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Automotive Industry and Perceived Quality: A Qualitative Study

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Abstract

Perceived quality plays a significant role in shaping car preferences. The awareness of automotive customers about noise pollution, driving comfort, the ergonomic layout of cars, price, mileage, reliability, safety, and the impact of emissions on the environment has led them to evaluate the cars they buy critically. Tangible factors in a car's performance that directly affect customer satisfaction include mileage, price, number of seats, reliability, and safety. It is not so when the comfort level of the customer is to be measured with perceived quality, relating to his responses based on looks, feel, and touch, both exterior and interior, pleasing sound to noise; vibration levels while both driving and static; and the brand image created by the trust of the manufacturer. Instances exist in which manufacturers have to recall cars after the sale to address complaints. The increased use of a human-machine interface in cars further enhances cognitive ergonomics and is a new trend to be contemplated by the driver's learning curve. Perception quality aspects will also have a definite bearing on this. This qualitative research study will identify customers' perceptions as understood by the automotive industry. Customer satisfaction with respect to perceived quality is an important aspect for manufacturers to take corrective and preventive action and have continuous support and loyalty. This study has used purposive interviews to gather data and used NVivo 14 for thematic analysis. This software enabled coding and sub-coding of themes and helped arrive at the study's conclusions. It is concluded that customer satisfaction levels affect their perceptions. The manufacturer is aware of this through after-sales feedback, and they give credence to these insights while manufacturing cars by introducing different models to suit different segments, thereby addressing customer perceptions. The study confirms manufacturers' awareness of the importance of perceived quality, which plays a greater role in brand loyalty.

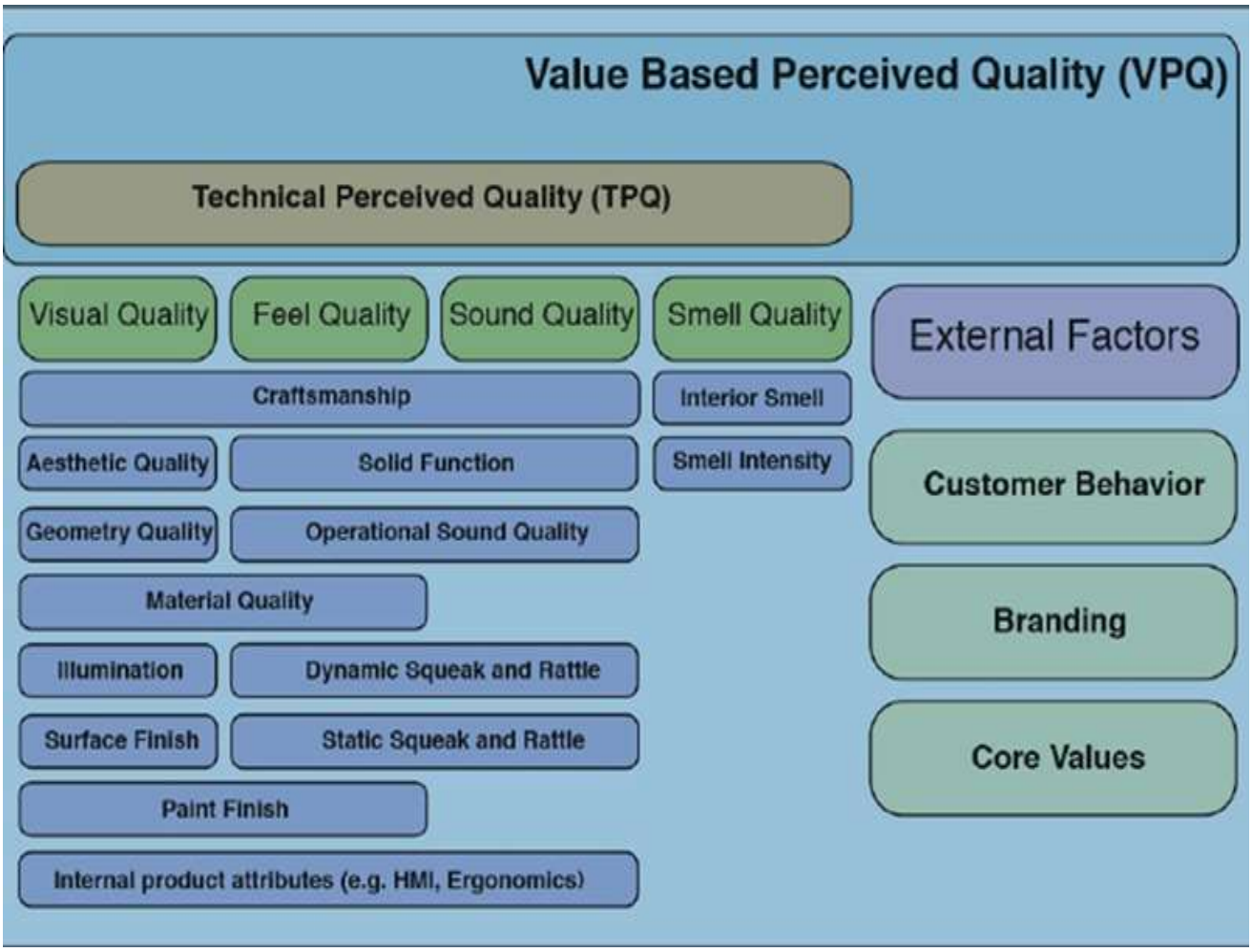
Keywords: Perceived quality, Customer satisfaction, Automotive Industry, cars.

