

Feedabck Analysis: A Process Definition



Biswajit Biswas, Debjit Rakshit

Abstract: Customers Feedbacks take an important role for any business. It gives information to the new customers about their interactions with product or service. The objectives of this research work are to find out the degree of happiness of the customers and assist marketing teams in determining the gap between customers' acceptance and product or service quality. From this gap marketers can improve their product and service quality. Customers share their reviews, ideas, experiences about the product and service quality. In this research work, authors have chosen an automobile service station named Mohan Automobile Service Station, West Bengal. In this research work authors have collected the customers feedback through questioners created in Google form. The collected feedbacks are validated and analyzed to know the insight sentiment using Python Monkey Learn tools. The result of the collected feedback is shown as positive, negative, or neutral based on the polarity of the feedback. The result will be helpful for the service station to know their weak point and they can update their service quality.

Keywords: Sentiment Analysis, MonkeyLearn, RCA.

I. INTRODUCTION

Customer feedback analysis is a process to make a better business strategy for enlightening the business. In customer feedback process customers give their opinion or experience or reviews accordingly for better improvements. Customer feedback is the most essential part of a successful business. Right now every company or industry tries to collect their customer opinion from many sources. They were very excited to gather all the information because it helps to improve the business. Customers' needs demands, complaints are identified through feedback analysis and try to improve customer satisfaction, reduce churn. It's frequently done to sort massive amounts of data from several sources in a quick and reliable manner. In this study authors have collected the data of an automobile service station named Mohan Automobile Service Station, West Bengal. Google form is used to set questionnaires in English language and spread-out the customers who are associated with this service station. The questioners are spared among 100 customers from the service station database and 53 customers have responded it in the prescribed format. The Monkey-Learn tool in python is used to analyze the qualitative feedback.

Manuscript received on 24 March 2022.
Revised Manuscript received on 30 March 2022.
Manuscript published on 30 April 2022.

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Sentiment of the feedbacks is classified as three different categories like positive, negative and neutral. It has also done the root cause analysis for a better understanding of the feedback and tries to give a better explanation of the automobile service station.

II. OBJECTIVE OF THE STUDY

- i. To increase customer retention using customer feedback analysis.
- ii. To make effective business decisions depend on the insight information of the customer's feedback.
- iii. To inform new customers about the service from the existing customers feedback.
- iv. To provide the best service analyzing the customer feedbacks and try to reach the customer's satisfaction level.

III. LITERATURE REVIEW

Parasuraman, A et al. (1988) [1]: SERVQUAL service is explored in terms of quality model. Following five proportions like tangibles, reliability, responsiveness, assurance, and empathy were used to assess customer's perception and its impact on loyalty has been evaluated.

Katarne et al. (2010) [2]: They have evaluated the present level of service quality at a typical vehicle dealership in Indian city. A demonstrative poll of respondents who owned one of the popular brand automobiles was used to conduct the research. In this article, customer satisfaction/discontent was measured using normal statistical techniques, and root cause analysis was used to find the reason(s) for dissatisfaction. The service center's present performance was judged to be unsatisfactory, and the study's findings show that delivery delays are the most major source of dissatisfaction for poor service quality level on customer retention.

Jhanshahi, A.A. et al. (2011) [3]: They have seen the matter from intrinsic aspect of products as depicted in the feedback. They indicated various types of mathematical functions to measure Product & Service quality. ANOVA is useful & very successfully used in their research paper.

M. Al-Shammari and A. SamerKanina (2014) [4]: They have completed their efforts on service quality through questionnaire in Saudi Arabia, and the results revealed that reliability and assurance are of high priority from customer's point of view, followed by tangibility and awareness.

Jianqiang and Xiaolin, (2017) [5]: They contrasted customer review sentiment analysis and data mining algorithms. This study investigated how several pre-processing strategies, such as deleting URLs, substituting negatives, reversing repeated characters, removing stop words, removing numerals, and extending acronyms, affects sentiment categorization. They identified tweet sentiment polarity using two feature models and four classifiers on five Twitter datasets.

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The experimental findings suggest that extending acronyms and replacing negation increases sentiment classification performance, but when URLs, stop words, or numerals are eliminated, the performance scarcely changes. They employed machine learning-based sentiment analysis tools. They employed four well-known supervised classifiers in the sentiment analysis literature: Support Vector Machine (SVM), Naive Bayes (NB), Logistic Regression, and Random Forest.

