Customer Behavior and Sentiment Analysis of Electric Vehicles in Nepal

A dissertation submitted to the office of the dean, Faculty Management in partial Fulfillment of the requirements for the Master's Degree

By

Birochan Koirala
TU Registration No.: 7-2-0031-0012-2013
Campus Roll No.: 243/077
Exam Roll No.: 35445/21
Shanker Dev Campus

Group: Marketing

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Kathmandu, Nepal

CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "**Customer Behavior and Sentiment Analysis of Electric Vehicles in Nepal**". The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor. It has been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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Birochan Koirala

REPORT OF RESEARCH COMMITTEE

Mr. Birochan Koirala has defended research proposal entitled "**Customer Behavior and Sentiment Analysis of Electric Vehicles in Nepal**", successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Keshav Chand and Dr. Dipak Mahat and submit the thesis for evaluation and viva voce examination.

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Keshav Chand
Dissertation Supervisor

Dissertation Proposal Defended Date:

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Dr. Dipak Mahat
Dissertation Supervisor

Dissertation Submitted Date:

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Asso. Prof. Dr. Sajeeb Kumar Shrestha
Head of Research Department

Dissertation Viva Voce Date:

……...

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APPROVAL SHEET

We, the undersigned, have examined the thesis entitled "**Customer Behavior and Sentiment Analysis of Electric Vehicles in Nepal**" presented by Birochan Koirala a candidate for the degree of master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

……
Keshav Chand
Dissertation Supervisor

…….
Dr. Dipak Mahat
Dissertation Supervisor

……..
Internal Examiner

……
Internal Expert

…….
External Expert

…….
Asso. Prof. Dr. Sajeeb Kumar Shrestha
Chairman, Research Committee

……..
Asso. Prof. Dr. Kapil Khanal
Campus Chief

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This study entitled "**Customer Behavior and Sentiment Analysis of Electric Vehicles in Nepal**" has been prepared in partial fulfillment for the Degree of Master of Business Studies (MBS) under the Faculty of Management, Tribhuvan University is based on research models involving the consumer behavior and sentiment analysis of electric vehicles in Nepal.

I have great satisfaction and pleasure to express my appreciation and sincerity to my thesis supervisor Keshav Chand and Dr. Dipak Mahat, Shanker Dev Campus, TU for their excellent and effective guidance and supervision. I will remain thankful for their valuable direction useful suggestion and comments during the course of preparing this thesis without their help this work would not have come in this form. I also would like to extend my debt of gratitude Asso. Prof. Dr. Sajeeb Kumar Shrestha, Head of Research Department and I owe a deep debt of gratitude to Asso. Prof. Dr. Kapil Khanal, Campus Chief of Shanker Dev Campus who provided me an opportunity to undertake this research work. Similarly, I would like to express my sincere to my friends for their support, encouragement and help for this study work.

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Birochan Koirala
August, 2025

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Abbreviations

A	:	Agree
AD	:	Anno Domini
ANOVA	:	Analysis of Variance
CRM	:	Customer Relationship Management
D	:	Disagree
EBL	:	Everest Bank Limited
Etc.	:	Et cetera
Fig.	:	Figure
IT	:	Information Technology
Max.	:	Maximum
Min.	:	Minimum
MSQ	:	Minnesota Satisfaction Questionnaire
N	:	Neutral
NBL	:	Nepal Bank Limited
No.	:	Total number of observations
Reg.	:	Registration
SA	:	Strongly Agree
SD	:	Standard Deviation
SD	:	Strongly Disagree
SERVQUAL	:	Service Quality
SPSS	:	Statistical Package for Social Science

Abstract

This study explores customer behavior and sentiment analysis regarding electric vehicles (EVs) in Nepal, focusing on the influence of cultural, social, personal, and psychological factors. Using a sample of 400 respondents, both correlation and regression analyses were conducted to assess how these factors shape environmental, infrastructural, product-related, and economic sentiments towards EV adoption. The results indicate that cultural factors exhibit the strongest overall correlation with sentiment analysis ($r = .691$, $p < 0.01$), followed by personal, social, and psychological factors. Regression analysis reveals that cultural influences are the most significant predictor of overall sentiment ($\beta = .448$, $p < 0.01$), particularly impacting environmental ($\beta = .372$) and product sentiment ($\beta = .671$). Personal factors were also significant across multiple sentiment dimensions, notably infrastructural ($\beta = .179$) and economic sentiment ($\beta = .214$). In contrast, psychological and social factors had moderate to limited predictive power, showing significance in only a few sentiment categories. The findings suggest that while all four behavioral dimensions play a role, cultural and personal factors predominantly drive public sentiment toward electric vehicles in Nepal. These insights are crucial for policymakers, marketers, and EV manufacturers aiming to design culturally aligned and personally relevant strategies to foster EV adoption.

Keywords: Sentiment analysis, buying behavior, electric vehicles

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The global automotive sector is experiencing a major transition toward more sustainable and environmentally friendly transportation, with electric vehicles (EVs) playing a central role in lowering carbon emissions and addressing climate change. In Nepal, this shift is gaining momentum due to increased environmental consciousness, rising fuel costs, worsening urban air quality, and supportive government policies that encourage the use of clean energy. Since Nepal largely depends on imported fossil fuels, adopting EVs offers a way to not only support environmental goals but also strengthen energy independence and reduce the trade imbalance (Deshmukh & Sharma, 2023).

Although electric vehicles (EVs) are becoming more visible in Nepal's automotive market, their adoption still lags behind that of conventional internal combustion engine vehicles. Key challenges such as inadequate infrastructure, high upfront costs, low public awareness, brand image issues, and consumer behavior significantly influence EV purchasing decisions. For manufacturers, policymakers, and other stakeholders seeking to promote electric mobility, gaining insights into consumer attitudes and behaviors toward EVs is essential (Çoban et al., 2025).