1.0 Introduction

Kostas Stylidis (2015), [1] and (2020), [2] states that perceived quality is a combination of Technical Perceived Quality (TPQ) and Value Based Perceived Quality (VBPQ). TPQ is based on the vision, sound, feel/touch, smell, and aesthetic quality. VBPQ is based on customer behavior, brand identity, and the industry's core values. These are very important issues, as otherwise, recalling cars for attention will have to be done by the manufacturers. The recall of cars puts customers in a difficult position due to the unavailability of their purchased vehicles, causing significant stress and leading to brand disloyalty. Khojasteh, Y., & Ma, X. (2025) [3] and Gelbrich, K., Voigt, S., & Nazifi, A. (2023) [4]. Driver's learning curve with the vehicle is vital, and many a time this can result in brand disloyalty, say, Park, S. Y., Moore, D. J., & Sirkin, D. (2020) [5]. The perception of the car user plays vital part in the decisions on purchase

of cars in future and he also influences the future car owners too by his opinion and reviews. It becomes essential for the manufacturers to understand the perceptions. Many authors have widely discussed perception, which motivated this study.

Figure 1 – TPQ and VBPQ Factors



1.1 Background and motivation

Perceived Quality plays a vital role in customer satisfaction. It has been identified in various contexts by different authors and has been a subject of different interpretations. Garvin, Aaker, and Zeithmal have addressed this to some extent.

Garvin (1984) [6] identifies aesthetics and perceived quality as the most subjective dimensions of quality. Garvin says the impact of advertising on customers can be compared to the impression of aesthetics on perceived quality.

Mitra and Golder (2012), [7] use the term "objective quality," defining it as 'performance combined with all product attributes. They say mixed methods can be used to measure objective quality while excluding subjective attributes like aesthetics and external factors such as brand image.

Zeithaml V A (1988). [8] Describes perceived quality – (the subjective consumer judgment regarding overall product superiority, different from objective quality).

Lieb et al. (2008). [9] proposed to see perceived quality as "a scalable input factor for a company's product development". Such an opinion is at odds with the common view that perceived quality is not comparable to objective quality or cannot be measured.

Aaker (2004) [10] proposes a definition of perceived quality as "the customer's perception of the overall quality or superiority of a product or service with respect to its intended purpose, relative to alternatives. Perceived quality is, first, a customer perception. (It thus differs from several related concepts, such as: Actual or objective quality- the extent to which the product or service delivers superior service. Product-based quality: the nature and quantity of ingredients, features, or services included. Manufacturing quality: conformance to specification, the "zero defect" goal. More definitions of Quality as such can be seen (Kostas Stylidis 2020, page 24) [2], ranging from fitness for use by Juran to conformance to requirements by Crosby.

