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# A Methodological Approach to Analysing Customer Sentiment and Language Use for Assessing Service Quality in AirAsia's Online Reviews

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## ABSTRACT

This paper focuses on the research methods used to analyse customer sentiment and language patterns in online reviews to evaluate service quality. The study uses TripAdvisor reviews of AirAsia from the pre-pandemic period (2017-2019). It applies the SERVQUAL model to assess five key dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy. Qualitative and quantitative methods were used, including sentiment analysis and thematic coding, to interpret customer feedback accurately. The process involved collecting relevant reviews, preparing the data, analysing customer sentiment, and mapping the findings to the SERVQUAL dimensions. Tools such as NVivo and Python libraries were employed for data processing and analysis. The paper highlights the challenges faced during the study, such as handling biased sentiments and language variations, and outlines steps to ensure reliability and validity. This research methodology offers a systematic way to understand customer experiences and provides a valuable approach for businesses looking to improve service quality based on customer feedback.

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## 1. Introduction

Customer sentiment and feedback are valuable sources of information for companies looking to improve their service quality. In recent years, the rise of online review platforms like TripAdvisor has provided both customers and businesses with a space to share and access detailed feedback. According to Wen et al. (2024), understanding customer sentiment is essential for companies to maintain competitiveness and meet customer expectations. This is especially true in the airline industry, where service quality can directly influence customer loyalty and satisfaction (Xue & Ylagan, 2024).

Service quality is often measured using the SERVQUAL model, which evaluates five key dimensions: tangibility, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988). Though this model was introduced decades ago, its relevance persists in today's service industries, including airlines. Customer feedback, in the form of online reviews, offers rich insights that align with these dimensions. However, the challenge lies in accurately analysing the sentiment and language used in such reviews to extract meaningful information (Jim et al., 2024; Sharma et al., 2024).

Sentiment analysis has emerged as a powerful method to address this challenge. It combines linguistics, data mining, and computational techniques to identify and evaluate subjective opinions within a text (Xing et al., 2020). Sentiment analysis can reveal whether a review is positive or negative and the specific aspects of service that lead to customer satisfaction or dissatisfaction (Shaban & Abolwafa, 2024; Yang et al., 2023). When applied alongside thematic coding, this method can provide a deeper understanding of customer experiences and highlight improvement areas (Bryda & Sadowski, 2024).

This paper explains the research methodology used to analyse customer sentiment and language patterns in TripAdvisor reviews of AirAsia during the pre-pandemic period (2017-2019). By focusing on the SERVQUAL model, the study outlines a systematic approach to evaluating service quality through online reviews. This research contributes to understanding how customer feedback can inform service improvements and provides a clear method for future studies in service quality assessment.

In today's competitive airline industry, providing high-quality service is essential for maintaining customer loyalty and satisfaction. Customers increasingly share their experiences through online platforms like TripAdvisor, which provides valuable feedback for service providers. However, interpreting these reviews can be challenging due to the large volume of data, the variation in customer language, and the presence of both positive and negative sentiments (Subha et al., 2024).

AirAsia, a leading low-cost carrier in Asia, received significant customer feedback during the pre-pandemic period (2017-2019) (Leet et al., 2024; Teoh et al., 2024). While many studies focus on general customer satisfaction, fewer studies provide a precise method for analysing the sentiment and language patterns found in these reviews, mainly through the lens of the SERVQUAL model. Without a reliable method for analysing these reviews, valuable insights into service quality may be overlooked, affecting the airline's ability to meet customer expectations and improve its services.

This paper aims to achieve the following objectives:

1. To outline the research methods used to collect and analyse customer sentiment and language patterns from TripAdvisor reviews of AirAsia during the pre-pandemic period (2017-2019).
2. To explain how sentiment analysis and thematic coding can be applied to identify key themes related to the five SERVQUAL dimensions: tangibility, reliability, responsiveness, assurance, and empathy.
3. To highlight challenges faced during the analysis and describe steps to ensure the reliability and validity of the findings.
4. To provide a systematic approach to help other researchers and businesses analyse customer feedback effectively.