Integrating sentiment analysis with behavioral research offers valuable insights into consumers' attitudes, preferences, concerns, and motivations. This study analyzes online reviews, social media conversations, and survey data to identify the emotional and logical factors affecting electric vehicle (EV) adoption in Nepal. The insights gained can help close the knowledge gap and inform strategies that better align with consumer needs, thereby aiding the nation's shift toward a more sustainable and eco-friendly transportation system (Araújo et al., 2023).

Marketing decisions are fundamentally rooted in assumptions and insights about consumer behavior (Hawkins, 2015). Understanding how and why consumers make purchasing decisions has long been a vital aspect of marketing, as it enables companies to refine their strategies and achieve greater success in the marketplace. One of the key challenges for modern marketers is influencing consumer buying behavior in favor of

their offerings. Studying consumer behavior provides valuable insight into the psychological processes behind how individuals think, feel, evaluate, and choose among various options—such as brands, products, or retailers. It also explores how external factors like culture, family, and media impact decision-making, and how motivations and strategies differ across product types. All of this knowledge helps marketers design more effective campaigns that better connect with their target audiences.

Consumer behavior is strongly influenced by branding elements. In recent years, the transportation sector has come under pressure due to the growing emphasis on environmental and climate change issues (Secinaro et al., 2020; Umar et al., 2021). As reported by the European Parliament (2019), transportation accounts for at least 30% of CO_2 emissions within the European Union, and similar figures are observed internationally, with the U.S. Environmental Protection Agency (2021) estimating the share at around 37.5%. Approximately 60% of these emissions stem from vehicle traffic in major urban areas, which have been identified as key locations for implementing innovative and sustainable solutions (Ferraris et al., 2018). Brand equity defined as the set of brand-related assets and liabilities associated with a brand's name and symbol can either enhance or diminish the value a product or service delivers to both a company and its customers (Chakma et al., 2021). It is a critical asset that companies aim to invest in, as a strong brand often commands higher levels of customer awareness and loyalty.

Market success largely depends on the marketing strategies a company adopts. Gaining a deep understanding of consumer behavior gives firms a competitive advantage in developing effective marketing strategies. By analyzing consumer purchasing behavior, businesses can gain valuable insights into customer psychology, particularly how they perceive product experiences and respond to various brands in the marketplace. Consumer behavior can be described as the decision-making process and physical actions individuals take when evaluating, acquiring, using, or disposing of goods and services (Centobelli et al., 2020). In today's highly competitive market environment, accurately understanding buying behavior remains a significant challenge for marketers. One of their main tasks is to convince consumers to choose their company's products over others (Biancone et al., 2022).

Today’s consumers are more informed, discerning, and conscious of quality, price, and brand value. Consumer behavior encompasses the process of selecting, purchasing, and using goods and services to fulfill their needs and desires (Globisch et al., 2019). This behavior involves several steps, beginning with identifying the products they want, followed by choosing those that offer the highest perceived value (Randhawa et al., 2016). Understanding consumer behavior is especially crucial in the marketing of fast-moving consumer goods. Various factors influence this behavior, and in the current era of globalization, consumer needs and preferences continue to evolve. The fast-moving consumer goods sector including electric vehicles (EVs) plays a significant role in national economic development. Therefore, it is essential to monitor and understand the shifting patterns in consumer purchasing behavior toward EVs (Ćatić & Poturak, 2022).

Consumer behavior is shaped by two primary categories of factors: individual and environmental. Individual factors include elements such as demographics, consumer knowledge, perception, learning, motivation, personality, beliefs, attitudes, and lifestyle. On the other hand, environmental factors refer to external influences that impact a consumer’s decision-making process, including culture, social class, reference groups, and family or household dynamics (Blackwell et al., 2006). These combined factors play a critical role in determining a consumer’s choice of products or services. A consumer's perception is also significantly affected by branding and the information they receive about a brand, which can ultimately lead to brand loyalty. Specifically, brand loyalty in the context of electric vehicles (EVs) is influenced by consumer awareness, knowledge, attitudes toward the brand, resistance to switching brands, satisfaction, and trust in the brand (Gil & Taiber, 2014).

Consumer behavior and expectations differ by region, as various factors such as product features, inventory availability, and logistics, and customer service impact decisions to purchase, repurchase, or return a product. In Brazil, the e-commerce landscape presents unique challenges due to consumer concerns about payment security, delivery reliability, and high cross-border taxes, which often benefit local retailers. To address these issues, the use of machine learning can help retailers gain deeper insights into customer preferences, respond to feedback, enhance product recommendations, improve price and demand forecasting, and strengthen customer service. This study aims to identify the

main factors influencing customer satisfaction and behavior, and to predict e-commerce customer satisfaction in Brazil through machine learning techniques.

Consumer behavior mainly aims to understand buyers and turn them into customers. It centers on studying buyers' habits, priorities, and personalities to gain insight into when, why, and how individuals decide to purchase or not purchase products. Personality refers to the inner psychological traits that shape how people respond to their external environment (Forliano, 2021).

In conclusion, overlooking consumer behavior can cause significant challenges for companies. As the marketing landscape evolves, it is crucial for marketers to adapt to consumer behavior to ensure business growth. Understanding consumer buying behavior offers valuable insights into customer actions and helps marketers develop strategies that increase their chances of success in the marketplace (Furrer et al., 2020).

1.2 Problem Statement

The global move toward sustainable transportation has accelerated the growth and adoption of electric vehicles (EVs). Although technological progress and increased environmental awareness have helped, EV acceptance varies widely across different markets. For automakers, policymakers, and marketers, understanding consumer behavior and attitudes toward EVs is essential to developing effective strategies. Consumer decisions about EV adoption are shaped by a complex mix of factors, including perceived value, environmental concerns, availability of charging infrastructure, performance expectations, and social influences (Rezvani et al., 2015). Additionally, consumer sentiments shared on digital platforms like social media, reviews, and forums provide valuable but often underexploited insights into these attitudes.