From the above, two major classifications emerge: user-oriented quality for the marketing approach and defect-free quality for the engineering approach. No precise definition has been arrived at for aesthetic quality, a qualitative attribute perceived by the customer through visual inspection and comparison. Visual, feel, sound, and smell form part of the perceived quality. Thus, perceived quality can be better understood by grouping it into Technical Perceived Quality (TPQ) and Value Based Perceived Quality (VBPQ). A pictorial representation is shown at Fig 1. The exploration of perception among car buyers has thus been an interesting subject of study, and this paper duly assesses manufacturers' views on the subject. ALG is a logistics and transport consultancy firm. In the study conducted by ALG in 2012, they concluded that the perceived quality of various manufacturers was: The 2012 ALG Perceived Quality Study [16] (PQS) ranked Lexus as the top luxury brand and Honda as the leading mainstream brand. Toyota was identified as the most improved, while a strong design focus boosted Hyundai's scores in the survey of over 3,500 U.S. consumers.

1.2 Problem Statement

Car manufacturers operate in a highly competitive environment to meet customer expectations for comfort. With all the technological advancements, they vie to add more features to cars to enhance aesthetics, serviceability, and durability, and to support the zero-defect concept. Customer perception has been a topic dealt by many authors previously. The influences arise from the product features – aesthetic, functional and emotional – that signal quality to the customer.

Understanding the concept of perceived quality and using it to improve the production of cars is a real challenge for manufacturers. What is perceived quality specifically in reference to the automotive industry? - is the problem statement.

1.3 Research Objective and Research Questions

Research Objective:

To understand how perceived quality helps car manufacturers enhance quality and sustain growth through brand loyalty.

Research Question:

RQ 1: How perceived quality approach will help the manufacturers of cars to satisfy the customers and retain brand loyalty?

2.0 Literature Review

The discussion on perceived quality has been in vogue for several decades and has to be revisited many times due to a changing environment. Transportation modes have changed over the years, and ergonomics and zero emissions are playing a greater role in vehicle owners' perceptions today. Stylidis K, Casper Wickmana, b, Rikard Söderberga (2015) [1] - deal with perceived quality forming part of technical perceived quality and value-based perceived quality. Visual, feel, sound, and smell qualities are termed

TPQ, and customer behavior, brand image, and the company's core values are termed VPQ. The company's core values, which include integrity, transparency, and teamwork, result in trust and brand loyalty. They have concluded with emphasizing the need of researchers to have close collaboration with the industry to identify perceived quality elements which would help manufacturers in their produce of cars. In 2020, Kostas Stylidis (2020) has further dealt on TPQ and VBPQ.

Huertas-Leyva, Pedro1, Quattelbaum, Bastian2 (2011), [11] has dealt on the haptic (touch) and optical perceptions of the interiors of cars. The study consisted of focus groups and with a questionnaire. They concluded that five attributes, when addressed, will enhance the study's results, namely: overall impression, perception cluster, quality attribute, descriptor, and technical Parameter. The overall impression does not go into the details of specific components of a car, a product with many parts; it is inalienable to divide the parts into manageable units of interest. They have also suggested conducting a study in such cases – "for gathering conscious and unconscious information, five different methods can be used – free interviews, observation during interaction, the "think-aloud" method, workshops in small-sized groups, or empirical studies. This aligns with the study being conducted. The Faster Capital (Jun 2024) [12] article stresses that perceived quality plays a role in brand equity – it is one of the primary drivers of brand equity. Alina Braun (2020) [13] has stated that a manufacturer of cars deals with 20-120 attributes of perceived quality.