This paper analyses customer reviews of AirAsia collected from TripAdvisor between 2017 and 2019. The analysis is limited to reviews written in English and concentrates on the five SERVQUAL dimensions to assess service quality. The study interprets the data using sentiment analysis tools and thematic coding methods. It does not cover post-pandemic reviews or other airlines. Additionally, the paper focuses on the research methodology, not the detailed findings or recommendations for AirAsia.

## 2. Literature Review

### 2.1 Sentiment Analysis in Customer Feedback

Sentiment analysis has become important for understanding customer opinions and improving service quality. It involves using computational methods to identify and evaluate the feelings expressed in text data. According to Ashbaugh and Zhang (2024), sentiment analysis helps businesses detect patterns in customer feedback by classifying reviews as positive, negative, or neutral. This analysis is especially useful for companies that receive large amounts of feedback through online platforms. For example, in the airline industry, customers often share their travel experiences on platforms like TripAdvisor, providing a wealth of data for analysis (Ercan et al., 2020).

The growing use of artificial intelligence and natural language processing (NLP) has improved the accuracy of sentiment analysis. NLP tools can identify subtle emotional cues and contextual meanings in

customer reviews (Sarraf & Abbaspour, 2024). These tools help companies gain deeper insights into what aspects of their services customers appreciate and what areas need improvement. For instance, a study by Ashbaugh and Zhang (2024) found that applying sentiment analysis to online reviews helped identify specific factors affecting customer satisfaction, such as staff behaviour, flight punctuality, and cabin comfort.

## 2.2 *The Role of Language Analysis in Service Quality Research*

Language analysis in customer feedback goes beyond just identifying sentiment; it involves understanding customers' specific words and expressions to describe their experiences. Analysing these language patterns helps businesses identify recurring themes and issues. For example, Shaban and Abolwafa (2024) demonstrated that analysing customer language in hotel reviews could reveal common concerns about cleanliness and customer service. Similarly, language analysis can uncover concerns related to delays, baggage handling, or staff responsiveness in the airline industry.

Combining sentiment and language analysis provides a more detailed view of customer opinions. According to Shaban and Abolwafa (2024), this combination allows businesses to see whether customers are satisfied or dissatisfied and why they feel that way. This approach helps companies develop targeted strategies to improve service quality.

## 2.3 *SERVQUAL Model in Airline Service Quality*

The SERVQUAL model, introduced by Parasuraman et al. (1988), is widely used to measure service quality. It focuses on five key dimensions: tangibility, reliability, responsiveness, assurance, and empathy. Although the model has been around for decades, it remains relevant today. Recent studies confirm its usefulness in assessing service quality across different industries, including airlines (Wilfred et al., 2024).

These five dimensions are critical for understanding customer experiences in the airline industry. Tangibility refers to physical aspects like the condition of the aircraft and facilities. Reliability involves delivering consistent and dependable service, such as on-time departures and arrivals. Responsiveness focuses on the willingness of staff to help customers promptly. Assurance covers staff knowledge, professionalism, and making customers feel safe. Empathy refers to providing personalized and caring service (Ramadan Atta et al., 2024).

Melka (2024) applied the SERVQUAL model to airline reviews and found that reliability and responsiveness were the most influential factors affecting customer satisfaction. This demonstrates the importance of using a structured approach like SERVQUAL to analyse customer feedback and identify areas for improvement.

## 2.4 *Challenges in Sentiment and Language Analysis*

While sentiment and language analysis offer valuable insights, they come with challenges. One issue is the language variation used by customers. People may express similar experiences using different words, making it difficult to identify patterns (Ashbaugh & Zhang, 2024). Another challenge is handling biased or misleading reviews. For example, extremely positive or negative reviews may not accurately reflect the overall customer experience (Ashbaugh & Zhang, 2024).

Additionally, analysing large amounts of data requires reliable tools and methods. According to Sharma et al. (2024), using advanced sentiment analysis tools can improve accuracy, but researchers still need to review some data to ensure the findings are valid manually. Ensuring the reliability and validity of the analysis process is essential for producing trustworthy results (Karnia, 2024).