The main challenge stems from the varied and sometimes conflicting perceptions held by consumers. While some see electric vehicles (EVs) as eco-friendly and technologically innovative, others remain doubtful due to concerns about cost, range limitations, and inadequate infrastructure (Egbue & Long, 2012). Furthermore, conventional survey methods often fail to capture the real-time, complex opinions consumers share on digital platforms. Therefore, there is a need for a comprehensive analytical approach that

combines sentiment analysis with behavioral modeling to derive meaningful insights from both structured and unstructured data.

Sentiment analysis, a branch of natural language processing (NLP), allows for detecting and categorizing opinions within text data. When applied to content related to electric vehicles (EVs), it can reveal public attitudes toward specific models, brands, government policies, and charging infrastructure (Li et al., 2020). By integrating sentiment analysis with behavioral frameworks like the Theory of Planned Behavior or the Technology Acceptance Model, researchers gain deeper insights into the cognitive and emotional factors that encourage or discourage EV adoption (Ajzen, 1991; Van Eck & Waltman, 2009).

Additionally, the swift expansion of social media platforms has created a wealth of consumer-generated content. This offers a valuable chance to investigate changing trends, regional preferences, and demographic variations in sentiment—insights that traditional methods may miss. However, to uncover meaningful patterns from this vast data, sophisticated data mining techniques and machine learning algorithms are necessary to maintain accuracy and dependability (Zhao et al., 2020).

Thus, this research focuses on a dual challenge: first, to systematically examine consumer sentiments toward electric vehicles using natural language processing and machine learning methods; and second, to link these sentiments with behavioral patterns to identify the key factors influencing consumer decisions. Tackling this issue will enrich academic literature by presenting a data-driven approach to understanding EV adoption, while also offering valuable practical insights for manufacturers and policymakers striving to boost consumer engagement and speed up the shift to electric mobility (Yzer, 2017).

Therefore, it is essential to recognize shifts in consumer behavior and sentiment toward electric vehicles. Additionally, marketers can strategically leverage these factors in ways that consumers may not even be consciously aware of. For these reasons, the researcher aims to examine the key factors influencing consumer decision-making regarding electric vehicles. Accordingly, this study seeks to address the following issues:

a. What is the structure of consumer behavior and sentiment analysis of EV in

Kathmandu?

b. Is there any relationship between consumer behavior and sentiment analysis of EV in Kathmandu?
c. What is the impact of consumer behavior on sentiment analysis of EV in Kathmandu?

1.3 Objective of the Study

The primary goal of this study is to determine the factors affecting consumer behavior and conduct a sentiment analysis of electric vehicles (EVs) in the Kathmandu Valley. Additionally, the study has the following specific objectives:

a. To assess the consumer behavior and sentiment analysis of EV in Kathmandu.
b. To examine the relationship between consumer behavior and sentiment analysis of EV in Kathmandu.
c. To analyze the impact of consumer behavior on sentiment analysis of EV in Kathmandu.

1.4 Hypothesis of Study

These hypotheses were formulated in this study they are follows:

H_1: There is a positive impact of cultural factor on sentiment analysis.

H_2: There is negative impact of social factor on sentiment analysis.

H_3: There is positive impact of personal factor on sentiment analysis.

H_4: There is negative impact of psychological factor on sentiment analysis.

1.5 Rationale of Study

This study offers clear insights into the key factors shaping consumer behavior and sentiment toward electric vehicles in Nepal. It assists marketers in better understanding consumer purchasing patterns, specifically within the electric vehicle market. The research provides valuable information about the extent of customer engagement in brand search, evaluation, and selection related to EVs. Given the limited research on factors influencing EV buying behavior, this study contributes meaningfully to the existing knowledge and encourages further advanced research in the field of management sciences.

This study is valuable for retailers and manufacturers seeking to enhance their understanding of consumer buying behavior related to electric vehicles. It supports various management levels including employees, business owners, industry leaders, and researchers in improving customer engagement, product development, and guiding future research in this area.

The primary aim of this study is to provide policymakers with actionable recommendations. By identifying the most effective tax policy changes that promote corporate investment, the study can inform the development of future tax reforms that foster sustainable economic growth.

Importance to shareholders

For example, shareholders can successfully block takeover bids if they consider the offer price to be too low. Since they have control over most aspects of a company's operations, shareholders significantly influence its overall performance and profitability.

Importance to management team of the company

Manufacturing company relationship management offers processes and technologies that enable a company to monitor and manage all its relationships by delivering a unified view of all accounts and activities across the globe.

Importance to financial institution

Although financial markets can appear complex, their core purpose is to connect people and direct funds to where they are most needed. These markets supply financing to companies, enabling them to hire employees, invest, and expand. They also provide funds to governments to support initiatives such as infrastructure, schools, and hospitals (Vrontis & Christofi, 2021).

Importance to government bodies and policy makers

Government policies outline the rationale behind specific actions and the reasons for following certain approaches. Public issues can arise from numerous causes and demand varied policy solutions. Governments create a range of policies that provide direction to businesses (Xie et al., 2017).

Importance to the institutes

Institutions play a crucial role in redistributing resources within the economy, ensuring that they are allocated fairly and that vulnerable groups with fewer economic means are safeguarded. They also promote trust by maintaining policing and justice systems that uphold a shared legal framework (Yang et al., 2019).

Importance to the researchers

The primary goals of research are to guide action, collect evidence supporting theories, and contribute to the advancement of knowledge within a specific field. Research deepens understanding and improves decision-making. It serves as a vital tool for unraveling complex problems, debunking falsehoods, affirming truths, and building reliable and credible knowledge. Engaging in research leads to greater insight and strengthens the ability to make informed decisions.