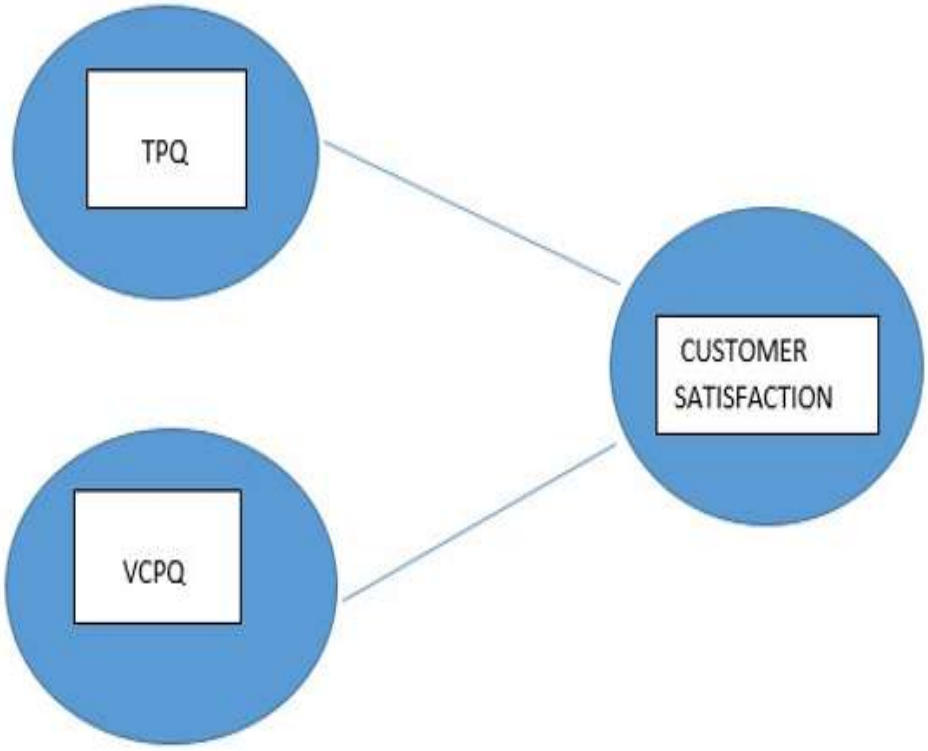
Yonggang Qiao, Xirui Yin, and Gao Xing (2022), [14] have also dealt with the subject of brand equity. Kimberly Houston (2024) [15] has discussed the exploratory nature of approach in a qualitative study. He has clearly brought out that the qualitative approach is descriptive rather than numerical, and it looks for context - it is about people's perceptions. It can reveal people's feelings and opinions too. An important observation in one of the papers published in 2012 is the stress it places on brand image. ALG perceived quality study (2012) [16] at marketing@alg.com on perceived quality is with respect to Ford, Hyundai, and Toyota. The important observation here is – "Familiarity is an important component of brand image; manufacturers with high awareness are also more likely to be reviewed favorably on quality. Causation works both ways: quality influences awareness, and awareness impacts perceived quality.

The literature reviewed has succinctly presented the perceptions of car buyers regarding technical perceived quality and value-based perceived quality, as well as the necessity for a qualitative study. The review has also led to a conceptual framework on perceived quality and customer satisfaction, which manufacturers use to make decisions about car production.

2.1 Theoretical proposition

The theory is that Perceived Quality, consisting of Technical Perceived Quality and Value-Based PQ, impacts Customer Satisfaction and thus influences the manufacture of cars.

Figure 2: Theoretical proposition



3.0 Research Methodology

The qualitative study conducted has been explained, including the methods used for data collection and analysis.

3.1 Introduction

The literature review helped in formulating the conceptual framework. The research involves deeply understanding the consumer's perceptions, as reflected in feedback and as understood by car manufacturers regarding quality. Hence, it was planned to obtain their views on the subject by conducting purposive interviews. Perceptions are more closely determined by the values people have for the car's brand, and by their comfort levels with respect to feel, touch, vision, and sound and vibrations perceived and understood by the human brain. These are best understood through an intense desire to gain the experiences of experts in the field.

3.2 Research approach and Design

Hyundai's contract with Hyundai Mobis, Chennai, has been in effect for the last 15 years. This company has the necessary machinery to get feedback from the car users. The study was done in M/s. Hyundai MobqAis: an unstructured questionnaire and a purposive interview with a planned sample of 5 to 10 respondents. They were informed of the interview in advance. The firm was good enough to offer its services for the study. It was informed to them that the study will be a purposive interview with senior managers from quality departments, middle-level management, and supervisors, to gather views across different levels on the subject.

Questionnaire:

The Questionnaire for the Quality Heads was designed to gather their experience with the overall Concept of Perceived Quality.

For Quality Heads:

1. Perception in quality of cars as understood by customer and what as a manufacturer of Car, you would like them to know on these areas?
2. Action on the VBPQuality areas by car manufacturers – customer behavior, brand identity, and building trust of customers.
3. Your views on the subject – how perceived quality has relevance to car manufacturing.