A Hasan, S. Moin, et al. (2018)[6]: was used Tweepy API to collect all sentiments, and subsequently the Sentiment Analysis technique was applied. Their work established the usefulness of Bayesian Statistics with the help of support vector machines of different types to investigate the issue.

IV. RESEARCH GAP

From the literature it is find out that they have not analyze the root cause of the disappointment of a customer. Why the customers are not satisfied and what is their expectation. It is observed that they have used traditional method to analyze the customer feedback. In this study the related research gap is addressed.

V. METHODOLOGY

A. Research Design

This work is based on descriptive research and quantitative in nature. In this research work an automobile service station has chosen named Mohan Automobile Service Station, West Bengal. They provide their customer data sheet, a Google Questionnaires is created and spread it among 100 customers through what's app and e-mail and 53 customers have given their responses. The gender distributions of the respondents are shown in Table I.

Table I: Gender distribution of respondent

		Number of respondents	Percentage
Valid	Female	13	24.5
	Male	40	75.5
	Total	53	100.0

Source: Primary data collection through questionnaire

B. Tools and Techniques

In this work authors used SPSS tools for numerical data analysis and MonkeyLearn tools in python for textual feedback analysis. Beside this VoC and RCA techniques are also used. The overall methodology is described with a block diagram in Figure 1.

i. MonkeyLearn: MonkeyLearn is an AI tools for Text analysis and it works on python code. It allows the users to get insight information from crude text content. For instance, it can be used in communicated in messages like tweets, posts in comments, surveys and article. Monkey-Learning is used here for analyzing the respondent's textual feedback.

ii. SPSS (Statistical Package for Social Science): SPSS is analytic software for statistical computing and graphical representation. SPSS is used for data miners and statisticians for data analysis. SPSS is used here for graphical representation.

iii. Google Form: Google Form is used to create questionnaires. It is exceptionally easy and simple to make questionnaires. It is easy to share and collect data from the respondents.

iv. Voice of Customer (VoC): The term "Voice of Customer" (VoC) refers to customers' experiences with potentials on the product or service quality. It focuses on customer needs, expectations, comprehension, and service enhancement. In this work feedback are collected through questioners from the customer's database of the service station. The respondents are selected in randomly. They give their opinions through Google Questionnaire.

v. Root Cause Analysis (RCA): The procedure of finding the central causes of issues in order to identify feasible remedies is known as root cause analysis (RCA). Root cause analysis may be performed utilizing a range of theories, techniques, and methodologies to find the fundamental causes of an event. Beyond basic cause and effect, RCA may indicate where processes failed or generated an issue. In this work RCA is used to Analysis the Customer Feedback. In customer feedback analysis few reviews may positive, few reviews may negative and few reviews may neutral. From the negative reviews it tried to find out the root cause of the dissatisfaction.

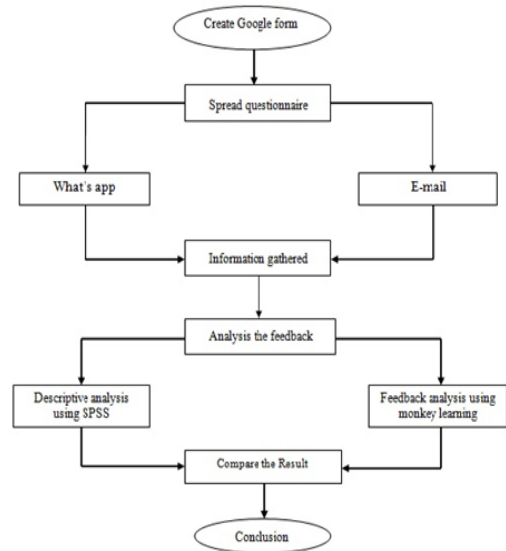


Figure 1: Over View of Methodology

VI. FEEDBACK ANALYSIS USING MONKEYLEARN

Customer feedback analysis depends on the customer's criticism and reactions. Google questionnaires' is created for survey work which has two sections, one section makes rank based inquiries another section text based feedback. It helps to know the realistic customer's criticism or reactions on service.