1.6 Limitations of the Study

This research primarily investigates the factors affecting consumer behavior toward electric vehicles in the Kathmandu Valley. Like any study, this research has its limitations and constraints. The key limitations of this study are outlined below:

a. The study is based only in the Kathmandu valley. So, the study cannot be generalized.
b. This study is based on primary data taken from structured questionnaire.
c. This study is limited to available literature and observations for theoretical and general part of study.
d. Results of the study is completely depending upon the opinion provided by respondents.
e. Structured questionnaire is distributed to 484 respondents. Among them only 450 questionnaires are returned but only 400 are useful for the study. So that Analysis and Findings of the study is based on opinion provided by 400 respondents only.

CHAPTER II

LITERATURE REVIEW

This section offers an overview of both empirical and conceptual literature, incorporating theoretical and conceptual perspectives relevant to the research. It begins by exploring key concepts that underpin the study. The section also includes the conceptual framework, highlighting the main components and ideas that will guide the research. The empirical review focuses on analyzing previous studies and national and international journal articles related to the topic. These limitations identify gaps in the existing knowledge and highlight areas where further research is needed to deepen understanding of the relationship between financial banking and customer satisfaction.

2.1 Conceptual Review

A conceptual review is a form of literature review that centers on examining, analyzing, and integrating important concepts, theories, models, and frameworks related to a specific research topic. Unlike empirical reviews, which summarize previous study results, a conceptual review seeks to clarify definitions, identify connections, and build a theoretical foundation to inform the research process.

2.1.1 Consumer Decision Process

A key and longstanding focus in consumer behavior research is the decision-making process that leads to the purchase of a product or service. This area examines how individuals select among two or more alternatives and the steps involved both before and after making a choice. At its most detailed, the consumer decision-making process includes five distinct stages:

I. Problem Recognition

Problem recognition happens when there is a gap between the current state and a desired state. Essentially, it occurs when a need is perceived. Researchers often identify consumer problems by examining factors that widen this gap. When satisfaction with the current state declines or the expectations for the desired state rise, consumers may recognize a problem that motivates them to take action (Wang et al., 2020).

II. Consumer Search Behavior

Once a consumer recognizes a problem significant enough to prompt action, they begin searching for information about products or services that could resolve it. Understanding this search process is crucial for marketers, as it impacts promotional and distribution strategies. Research identifies two types of consumer search: internal and external. Internal search involves the consumer recalling information from their long-term memory about products or services that might address the problem. External search, on the other hand, entails gathering information from outside sources such as friends, advertisements, packaging, or sales representatives (Xia et al., 2020).

III. Alternative Evaluation

During the evaluation stage, consumers assess the brands they believe can solve the problem that triggered the decision-making process. As they compare these brands, consumers form beliefs, attitudes, and intentions toward the options being considered. Therefore, the evaluation of alternatives is closely linked to the development of these beliefs and attitudes. For high-involvement products, this evaluation process tends to be more extensive compared to low-involvement products (Shetty et al., 2020).

IV. Consumer Choice Process

After evaluating the options, the consumer's next step is to choose among the alternatives. Consumers can select from different brands or services and even decide which stores to shop from. The way consumers make these choices depends heavily on the type of decision process they are using. Research shows that the choice process varies between high-involvement and low-involvement purchases. For high-involvement decisions, consumers typically go through a thorough and sequential decision-making process, moving step-by-step through all five stages. Conversely, when the purchase is of low personal importance, consumers tend to follow a shorter decision process, with minimal searching and sometimes skipping the evaluation of alternatives. In such cases, decision-making is much simpler compared to high-involvement purchases (Rubio et al., 2020).

V. Post-Acquisition Process

The post-acquisition stage of the consumer buying process includes four key steps: acquiring the product, using or consuming it, forming satisfaction or dissatisfaction with

the purchase, and deciding how to dispose of the product. This phase plays a significant role in determining whether consumers will make repeat purchases. Additionally, consumers' expectations about how they will be treated after the purchase can also affect their initial buying decisions (Prata et al., 2013).

2.1.2 Factors Influencing Consumer Behavior

A consumer's purchasing behavior is shaped by cultural, social, personal, and psychological influences. Studying these factors offers valuable insights for effectively reaching and serving consumers (Paul, J., & Dhiman, 2021).

Cultural Factors

Culture, subculture, and social class play a significant role in influencing buying behavior.

Culture: Culture serves as the primary factor shaping an individual's desires and behavior. As a child grows, they learn a collection of values, perceptions, preferences, and behaviors from their family and other important institutions. Within each culture, there are smaller subcultures that offer more precise social identity and socialization for their members (Paul & Criado, 2020).

Subculture: Subcultures consist of groups defined by nationality, religion, race, and geographic location. When these subcultures become sizable and economically significant, companies often create targeted marketing strategies to cater to their specific needs (Paul & Criado, 2020).

Social class: Social classes are determined not only by income but also by factors like occupation, education, and place of residence. Members of the same social class tend to share similar values, interests, and behaviors. They differ in aspects such as clothing styles, language use, recreational activities, and more. Social classes also exhibit distinct preferences for products and brands across various categories, including clothing, home decor, leisure pursuits, and cars (Paul & Criado, 2020).

Social Factors

Besides cultural influences, social factors like reference groups, family, and social roles and statuses also impact consumer behavior.

Reference groups: A person's reference groups include all groups that directly or indirectly affect their attitudes or behavior. Groups that have a direct impact are known as membership groups. These include primary groups like family, friends, neighbors, and coworkers, with whom the person has ongoing and informal interactions. Additionally, individuals belong to secondary groups such as religious organizations, professional associations, and trade unions, which are typically more formal and involve less frequent interaction.