For middle-level management and supervisors

1. Perceived quality and the customer – your view.
2. Your views on the aspects of vision as a factor in the manufacture of cars - based on customer feedback as well as without it.
3. Your views on sound and vibrations as factors in the manufacturing of cars! (vehicle in stationery and vehicle in movement) with customer feedback as well as without it.
4. Your views on the shining exterior, style, and the structure of car as a basis for manufacturing and customers' view on this based on your experience
5. Your views on smell affecting customer satisfaction and how it is overcome in the manufacturing of cars!
6. General customer behavior and how it helps in the manufacture of cars!
7. How do you think you can acquire trust with the "brand" of cars?
8. What are the factors you think can help improve customer satisfaction? Are customer perception complaints useful?
9. Your view on ergonomics helping the customer.
10. Your views on perception in quality and customer satisfaction.

3.3 Data collection

The persons nominated by the firm's management responded to the questionnaire. Even as 6 persons (2 from the higher management, 2 from the middle management, 2 from the supervisory cadre) were completed, it was felt that their replies were exhaustive and provided the data for the questions. The saturation level had been reached and thus the data collection with 6 persons was found adequate for the study. The transcripts of their interview were made to enable analysis. The analysis of the submissions is in para 4.0.

4.0 Data analysis

The transcripts showed that only the required data had been provided by the participants. Hence, the entire data as collected was subjected to analysis. The recorded data were subjected to thematic analysis with NVivo 14. The thematic analysis was done in three stages.

Data Codings

The first stage, Part I, enabled the creation of the cloud map with major themes shown as in Figure 3. Important contributors, supporting contributors and those which are not supporting have been identified from the respondents' statements. The analysis also identified additional factors supporting the theory from the respondents' statements, in this case, car manufacturers. They have been classified as supporting contributors for convenience. The statement of the respondents also brought the awareness of the perceptions of the customer through their feedback to aftersales, maintenance department while attending periodic scheduled services and repair attentions. Hence, the first stage of identifying themes highlighted

the importance of customer perception and manufacturers' awareness of the problems, as shown in Figure 3.

Figure 3 - Thematic analysis Part I

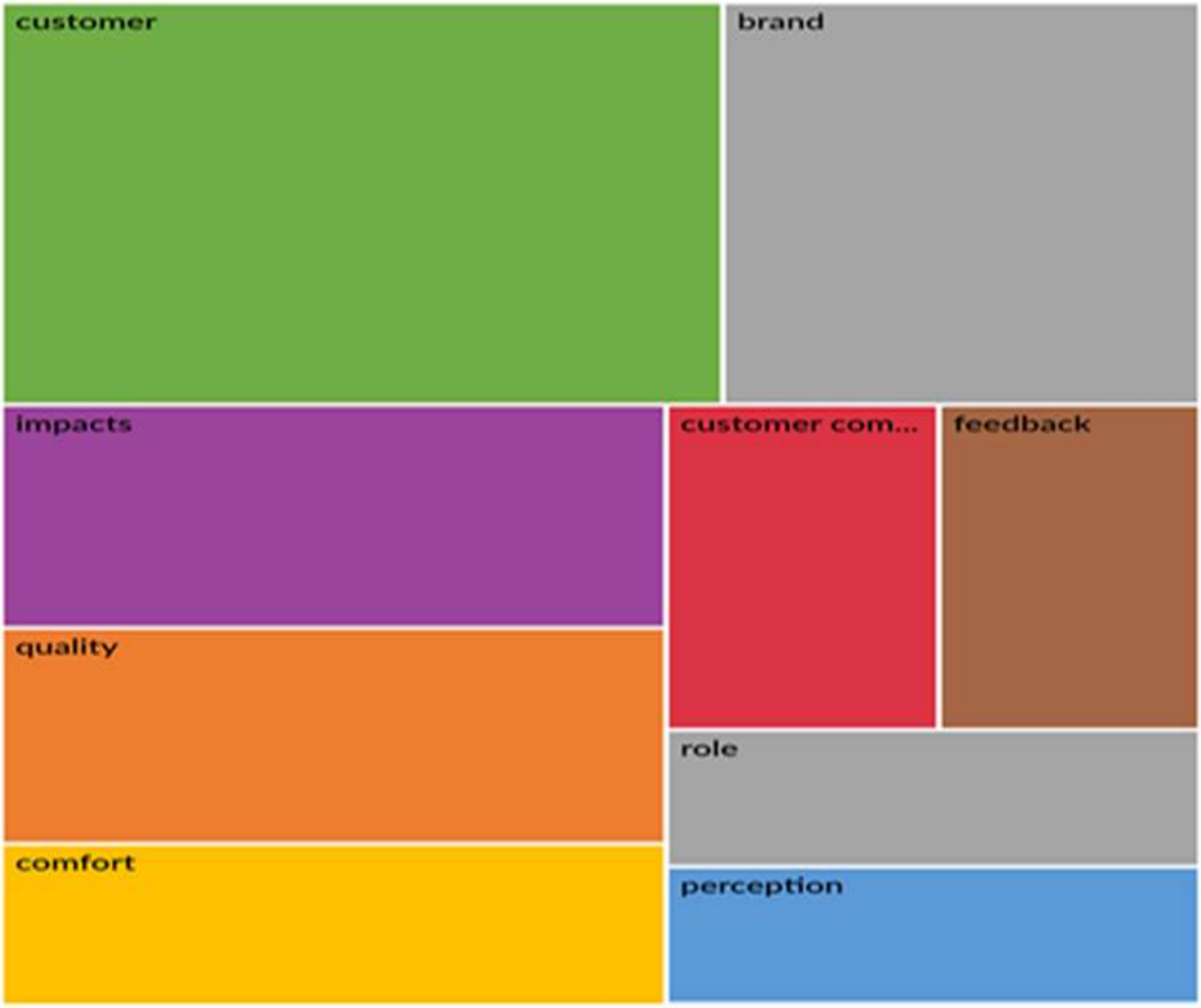
Further analysis was based on the keywords used by the respondents/car manufacturers in their submissions, which were correlated with the cloud map. As could be seen from the initial words emerging out of the statement in the analysis are -