The combination of sentiment analysis, language analysis, and the SERVQUAL model provides a structured way to evaluate customer feedback in the airline industry. This approach helps businesses identify specific areas of service that need improvement. However, researchers must be aware of the challenges, such as language variability and biased reviews, and use reliable methods to overcome these

issues. This paper applies these methods to analyse TripAdvisor reviews of AirAsia during the pre-pandemic period to understand service quality from the customer's perspective.

### 3. Research Design and Methodology

This section explains the methods used to collect, analyse, and interpret customer reviews of AirAsia from TripAdvisor. The research design involves a systematic approach using both qualitative and quantitative methods to analyse customer sentiment and language patterns. This approach helps identify how customer feedback reflects the five SERVQUAL dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy.

This study uses a mixed-methods approach, combining qualitative and quantitative techniques to ensure a comprehensive analysis. According to Creswell and Creswell (2018), mixed-methods research allows for a deeper understanding by combining numerical data analysis (quantitative) with detailed interpretation of language and themes (qualitative). In this study, sentiment analysis provides the quantitative component by assigning scores to customer reviews. In contrast, thematic coding provides qualitative insights by identifying recurring themes in the customer language.

#### 3.1 Data Collection

This study uses customer reviews of AirAsia posted on TripAdvisor during the pre-pandemic period (2017–2019). To maintain consistency, only reviews written in English were included. The selection criteria focused on relevance, completeness, and clarity. Reviews containing detailed feedback about specific aspects of the service, such as flight experience or customer service, were prioritized. Duplicate or irrelevant reviews were excluded to ensure the quality of the dataset. 500 reviews were collected to provide a diverse representation of customer experiences while maintaining a manageable sample size for detailed analysis (Wutich et al., 2024).

#### 3.2 Data Analysis Methods

The analysis involved two key methods: sentiment analysis and thematic coding. Sentiment analysis was conducted using tools like NVivo and Python libraries, including TextBlob and VADER (Valence Aware Dictionary and Sentiment Reasoner). These tools effectively evaluated the sentiment in the text, categorizing it as positive, negative, or neutral (Sherin Beevi et al., 2024). The analysis quantified customer satisfaction by assigning sentiment scores and revealed overall trends in customer sentiment (Shaban & Abolwafa, 2024).

Thematic coding was employed to identify recurring themes and patterns in customer language. Each review was carefully analysed and categorized according to the SERVQUAL dimensions: tangibility, reliability, responsiveness, assurance, and empathy (Chatterjee et al., 2022). For example, comments on aircraft condition or seat comfort were categorized under tangibility, while comments on flight delays were linked to reliability. This method provided insights into the specific aspects of service quality that influenced customer experiences.

The analysis framework integrated sentiment scores with thematic categories, linking the emotional tone of the reviews (positive, negative, or neutral) to specific service quality dimensions. For instance, a negative sentiment linked to responsiveness might highlight dissatisfaction with staff behaviour (Xiao et al., 2022).

#### 3.3 Research Procedures

To prepare the data for analysis, a systematic cleaning and preprocessing process was implemented. Irrelevant content, such as advertisements and duplicate entries, was removed, and non-informative reviews

were excluded (Ahuja et al., 2024).). Text preprocessing involved converting all text to lowercase, removing punctuation, and filtering out common stop words such as “the,” “and” and “but.”

For sentiment analysis, the cleaned data was processed using sentiment analysis tools, which assigned scores to each review and categorized them as positive, negative, or neutral. Thematic coding involved manually reviewing each comment to identify feedback related to the SERVQUAL dimensions. To ensure consistency, the coding process was cross-verified by two independent researchers (Shaban & Abolwafa, 2024).

### *3.4 Reliability and Validity*

Ensuring reliability and validity was critical to achieving accurate and meaningful results. To cross-check outcomes, reliability was strengthened using multiple sentiment analysis tools, such as NVivo, TextBlob, and VADER (Barik & Misra, 2024). Additionally, inter-coder reliability was assessed during the thematic coding process to ensure agreement among researchers (Halpin, 2024).