Family: The family is the most influential consumer-buying unit in society, with family members forming the primary reference group that has the greatest impact. Families have been widely studied in this context. There are two types of family members in a buyer's life: the family of orientation, which includes parents and siblings. From parents, individuals often inherit personal ambitions, self-esteem, and love. Even if the buyer has limited interaction with their parents later in life, their influence on the buyer's behavior can remain significant.

Role and Statuses: An individual is involved in various groups such as family, clubs, and organizations. Within each group, their position is defined by their role and status. A role refers to the set of activities a person is expected to carry out, and each role is associated with a certain status.

Personal Factors

A buyer's choices are shaped by personal traits such as age, life cycle stage, occupation, financial situation, lifestyle, personality, and self-concept (Mukherjee & Ryan, 2020).

Age and life cycle stage influence the types of goods and services people purchase throughout their lives. For example, infants consume baby food, adults buy a wide variety of products during their prime years, and older adults may follow special diets. Preferences for clothing, furniture, and recreational activities also change with age. Marketers often segment their target audiences based on these life-cycle groups.

Occupation: Occupation affects buying habits as well. For instance, a blue-collar worker is likely to purchase work attire, sturdy shoes, and lunch boxes, while a company executive might spend on high-end suits, business travel, and country club memberships.

Marketers aim to target occupational groups that show greater-than-average interest in their products and services.

Economic circumstances: Economic factors like disposable income, savings, assets, debts, borrowing capacity, and attitudes toward spending and saving significantly influence product choices. Marketers of products sensitive to income changes closely track trends in personal income, savings, and interest rates.

Lifestyle: Even individuals from the same subculture, social class, or occupation can have very different lifestyles. A lifestyle represents a person's way of living, reflected in their activities, interests, and opinions. It illustrates the "whole person" and how they interact with their surroundings. Marketers often seek to connect their products with specific lifestyle groups.

Personality and self-concept: Every individual possesses personality traits that impact their purchasing behavior. Personality refers to a set of unique psychological characteristics that result in consistent and lasting reactions to environmental factors. Common traits include self-confidence, dominance, independence, respectfulness, sociability, defensiveness, and adaptability. Personality can be an important factor in understanding consumer brand preferences, as brands themselves have personalities, and consumers tend to select brands that reflect their own personality traits (Mandys, 2021).

Psychological Factors

An individual's purchasing decisions are shaped by four key psychological factors: motivation, perception, learning, and beliefs and attitudes (Lopes et al., 2014).

Motivation: At any moment, a person experiences various needs. Some stem from physical states of discomfort, like hunger, thirst, or pain, while others originate from psychological tensions, such as the desire for recognition, self-esteem, or a sense of belonging. When a need reaches a strong enough intensity, it transforms into a motive—a compelling force that drives the individual to take action.

Perception: A motivated individual is prepared to take action. However, how they actually behave depends on their perception of the situation. Perception is the process through which a person selects, organizes, and interprets incoming information to form a

meaningful understanding of the world. Since perception is subjective, different people can interpret the same reality in very different ways.

Learning: When people take action, they learn. Learning refers to the changes in an individual's behavior that result from experience. Most human behavior is acquired through learning. According to learning theorists, this process occurs through the interaction of drives, stimuli, cues, responses, and reinforcement. This theory suggests to marketers that they can increase demand for a product by linking it to strong motivations, using effective cues, and offering positive reinforcement.

Beliefs and Attitudes: As individuals act and learn, they develop beliefs and attitudes, which in turn shape their purchasing behavior. A belief is a specific idea or perception that a person holds about something. These beliefs especially about a product or brand can strongly influence buying decisions. Marketers focus on understanding the beliefs consumers hold about their products, as these perceptions are stored in consumer memory. Attitudes, on the other hand, guide people to respond consistently toward similar products or situations.

A consumer's attitude toward a company and its products significantly impacts the success or failure of the company's marketing efforts. When consumers hold strong negative attitudes toward certain aspects of a firm's marketing practices, they may not only stop purchasing the product but also discourage their family and friends from using it. Given the crucial role attitudes play in shaping consumer behavior, marketers should regularly assess consumer attitudes toward key factors such as pricing, packaging design, brand name, advertising, and more.

2.2 Theoretical Review

A theoretical review is an essential part of research that examines existing theories related to the study's topic. It offers a systematic analysis of conceptual frameworks that underpin and shape the research. Unlike an empirical review, which centers on data and research findings, a theoretical review focuses on abstract concepts, models, and principles that help explain phenomena within a specific discipline.

2.2.1 Maslow hierarchy needs model

Maslow's hierarchy of needs is essential for understanding consumer behavior, as consumers typically have a set of needs that include self-actualization, esteem, belonging, safety and security, and physiological needs (Simons et al., 1987). Self-actualization refers to the intrinsic growth of what is already within an individual, representing the fulfillment of one's potential. For example, a person who plays music is identified as a musician or artist, one who paints is a painter, and one who writes poetry is a poet. In today's competitive world, having a profession is not only necessary for survival but also satisfies an important human need. Simply put, self-actualization is about developing one's potential through meaningful activities (Simons et al., 1987). This need is crucial because it drives consumers to create new professions and adapt, which helps them thrive in a competitive environment (Skippon, 2014).

Esteem needs: The term esteem refers to the need for things that enhance self-esteem, personal worth, social recognition, and accomplishment. For example, a person's mode of travel whether by bus, motorbike, or car depends on their financial situation, reflecting their esteem needs (Simons et al., 1987). In simpler terms, if a person is economically stable, they can fulfill their esteem needs by affording higher-status items like cars or motorbikes. However, if financial resources are limited, they may rely on public transportation or walking, which are more accessible but less tied to esteem (Skippon, 2014).