Customers, Brand, Car, Comfort, Quality, Feedback, Satisfaction, Perception, Vibrations, ergonomics, Performance, Loyalty, Style, Finish, sound, noise, smell, Influences, aesthetics, and consistency.

Further processing, including coding and merging captions to create group themes, led to the themes shown in Figure 4.

The regrouped features were analyzed, leading to the conclusion that customer and brand are more important factors in the study of perceived quality. Other group themes included feedback, customer complaints, impacts, comfort, role, perception, and quality, all of which pointed to customers' attributes. Further exploration was conducted on themes related to the customer. Stage II of analysis has highlighted the importance of studying perceived quality in relation to customer, brand, impacts, quality, customer complaints, feedback, role, comfort, and perception.

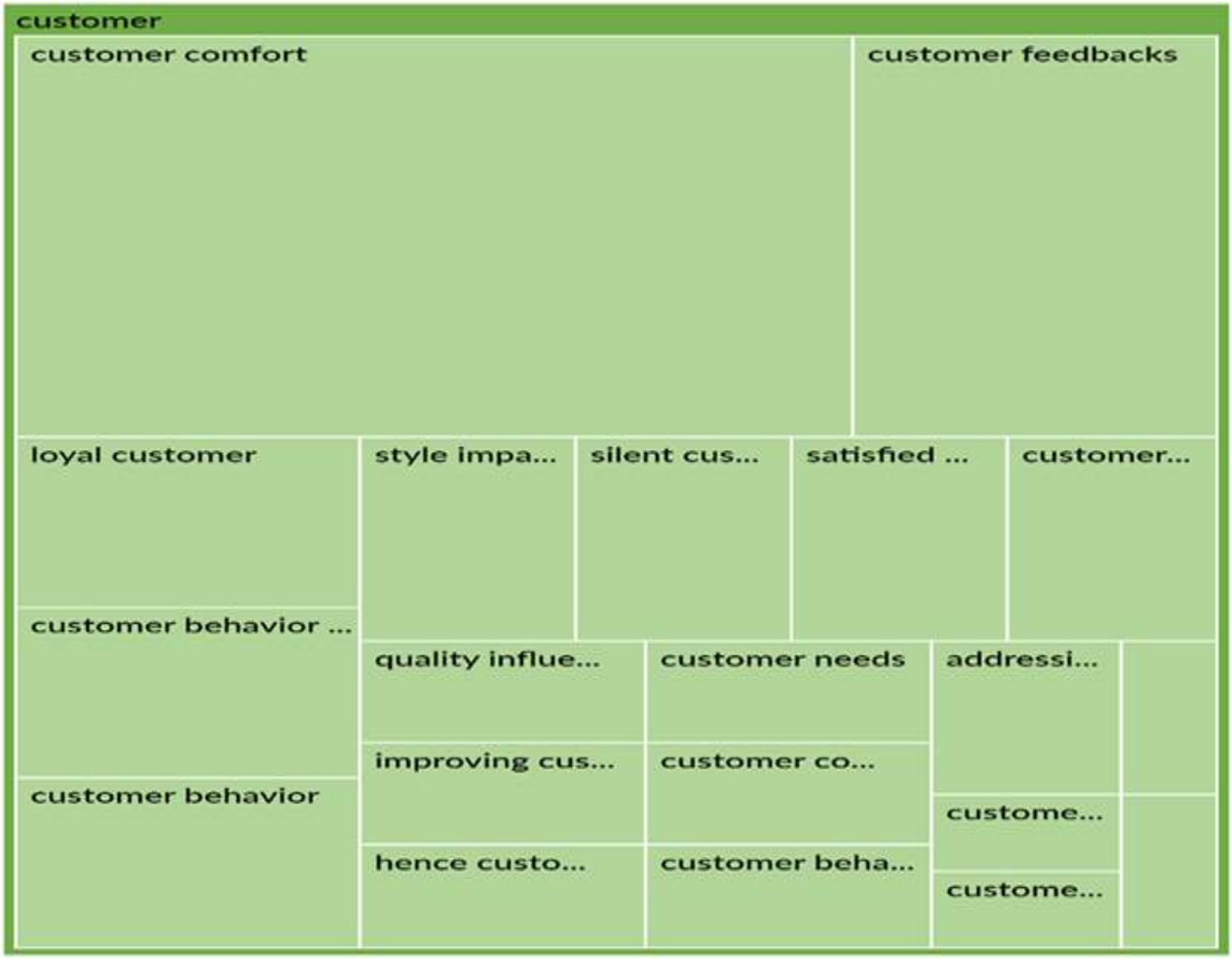
Figure 4: Thematic analysis Part II



Customer emerged as the major contributor to perceived quality in this stage. The analysis, hence, had to be further focused on customers, which led to Customer Comfort, Customer Feedback, and Customer Behavior as major contributory factors in the expression of customers' perceptions. Loyal Customers, Addressing Customer needs, Satisfied Customers, Style and impact on the customer and improving customer comfort have been identified as other factors which contribute to better manufacture of Cars with the customer feedbacks. This could be seen in Figure 5.

