional and they can forecast better pricing using sentiment factors affecting them and also considering the time series.

3. Research Method

The nature of the research was descriptive, and two social media platforms were used for the analysis. The data was collected from Facebook and Twitter

through web scrapping tools. The rationale behind selecting only two platforms was Twitter being the best social media for engagement having the most diverse audience and Facebook being the oldest platform with nearly 2.5 billion monthly active users currently, who everyday comment, like, and share without any restriction. The period of sample collection was from May 2020 to June 2020, during the post lockdown period of COVID-19, for analyzing how customers are considering online cosmetic shopping as an option. Nykaa is an e-commerce that not only sells cosmetics but also essential items, so it had operational rights since phase 1 of lockdown. The analysis was made to see how people are responding to the services provided by Nykaa. Using the Facebook page of Nykaa comments were collected on each post, similar comments, links, mentions, and Nykaa comments were omitted from the data collected. Twitter data was collected using three popular hashtags for Nykaa i.e., #nykaa, #mynykaa, and #nykaabeauty. The tweets or comments by Nykaa employee accounts were eliminated for genuine analysis. The data was filtered after the collection and modified for better analysis, for example, all the repeated data and some irrelevant comments were removed during the data cleaning process.

A total of 520 comments were collected from the Facebook page of Nykaa and 162 tweets were being extracted from Twitter using the mentioned hashtags. The sampling technique involved in the research was Judgemental Sampling where the researcher included comments and tweets according to judgment. Two web scrapping tools were used to collect data from social media platforms. One was Facepager that was used to scrape data from Facebook and a google extension tool Data Miner was used to collect data from Twitter, in each case a CSV file was generated which was later transformed for better analysis. The motive behind using Nykaa for the research was that it being the leading cosmetic e-commerce of India and has been continuously functioning during the lockdown period. The analysis was done using R programming language, where the CSV file was fed to the code and 10 sentiments in the form of bar graphs were generated. The results were visualized using the GGplot2 package and a color-coding was given to each emotion

The analysis is presented in the form of a bar graph and a table of high-frequency words from the data file. Graph 1 shows the result of sentiment analysis done on Facebook data and 10 sentiments are plotted on the graph, similarly, Graph 2 shows sentiment analysis of Twitter data. Diagram 1 presents a table of words from both the social media platform with high frequency, for analyzing what are the important words that customers are talking about currently.

4. Results And Discussions

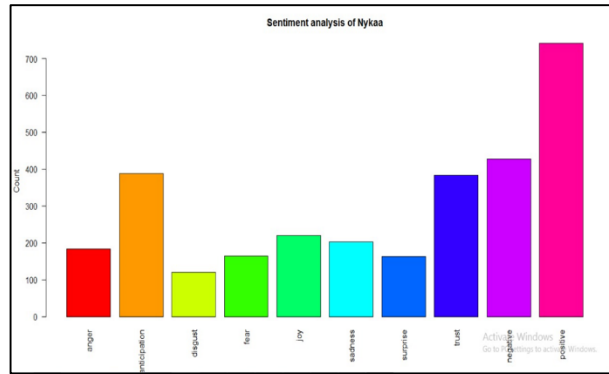
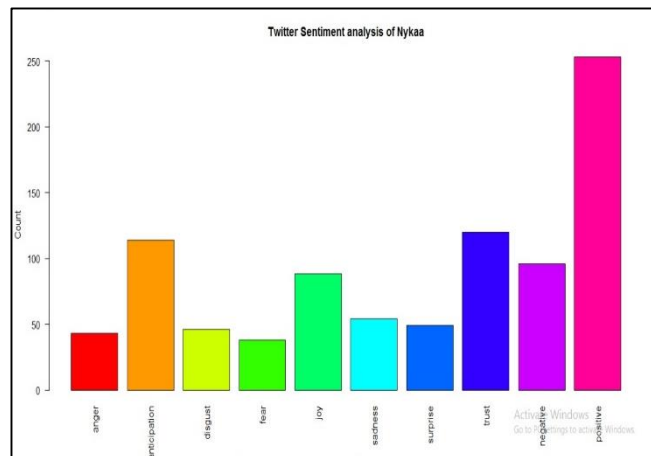


Figure 1 Sentiment analysis on Facebook

The above sentiment analysis is obtained by the Facebook sample, the result is presented in the form of a bar graph. It can be observed that the customer has a leading positive sentiment towards the services offered by Nykaa, post lockdown. With not much difference, negative sentiment is next among customers and that can be an obstacle for Nykaa if not worked upon properly. According to the Graph 1 the anticipation sentiment is also powerful, showing the customer expectation about any service or product, Nykaa can find what are customers expecting from them so that their needs can be met, and they can be satisfied. The graph also shows that the customer has trust in Nykaa which is a leading factor to understand the products or service which the customer likes the most.