Social needs: Social needs include the love and affection from family and friends; for example, a boy's love for his girlfriend, the relationship between husband and wife, and a child's belonging to a family all represent belongingness or love (Simons et al., 1987). This need for personal connection is essential for every consumer. Safety needs involve living in an environment free from threats, which is especially important for children who require a greater sense of security. For instance, consumers desire to live a safe and secure life within society (Skippon, 2014).

Physiological needs: It includes the most basic needs such as air, warmth, food, sleep, stimulation, and activity. People can perish due to the lack of these biological needs and maintaining equilibrium. Common essential needs like food, water, oxygen, and other

fundamental requirements are necessary for everyone's survival in the world. These constitute the basic needs of consumers (Skippon, 2014).

2.2.2 Consumer behavior model

The concept of the consumer behavior model recognizes that not all consumers think alike, as each individual has different thought processes and purchasing habits. Nowadays, with a wide variety of products available, consumers are attracted to new products and their features. Manufacturing companies design products by first conducting research through sampling consumers. After gathering consumer feedback, researchers analyze the data to guide product development. This process encourages companies to continuously innovate and find better ways to meet consumer needs (Ruggeri et al., 2019).

Research and planning are essential components that influence product design, insights, and subsequent actions. According to the author, good product design attracts consumers to purchase new products, and such design is only achievable through thorough research. Insights refer to product features, which depend heavily on effective research and planning; without these, a viable product cannot be developed. Between research and insights, action takes place to ensure proper execution, leading to successful market outcomes (Ruggeri et al., 2019).

2.2.3 Theories related to Sentiment Analysis

Sentiment analysis, also called opinion mining, is a subfield of Natural Language Processing (NLP) that focuses on identifying and classifying the sentiment expressed in text. It typically categorizes text as positive, negative, or neutral, and can also be extended to detect more nuanced emotions such as joy, anger, or sadness (Ruggeri et al., 2019).

1. Polarity Theory

Polarity Theory is a conceptual framework for understanding and managing interdependent opposites—contrasting yet complementary elements that coexist within life, organizations, and systems. Rather than treating opposing forces as problems to be solved, Polarity Theory views them as dynamic tensions that require ongoing balance over time (Seebauer et al., 2019).

Core Principles of Polarity Theory:

Interdependent Opposites – Certain pairs of ideas, values, or conditions are not problems to be solved but polarities to be managed—for example, stability versus change, and autonomy versus teamwork.

Both/And Thinking – Some pairs of ideas, values, or conditions are not problems to be solved but polarities to be managed—for example, stability versus change, and autonomy versus teamwork. Instead of choosing one pole at the expense of the other, effective management of polarities involves leveraging the strengths of both sides.

Cyclical Nature – Polarities often change over time, with systems naturally moving back and forth between two opposing sides as situations evolve.

Unintended Consequences – Excessive emphasis on one side may cause problems, making it necessary to move focus toward the opposite side.

Sustainability – Effective individuals and organizations understand that polarities should be managed rather than solved permanently, viewing them not as problems but as ongoing dynamics to navigate (Seebauer et al., 2019).

Examples of Polarities:

Centralization vs. Decentralization – Organizations need both structure and flexibility.

Short-Term vs. Long-Term Focus – A business must address immediate needs while planning for the future.

Freedom vs. Security – Societies and individuals constantly navigate between personal liberty and collective safety.

Flexibility vs. Discipline – Innovation requires adaptability, but success also depends on structured execution.

Polarity Theory is widely applied in leadership, business strategy, psychology, and social systems to create balanced, sustainable solutions (Seebauer et al., 2019).

2. Lexicon-Based Approach

A Lexicon-Based Approach in natural language processing (NLP) and text analysis involves using a predefined list of words, known as a lexicon, to interpret and evaluate text. This method is frequently applied in areas such as sentiment analysis, text classification, and information retrieval (Seebauer et al., 2019).

Uses a Word Dictionary (Lexicon):

This approach relies on a carefully selected set of words, each linked to particular meanings, sentiments, or characteristics.

For instance, in sentiment analysis, terms such as "happy," "joyful," and "excited" might be assigned positive values, whereas words like "sad," "angry," and "frustrated" could be given negative values.

Rule-Based Interpretation:

It uses established rules based on the lexicon to identify the sentiment or categorize the text accordingly.

Certain methods take into account factors like word frequency, emotional intensity, or the presence of negation terms—for example, "not happy" may be interpreted differently than "happy."

Types of Lexicon-Based Approaches:

Dictionary-Based**:** This approach utilizes established lexicons such as SentiWordNet, AFINN, or LIWC (Linguistic Inquiry and Word Count) to analyze and interpret text.

Corpus-Based: Enhances word meanings by examining how words co-occur within a large dataset, allowing the approach to identify contextual relationships and expand the understanding of terms beyond predefined lexicons.

3. Machine Learning Theory

Machine Learning Theory, also known as Statistical Learning Theory, provides the mathematical and theoretical foundation for how algorithms learn from data. It aims to explore fundamental questions about the potential and constraints of learning models.

PAC Learning (Probably Approximately Correct Learning), introduced by Leslie Valiant, describes a framework in which an algorithm learns a function from a set of hypotheses with a high likelihood and within a specified margin of error (Paul et al., 2021).

VC Dimension (Vapnik-Chervonenkis Dimension): The VC dimension measures a model’s ability to correctly classify data. A higher VC dimension indicates greater flexibility but also increases the risk of overfitting.

Bias-Variance Trade off: A core principle that explains how models with high bias rely on strong assumptions and tend to underfit, whereas models with high variance are overly flexible and prone to overfitting.

No Free Lunch Theorem: This principle asserts that no single learning algorithm is universally the best for every problem, highlighting the need for careful model selection and approaches tailored to specific tasks.