Figure 5 has narrowed the analysis to the importance of the customer, his comfort, feedback, and loyal and satisfied customers, as well as his behavior. Customer feedback plays a major role in the manufacturer's decision. This happens when the manufacturer understands customer needs, addresses them, and maintains quality, resulting in improved customer satisfaction. This is substantiated by the respondents' statements on each important factor identified in the final analysis in Figure 5.

Figure 5: Thematic analysis – Part III



They have been listed below:

Customer Comfort

"Ergonomics significantly enhances customer satisfaction and driving comfort".

"His reactions to smoother surfaces, pleasing painting finish, devoid of smell due to leakages, clearer vision for him to drive, adequate lighting for him to comfortably drive, and his position of seating allowing him to have the best of comforts play a vital role in his satisfaction of owning a good car".

Customer feedback

It could be seen that the respondents were categorical in stating:

"Whether it is visual, sound, smell, or feel and touch, and also about comforts given by ergonomic innovative fixtures in the car, they are forthright in their views."

"Perceived Quality is playing a vital role in the feedback given by Customers".

Loyal Customer

"A satisfied customer not only contributes to brand loyalty but also becomes an influencer for others to purchase their brand".

"Loyal customers are important for brand success".

Customer Behavior

"Customer behavior is positive when we provide a car to his satisfaction".

"Customer behavior influences satisfaction and brand loyalty".