The second part is more significant for this study. It helps to know or investigate the feeling of customers. Manual analysis of customer feedback is a very exhausted process and produces inefficient results. The new automated system can accelerate feedback analysis and accurately quantifying customer feedback for future analysis and strategic implementation.



Natural language processing (NLP) is an efficient feedback analysis process that allows businesses to know customer feelings real time. Sentiment analysis is a procedure to know where the information is positive, negative or Neutral. In this study Monkey Learn program is used to analysis the customer feeling which is completely dependent on AI and runon Python. In this system the customers textual comments are used as input data and the system give the output as positive, negative and neutral as a name TAGE. From this TAGE value service station may take corrective action on their service. In Figure 2 the textual feedback process and in Figure 3 a snapshot of the process are shown.

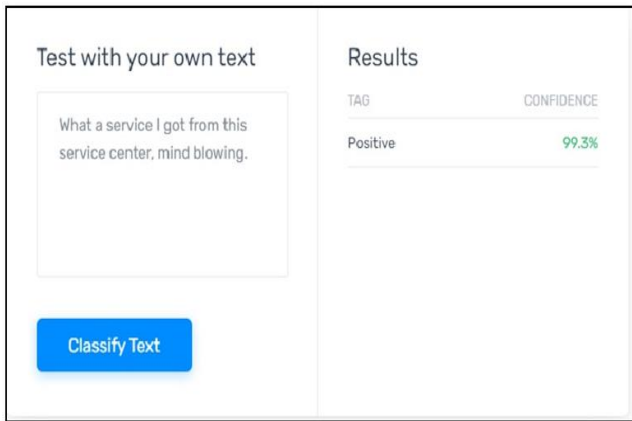


Figure 2: Textual feedback analysis using Monkeylearn

```
HTTP/1.1 200 success
content-length:209
content-type:application/json
x-query-limit-remaining:188
x-query-limit-request-queries:1
[{"text":"What a service I got from this service center, mind blowing.", "external_id":null, "error":false, "classifications":[{"tag_name":"Positive", "tag_id":122921383, "confidence":0.99}]}]
```

Figure 3: Sample coding of sentiment analysis

VII. RESULT AND ANALYSIS

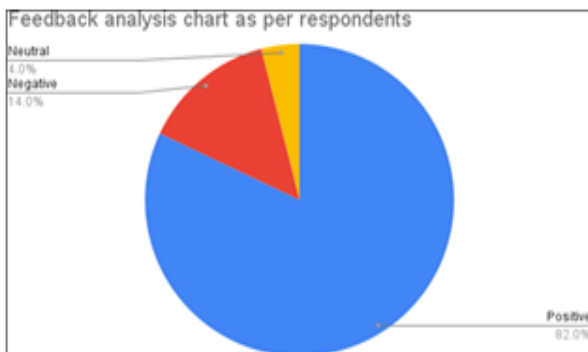


Figure 4: Sentiment analysis of customer feedback

Table II: Sentiment analysis of Customer’s feedback

S	Textual Feedback	TAG	Confidence
1	I am totally satisfied because of the speed and response from the service center.	Positive	99.40%
2	I don't think it's worth it to get a service like your authorized one. Outside service centers provide better service than you.	Negative	98%
3	Average of quality service provided	Neutral	56.9%
4	I am not satisfied.	Negative	97.90%
5	I am totally satisfied with your company. Thank you. Your communication is too good. Your labor is too much experienced.	Positive	72.70%
6	Price is very nominal and services is too good so it is the best sign for me	Positive	97.50%
7	I don't like it because of their speed of the service and the technicians are not experienced at all.	Negative	89.20%
8	Price is very nominal and services is too good so it is the best sign for me	Positive	97.50%
9	Service is okay	Neutral	50.70%
10	Service is So-so.	Negative	48%

Table III: Sentiment analysis of customer’s suggestion

Sl. No	Customer’s Suggestion	TAG	Confidence
1	Nothing to say. You have a good servicing team	Positive	90.40%
2	They should have an automatic system for booking an appointment.	Neutral	48.70%
3	More improvement is needed.	Negative	48%
4	Very specialized technician	Positive	90.90%
5	Your overall rating is very good; just try to maintain that forever.	Negative	42%
6	No suggestion needed	Neutral	71.8
7	Very good service and cost efficient.	Positive	99.90%
8	Improvement needed	Negative	60.50%
9	Keep this level for everyone	Neutral	50.7
10	Grow your business in other cities so that we can avail you in other cities	Positive	84.90%

The sentiment analysis of customer’s feedback of the automobile service station is shown in Figure 4 and Table II. It has been observed that 82.0% respondents gave positive feedback, 14.0% respondent gave negative feedback and 4.0% respondent give neutral feedback. From the result we may said that the customers are satisfied on the service station.