Generalization and Over fitting: A model's ability to perform well on new, unseen data—known as generalization—is essential. Overfitting happens when a model captures noise rather than the true underlying patterns.

Empirical Risk Minimization (ERM) and Structural Risk Minimization (SRM): Empirical Risk Minimization (ERM) focuses on minimizing the average loss on the training data, whereas Structural Risk Minimization (SRM) incorporates complexity penalties to help prevent overfitting.

Optimization and Convexity: Many learning problems use optimization methods such as gradient descent. Convex functions are simpler to optimize because they have a single global minimum.

Information Theory in Learning: Concepts such as entropy, mutual information, and Kullback-Leibler divergence are used to measure uncertainty and help guide the learning process in algorithms.

4. Emotional Intelligence Theory

Emotional Intelligence (EI) theory involves the ability to identify, understand, manage, and influence emotions in oneself and others. Psychologist Daniel Goleman popularized this concept in his 1995 book Emotional Intelligence*:* Why It Can Matter More Than IQ, known as Goleman's Model.

Self-Awareness – Recognizing and understanding your own emotions.

Self-Regulation – Managing emotions effectively and responding appropriately.

Motivation – Using emotions to drive personal goals and persistence.

Empathy – Understanding the emotions of others.

Social Skills – Managing relationships and navigating social environments effectively.

Other Emotional Intelligence Models

Mayer-Salovey Model – Developed by Peter Salovey and John Mayer, this model defines emotional intelligence as the capacity to process and manage emotions through four key

branches: perceiving emotions, facilitating thought using emotions, understanding emotions, and managing emotions.

Bar-On Model – Reuven Bar-On introduced the concept of Emotional Quotient (EQ), emphasizing emotional and social skills that impact an individual's behavior.

EI plays a crucial role in:

- Leadership and workplace success
- Conflict resolution and communication
- Mental well-being and stress management
- Building and maintaining strong relationships

2.3 Empirical Review

Irfan (2024) researched on assessing consumers' behavioral intention and willingness to pay for electric vehicles: an evidence from China. The current study builds upon previously identified factors influencing consumer intentions and broadens the theoretical framework of the theory of planned behavior by introducing three new variables: performance expectancy (PE), information overload (IO), and perceived risk (PR). Data from a survey of 498 young Chinese consumers were analyzed using structural equation modeling to test the hypotheses. Findings show that behavioral intention (BI) is positively influenced by perceived environmental knowledge and PE, while IO has a negative effect. Subjective norms also have a significant positive relationship with BI. Additionally, PR is found to have a strong positive association with BI. The willingness to pay (WTP) for electric vehicles is positively linked to BI as well. Overall, this research enhances our understanding of ethical purchasing behavior and offers valuable insights for both scholars and practitioners.

Lin and Yang (2024) examined on changes in consumer satisfaction with electric vehicle charging infrastructure: Evidence from two cross-sectional surveys in 2019 and 2023. This study examined how consumer behavioral characteristics influence satisfaction with electric vehicle charging infrastructure, extending previous research by adopting a dynamic perspective. Using 3,778 valid responses from two cross-sectional surveys conducted in 2019 and 2023, the study analyzed changes in behavior and satisfaction across different time periods and cities, also exploring underlying influence mechanisms.

Key findings include: (1) Consumer satisfaction improved in 2023 compared to 2019, with a shift toward nighttime charging habits. Consumers also showed reduced expectations for charging time and price, but increased demands for the distribution of charging infrastructure. (2) Consumers in non-first-tier cities are more accepting of charging stations located farther from their homes compared to those in first-tier cities. (3) In first-tier cities, the preference for daytime or nighttime charging no longer significantly impacts satisfaction, while sensitivity to price increases has less effect on satisfaction in non-first-tier cities. (4) Perceived control and expectation disconfirmation play crucial roles in how behavioral traits influence satisfaction. The study concludes by offering targeted policy recommendations based on these insights.

Viswanathan (2024) investigated on consumer behavior and factors affecting purchase of electric vehicles in Indian market. The primary goal of this study is to gain a thorough understanding of the factors driving electric vehicle (EV) adoption in India's evolving automotive market. The study examines overall EV sales in India, the availability and development of charging infrastructure, and the income profiles of potential consumers as key influences on adoption. The research design includes surveys to collect primary data directly from consumers, complemented by secondary data analysis of existing datasets and literature. A range of statistical methods, such as chi-square tests, descriptive statistics, regression, and correlation analysis, are employed to address the research objectives comprehensively. This study offers valuable insights for academics, policymakers, industry players, and consumers interested in the Indian EV market. It provides a solid foundation for informed decision-making and policy development aimed at promoting sustainable and environmentally friendly transportation solutions in India.

Saoula et al. (2024) researched on the moderating effect of corporate image study on consumer buying behavior in financial insurance services through commitment-trust characteristics. The study aimed to explore how agents, perceived cost, and service quality act as commitment-trust factors influencing consumer buying behavior in Malaysia's Takaful financial insurance market. Data was analyzed using variance-based structural equation modeling (SEM). The findings revealed that perceived cost, service quality, and the role of agents significantly contribute to building strong relationships with clients. Corporate image was found to moderate these relationships and also had a substantial impact on insurance firms. However, consumers remained concerned about

costs and the quality of agents' services regardless of the corporate image of the financial services companies.

Araújo et al. (2023) investigated the effect of consumer behavior on brand image and brand equity and its impact on consumer Buying Behavior. The study aimed to investigate the impact of corporate social responsibility (CBB) on customer purchasing behavior, as well as on brand equity and brand image. Panel regression was used to analyze the data. The results indicated that men were more influenced by CBB's effect on brand image, while regular consumers were more affected by CBB's impact on brand equity. The study found that CBB initiatives positively influenced customer buying behavior indirectly through the mediating roles of brand image and brand equity. Additionally, organizations that implemented CBB programs experienced enhancements in their brand equity and image. Contrary to previous research, the study found no direct effect of CBB on consumer purchasing behavior.