Silent Customer
"Thus, perceptions play a great role, and Hyundai understands that and welcomes the customer to share his feedback, which, when incorporated, helps to satisfy several silent customers and ultimately makes the brand popular".
Satisfied customer
"Ergonomics significantly enhances customer satisfaction and driving comfort".
"Customer satisfaction is influenced by meeting various feedback aspects".
"A satisfied customer besides contributes to the brand loyalty also becomes an influencer for others to purchase their brand".
Quality Influences -
"Ensuring quality helps in brand loyalty and customer satisfaction."
"Consistent quality results in high customer satisfaction."
Customer Needs
"Brand equity is built through attention to customer needs and satisfaction".
Addressing
"Addressing feedback and complaints enhances customer satisfaction."
Improving Customer Satisfaction
"Ergonomics significantly enhances customer satisfaction and driving comfort".
"Customer satisfaction is influenced by meeting various feedback aspects".
"Improving customer satisfaction involves addressing various feedback aspects".
Customer Perception
"Exterior looks, style, and finish play a significant role in customer perceptions".
The statements above pertain to each theme. The respondents' replies were corroborated in the final analysis, as seen above, where it matters, and the final analysis clearly brought out the customer's perception when he really conveys feedback, which serves as a basis for the manufacturer to address them and take action for the mutual benefit of the manufacturer and the customer.
The above thematic analysis results obtained through the software have been consolidated to arrive at the findings and relate to the theoretical proposition.

4.1 Discussion and Findings from Thematic Analysis

Customer perceptions have been understood by the manufacturer Hyundai and have a bearing on the manufacture of car. Better ergonomics, appearance and style have very positive impact on Customers.
Supporting contributor aspects include the effects of visual, auditory, olfactory, and tactile stimuli, as well as innovative ergonomic fixtures. Perceived quality influences customer satisfaction. A satisfied customer contributes to brand loyalty and becomes an influencer, encouraging others to purchase the brand. Perception complaints are valuable for quality improvement.
The main point of customer satisfaction with perceptions of quality helps manufacturers in production of the car which is the research objective and the research question has been answered in the category of important contributors. This is also consistent with the theory that TPQ and VBPQ contribute to customer satisfaction.

5.0 Conclusion

5.1 Study Summary

Perceived quality has been a subject of discussion for many years and it has been a combination Technical

Perceived Quality and Value Based Perceived Quality. The contributory factors have been listed in the model shown at Fig 1. It was felt that the comfort levels of the occupants and the driver of the car are equally important for customer satisfaction. The problem statement, research objective, and research question were made based on this. A detailed literature review was undertaken and is recorded in paragraph 2. In these discussions, perceived quality has been examined in detail, including its effect on brand equity. Thus, data supporting the theory of perceived quality were discussed and served as a guiding factor for the study. In para 3, the research method has been discussed. A qualitative study with purposive interviews was conducted to collect data from 6 respondents at Hyundai Mobis. Para 4 was on data analysis. Thematic analysis was done with NVivo 14. The results show that customer satisfaction levels affect perceptions, and manufacturers like Hyundai are aware of this and give credence to these perceptions by introducing different models to suit different segments, thereby addressing customer perceptions. It can also be concluded that the sustained growth of car manufacturing companies depends on customer perceptions, and their after-sales service plays a role in their success. The NVivo 14 analysis has identified very positive, moderately positive, and moderately negative areas in the respondents' statements. The query regarding leaks and unwanted sound has not been answered positively.

5.2 Contribution to Research

Perceived Quality has been discussed over the years. Studies have been conducted on adequacy with respect to visibility, bearable vibration levels, and noise levels. These have been studied as customer preferences with quantitative analysis. A qualitative study on perceived quality in a new environment was felt necessary. This study has been restricted to a single manufacturer and of a general nature not pertaining to any models of cars. There is scope for further study on various manufacturers and the various models they introduce from time to time. An increase in the number of battery-electric vehicles will also require a new approach in this area.

5.3 Contribution to Business

This study has identified some contributory factors, both positive and negative, and specifically the positive aspects of understanding perceived quality as a factor in the manufacturing of cars. The study will help manufacturers share their efforts to address perceived quality factors for car owners and buyers.

5.4 Research Limitation

Every effort has been made to understand the problem of perceived quality. However, the vastness of the subject requires respondents across different car brands, which will require a longer study duration.

5.5 Pictorial Representations

Fig 1: TPQ and VCPQ model on Perception Quality
Fig 2: Conceptual Framework.
Fig 3: Thematic analysis Results Part I
Fig 4: Thematic analysis Coding and sub-coding Part II
Fig 5: Thematic analysis Coding and sub-coding Part III

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