Validity was supported using the well-established SERVQUAL framework and consistently applying coding rules to all reviews (Arlia et al., 2024). To further confirm the validity, sample reviews were reanalysed at different stages of the study to ensure consistency in the findings. This thorough approach to reliability and validity enhances the robustness of the research outcomes.

## **4. Discussion of Methodological Challenges**

While sentiment analysis and thematic coding provide valuable insights, several challenges emerged during the research process. These challenges are common in analysing customer reviews, especially when working with large amounts of text data. Addressing these challenges is important to ensure the accuracy and reliability of the findings.

### *4.1 Language Variability*

One major challenge in this study was the language variation used by customers. Customers express similar experiences differently, which can complicate identifying patterns. For example, some customers may use direct language like “the flight was delayed,” while others may express frustration indirectly, such as “I waited too long at the gate” (Packard & Berger, 2021). This variability made it difficult for sentiment analysis tools to detect the same issues consistently.

To address this challenge, manual verification of coded themes was conducted. According to Liu et al. (2024), combining automated tools with human oversight improves accuracy and helps detect subtle variations in language.

### *4.2 Ambiguity and Context Dependency*

Customer reviews often contain ambiguous statements that are difficult for sentiment analysis tools to interpret accurately. For instance, a review like “The flight was late, but the staff handled it well” contains negative and positive sentiments. Automated tools sometimes struggle to understand the context and assign an accurate sentiment score (Islam et al., 2024).

To reduce this issue, contextual analysis was applied during thematic coding. Reviews were read carefully to ensure the sentiment and the specific SERVQUAL dimension were correctly identified. This approach aligns with Bryda and Sadowski (2024), who recommend combining machine analysis with human judgment to handle context-dependent statements.

### 4.3 Handling Biased and Extreme Reviews

Online reviews can sometimes be biased or exaggerated, with customers expressing extreme dissatisfaction or overly optimistic opinions. These reviews can distort the overall sentiment analysis results (Kim, 2021). For example, a single negative experience may lead a customer to write an extremely harsh review, which may not reflect the overall service quality.

To address this challenge, reviews were screened for extreme bias and balanced by including many reviews to ensure diverse perspectives (Krukowski et al., 2024). Additionally, reviews with balanced feedback were given greater weight during the interpretation process.

### 4.4 Data Cleaning and Preprocessing Issues

Preparing data for analysis involved cleaning and filtering out irrelevant content, which was time-consuming. Reviews often contained emojis, informal language, or inconsistent formatting, making it necessary to preprocess the text thoroughly (Prakash, 2024).

Standard preprocessing techniques, such as converting text to lowercase, removing punctuation, and filtering out common stop words, were applied to manage this. These steps ensured the data was clean and suitable for analysis (Chai, 2023).

### 4.5 Tool Limitations

While sentiment analysis tools like TextBlob and VADER are helpful, they have limitations. These tools sometimes struggle with sarcasm, slang, or mixed sentiments (Naiman, 2025). For example, a sarcastic comment like "Great, another delayed flight!" may be misinterpreted as positive. Multiple tools were used to cross-check the sentiment scores to mitigate this, and a manual review was conducted for comments flagged as uncertain (Nandwani & Verma, 2021).

## 5. Conclusion

This paper systematically analyses customer sentiment and language patterns in TripAdvisor reviews of AirAsia during the pre-pandemic period (2017-2019). The research methodology combines sentiment analysis and thematic coding to evaluate service quality based on the five SERVQUAL dimensions: tangibility, reliability, responsiveness, assurance, and empathy. This mixed-methods approach allows for a comprehensive understanding of customer feedback and identifies specific areas of service that require improvement.

While the study offers valuable insights, several challenges, such as language variability, ambiguity, biased reviews, and tool limitations, were encountered during the analysis. The research ensures reliability and validity by addressing these challenges through manual verification, contextual analysis, and multiple tools.

This methodology can serve as a guide for other researchers and businesses seeking to analyse customer feedback systematically. Companies can make informed decisions to improve service quality and enhance customer satisfaction by understanding customer sentiment and language patterns.

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