Table III and Figure 5 shows that sentiment analysis result for customer suggestion upon the automobile service station. According to the figure show that among the 53 respondents 62.0% are respondents give their positive feedback for the automobile service station.



12.0% are respondent give their negative feedback and rest of 26.0% respondent has neutral feedback for the automobile service station. The neutral feedback indicates that customer is neither happy for the service nor disappointed for the service. From the observation it is said that the Service station need to focus on their service.

Analysis Suggestion chart

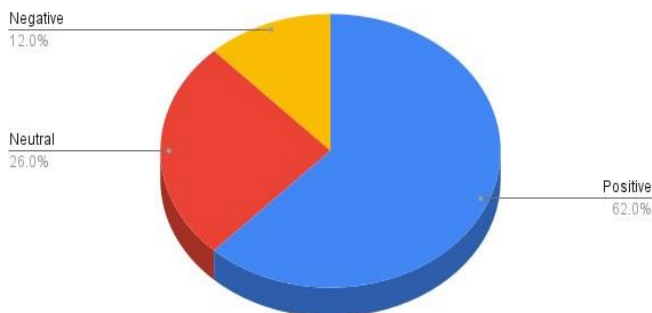


Figure 5: Sentiment analysis for customer suggestion

VIII. FINDINGS

- i. Few fundamental rudiments of customer disappointments have been identified like internet booking framework.
- ii. From the analysis, issues faced by the customers became evident and the study suggested a clear indication that they are not interested to visit the service station again.
- iii. These finding will be helpful for Mohan Automobile for devising their strategy. From the Root Cause Analysis it is found that the issue (dissatisfaction) happened in regular intervals which are not at all desirable.

IX. CONCLUSION

From the above study and findings, now it is said that the Automobile service station need to enhance the viability and effectiveness to fulfill the customer degree of satisfaction level. The findings exposed the level of satisfaction of automobile service stations was about average. Among the four components of after-sales of the Automobile service station, customers were typically satisfied on the responsiveness while the satisfaction with the cost of the service received the lowest score. Using this procedure any organization can understand their present business scenario and make business decision.

MANAGERIAL IMPLICATION

Nowadays Customer's Feedback Analysis plays a major role for a leading business or an industry. Customer Feedback Analysis means industries or companies want to know what are the needs or expectations of their loyal customer from the company or industry regarding the service quality. According to this research, Feedback analysis enhances business by analyzing the customer reviews and finds out the organizations weak points and tries to know the customer's expectations. It will be helpful for an organization to update their service or product quality.

LIMITATION

- i. Surveys may be straightforward to complete, but some people apparently don't really enjoy filling them out. Sending out surveys too repeatedly might irritate customers and result in customer stress. In spite of your reputation for providing unique products or services, customer stress can result in low sample size or the poor satisfaction scores.
- ii. Many times customers received junk email and sales calls. It is very difficult for a customer to understand that they are not being tracked when asked an online survey. For the personal secrecy they feel hesitant to give proper information. It is needed to give assurance to the customer that the information is used for customer satisfaction survey and it will not be used in any way. It will be very difficult to have a good response if this disclaimer is not included.

FUTURE SCOPE

In this work the data (feedback) are collected through Google Form and analyze the quantitative (numerical) feedbacks using SPSS tools and the qualitative (textual) feedbacks are analyzed using MonkeyLearn tools in python. In future it can be made an automated online feedback system where customers get a link for giving feedback after completed their service and the feedback will be saved in a systematic way. This process may be used in any organization where feedback system is necessary. If the whole procedure can be made with the help of ML and AI than it will be more easy to use and the result will be more accurate.

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