Graph 2 Sentiment Analysis on Twitter

Twitter analysis obtained demonstrates a very high positive sentiment of the sample, thus we can say that customer tweeting or commenting under Nykaa hashtags are more positive towards the service given to them, it can also be observed that the negative sentiment is very low in Twitter as compared to Facebook. Nykaa can take advantage of it by observing customer closely and try to maintain this graph difference between these two sentiments. In the above Graph 2 we can see that customer has high trust in Nykaa which can help in building strong image of the brand in front of new customers. Like Facebook here also anticipation is high thus showing that the customer is expecting more from Nykaa and by meeting customer needs Nykaa can make a whole new different image.

Sr.No	Social Media Tool	Word	Frequency
1.	Facebook	Lockdown	27
		COVID	18
		Happy	19
		Customer service	32
		Delivery	81
		Issue	25
		No response	13
		Quality	16
		Customer	135
		Order	385
		Fraud	43
		Experience	28
		Great	17
		Makeup	18
		Sanitizer	6
		Pathetic	26
		Zone	14
		Expect	19
		2.	Twitter
COVID	9		
Happy	11		
Customer service	8		
Delivery	22		
Issue	15		
Customer	40		
Order	46		
Experience	20		
Great	7		
Makeup	23		
Sanitizer	4		
Expect	14		

Table 1 High Frequency words

The table above helps in understanding the words which are occurring most frequently in the data collected, it can be useful to know what the customer is discussing so that sentiment around those words can be generated and an analysis can be done to provide better customer solution. We can analyze from the above table that most frequently occurring words are order and customer, it clearly states that people are talking about the orders done on Nykaa and are sharing their experience related to it. The customers are also talking about lockdown and COVID and sharing their experience with Nykaa during this period.

5. Limitations of The Study

1. The Sample size – Issues with sample collection like the sample size too small for the research, or only two social media platforms are considered for the research, so we are not clear about what customers are commenting on the other platforms.
2. Lack of available and reliable data – Some users are not present on social media so their data cannot be collected for the research, and there might be anonymous users who are making false comments to tamper the data.
3. Lack of previous research studies on the topic – There was no strong research paper found on the topic of research for the reference.
4. Limited access to data – The brand might have deleted or hidden some comments which they do not want to show to their other customers.

6. Managerial Implications

The study will prove helpful to the brand by providing customers insight and the major areas they can focus on to provide a better service to consumers thereby, earning the trust. This study can also be used by competitors for analysing their rival and know their weak and strong points. The managerial implication for this research can be, utilizing the findings to generate more effective strategies for marketing and promotions.

7. Conclusion

The sentiment analysis of Nykaa Brand during the post lockdown period shows a high positive sentiment of customers on both the social media i.e., Facebook and Twitter. Nykaa has been fully functional during lockdown as most of its products come under essential goods and have been working to maintain its positive image for the customer by constantly replying to queries and comments. The general reaction of the customer is towards the order and delivery, Nykaa can investigate these comments and suggestion of customer and work on it with providing better customer service. The customer has trust in Nykaa which is an icing on the cake and Nykaa should promote itself by showing the existing customer's trust and thereby gaining many new customers. With people shifting their preference towards online products, Nykaa needs to align its marketing strategies with technology and advertise more personally. The results showed that customer has high anticipation about the brand and Nykaa need to find what customer is expecting by analyzing their feedbacks meet up customer expectation and make them satisfied with the service even in these hard times. The competitor analysis of Nykaa is omitted from the study and only two social media platforms are taken for the data collection, hence overall sentiment analysis of the brand may vary by taking such factors in consideration.

References

- I. P. Cvijikj and F. Michahelles, "Understanding social media marketing," Proceedings of the 15th International Academic Mind Trek Conference on Envisioning Future Media Environments - Mind Trek 11, 2011.
- G. Joel, K. Prasad, "Antecedents and Consequences of Social CRM Strategies Adopted By E-Tailers in India during Peak Season on Demand". Twelfth AIMS International Conference on Management pages: 935-944.: <http://www.aims-international.org/aims12/12A-CD/PDF/K485-final.pdf>
- F. Neri, C. Aliprandi, F. Capeci, M. Cuadros, T. By, "Sentiment Analysis on Social Media". Proceedings of the 2012 International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2012), pages: 919–926,
- S. Jayasanka, T. Madhushani, R. Marcus, E & A. A. U. Aberathne, I & S. Premaratne, "Sentiment Analysis for Social Media". Information Technology Research Symposium, Volume: 4, pp: 1-6.
- G.T. Umman, B. Diren, Y. Cemil, "Social Media Mining and Sentiment Analysis for Brand Management". Global Journal of Emerging Trends in e-Business, Marketing and Consumer Psychology (GJETeMCP) 2017 Vol: 3, Issue: 1, pp: 497-511.

- K. Heinonen, "Social Media Activities: Understanding What Consumers Do in Social Media". In E. Y. Li, S. Loh, C. Evans, & F. Lorenzi (Eds.), *Organizations and Social Networking: Utilizing Social Media to Engage Consumers* (pp. 1-15). Hershey: IGI Global. <https://doi.org/10.4018/978-1-4666-4026-9>.
- K. Leetaru, "Why We Need More Visibility Into The Social Media Analytics Algorithms We Use". *Forbes* (Online), Accessed on 12th June 2020. Retrieved from <https://www.forbes.com/sites/kalevleetaru/2019/02/11/why-we-need-more-visibility-into-the-social-media-analytics-algorithms-we-use/#f20bb2e3b795>
- N. Blagus and S. Zitnik, "Social media comparison and analysis: The best data source for research?" 2018 12th International Conference on Research Challenges in Information Science (RCIS), 2018.
- S. Elson, "Customer Relationship Management Trends to Watch for in 2020". *Salesforce.com* (Online). Accessed on 12th June 2020. Retrieved from <https://www.salesforce.com/blog/2019/12/customer-relationship-management-trends.html>
- C. Baird and G. Parasnis, "From social media to social customer relationship management," *IEEE Engineering Management Review*, vol. 41, no. 3, pp. 48–55, 2013.
- L. Connors, S. M. Mudambi, and D. Schuff, "Is It the Review or the Reviewer? a Multi-Method Approach to Determine the Antecedents of Online Review Helpfulness," 2011 44th Hawaii International Conference on System Sciences, 2011.
- A. Hassan, W. Medhat, H. Mohamed, "Sentiment Analysis Algorithms and Applications: A Survey". *Ain Shams Engineering Journal*. 5(4). 1093-1113. 10.1016/j.asej.2014.04.011.
- J. Wertz, "Why Sentiment Analysis Could Be Your Best Kept Marketing Secret". *Forbes* (Online). Accessed on 12th June 2020. Retrieved from <https://www.forbes.com/sites/jiawertz/2018/11/30/why-sentiment-analysis-could-be-your-best-kept-marketing-secret/#14c998b32bbe>
- D. Nanjappan, S. Deshmukh, "Social media marketing: the next generation of business engagement". *International Journal of Management Research and Review*. 3 (2). Article No-12, pp: 2461-2468.
- H. Khobzi, R.Y. Lau, T. Cheung, "Consumers • Sentiments and Popularity of Brand Posts in Social Media: The Moderating Role of Up-votes". *Proceedings of the 50th Hawaii International Conference on System Sciences* (2017). doi:10.24251/hicss.2017.472
- S. Ranjan, S. Sood, and V. Verma, "Twitter Sentiment Analysis of Real-Time Customer Experience Feedback for Predicting Growth of Indian Telecom Companies," 2018 4th International Conference on Computing Sciences (ICCS), 2018.
- H. Kwak, C. Lee, H. Park, and S. Moon, "What is Twitter, a social network or a news media?" *Proceedings of the 19th international conference on World wide web - WWW* 10, 2010.

- A. Sarlan, C. Nadam, S. Basri, "Twitter sentiment analysis". Proceedings of the 6th International Conference on Information Technology and Multimedia, Putrajaya, 2014, pp. 212-216, doi: 10.1109/ICIMU.2014.7066632.
- N. Tomar, R. Srivastava, B. Ahuja, "Opinion Mining of GST Implementation using Supervised Machine Learning Approach". International Journal of Computer Applications, 180, 1-7. 10.5120/ijca2018917283.
- C.A. Pushpam, G. Joseph, "Overview on Data Mining in Social Media". International Journal of Computer Sciences and Engineering. 5. 147-157. 10.26438/ijcse/v5i11.147157.
- S. Bharathi, A. Geetha, "Sentiment Analysis for Effective Stock Market Prediction". International Journal of Intelligent Engineering and Systems, 10, 146-154. 10.22266/ijies2017.0630.16.
- Read, J. "Using Emoticons to Reduce Dependency in Machine Learning Techniques for Sentiment Classification". In Proceedings of the ACL Student Research Workshop, pages 43– 48
- D. Ball, P. S. Coelho, and M. J. Vilares, "Service personalization and loyalty," Journal of Services Marketing, vol. 20, no. 6, pp. 391–403, 2006.
- S. Al-Otaibi, A. Alnassar, A. Alshahrani, A. Al-Mubarak, S. Albugami, N. Almutiri, and A. Albugami, "Customer Satisfaction Measurement using Sentiment Analysis," International Journal of Advanced Computer Science and Applications, vol. 9, no. 2, 2018.
- M. F. Dzulfikar, B. Purwandari, D. I. Sensuse, J. S. Lusa, I. Solichah, P. Prima, and I. Wilarso, "Personalization features on business-to-consumer e-commerce: Review and future directions," 2018 4th International Conference on Information Management (ICIM), 2018.
- K.-K. Tseng, R. F.-Y. Lin, H. Zhou, K. J. Kurniajaya, and Q. Li, "Price prediction of e-commerce products through Internet sentiment analysis," Electronic Commerce Research, vol. 18, no. 1, pp. 65–88, 2017.