Catic and Poturak (2022) analyzed the influence of brand loyalty on consumer purchase behavior. This study focuses on how brand loyalty factors differ among confectionery consumers based on their socio-demographic characteristics specifically age, education, and income and how these factors relate to brand loyalty among Serbian confectionery buyers. Data were collected from 200 respondents using a structured questionnaire. Spearman's rank correlation, a nonparametric alternative to Pearson's correlation, was employed to analyze the relationship between brand loyalty factors and overall brand loyalty. Additionally, the F-test was used to assess differences in brand loyalty factors according to socio-demographic variables. The findings revealed that age, education level, and income significantly influence brand loyalty characteristics. Furthermore, all brand loyalty factors showed a statistically significant relationship with brand loyalty.

Wang et al. (2021) researched the role of customer behavior perceptions in brand equity, brand credibility, brand reputation, and purchase intentions. The study aimed to explore the benefits of integrating corporate brand behavior (CBB) into business development by examining how consumers' perceptions of CBB influence their purchase intentions, with brand equity, brand credibility, and brand reputation acting as mediators. Regression and correlation analyses were used to analyze the data. The findings revealed that consumers' purchase intentions were significantly affected by their views on the company's CBB.

Moreover, the effect of CBB perceptions on purchase intentions was mediated by brand equity, brand credibility, and brand reputation. The study concluded that previous research had not employed a comprehensive approach to fully validate the impact of CBB through these brand-related factors. These results provide valuable insights for researchers conducting empirical studies in this area.

Nguyen (2020) studied the impact of customer behavior on brand image through organizational trust and organizational identification. The study aimed to assess the impact of organizational trust and organizational identity on consumer buying behavior (CBB) and brand image (OC) within Vietnamese pharmaceutical companies. Multiple regression analysis was used to analyze the data. The results showed that CBB policies and practices enhanced both organizational trust and brand image, as well as organizational identification. The findings also indicated that the relationship between CBB and OC was fully mediated by organizational trust and organizational identification in these companies.

Mubarak et al. (2019) analyzed the impact of customer behavior on a bank's corporate image. This study aimed to investigate how consumer buying behavior (CBB) influences the corporate image of the banking industry. Regression analysis and descriptive statistics (including means, percentages, and standard deviation) were used to examine the data. The findings showed that customers consider CBB activities an important factor in their interactions with banks. When banks implemented these initiatives, their corporate image improved, with statistically significant positive correlations found between CBB activities and corporate image. However, customers had differing views on the importance of these initiatives.

Zaman (2019) investigated the link between customer buying behavior (CBB) and affective brand image, focusing on the role of CBB strategic importance and organizational identification. The study aimed to empirically examine how consumer buying behavior (CBB) impacts affective brand image (AOC), while accounting for organizational identity (OI) and the strategic relevance of CBB. Descriptive statistics and correlation analyses were used to analyze the data. The results indicated that CBB significantly enhances AOC. Additionally, organizational identity was found to strongly

mediate the relationship between CBB and AOC, and the effect of CBB on AOC was positively and significantly moderated by the strategic relevance of CBB.

Lee et al. (2017) researched the effects of customer behavior on corporate reputation and customer loyalty, providing evidence from the Taiwan non-life insurance industry. The study aimed to investigate the impact of consumer buying behavior (CBB) on customer loyalty and company reputation. Panel regression was used to analyze the data. The findings revealed that CBB initiatives significantly enhanced both customer loyalty and company reputation. Additionally, CBB efforts greatly improved brand image. The study concluded that brand image mediates the relationship between CBB, company reputation, and customer loyalty.

Thang (2017) examined a study on the impact of Customer behavior on brand image: Evidence from Vietnamese service firms. The study aimed to explore the relationship between brand image and customer buying behavior (CBB) within Vietnam's service industry. Regression analysis and descriptive statistics were used to analyze the data. The results showed a significant positive correlation between CBB and brand image. Additionally, the study found that while work-life balance and social discourse did not have a significant correlation with brand image, factors such as labor relations, health and safety, and training and education were significantly related.

Table 1

Summary of Empirical Review

Authors	Title	Objective	Methodology	Findings
Irfan (2024)	Assessing consumers' behavioral intention and willingness to pay for electric vehicles: an evidence from	To analyze the effect of performance expectancy (PE), information overload (IO), and perceived risk (PR) on	Survey responses from 498 young Chinese consumers and employed structural equation	The results show that behavioral intention (BI) is positively and significantly influenced by perceived environmental knowledge and

	China	consumer intentions	modeling	performance expectancy (PE), while information overload (IO) has a negative impact on BI.
Lin and Yang (2024)	Changes in consumer satisfaction with electric vehicle charging infrastructure: Evidence from two cross-sectional surveys in 2019 and 2023	To explore the impact of consumer behavioral characteristics on satisfaction with electric vehicle charging infrastructure	Utilized 3778 valid samples from two cross-sectional surveys conducted	Consumer satisfaction has risen in 2023 compared to 2019, with charging habits shifting toward nighttime use. Moreover, consumers now have lower expectations for charging time and price but demand better distribution of charging infrastructure.
Viswanathan (2024)	Consumer behavior and factors affecting purchase of electric vehicles in Indian market	To gain comprehensive insights into the factors influencing the adoption of EVs in this dynamic automotive landscape.	Used chi-square tests, descriptive statistics, regression analysis, and correlation analysis	This research provides valuable insights for academics, policymakers, industry stakeholders, and consumers aiming for a comprehensive understanding of the electric vehicle

				landscape in India.
Saoula et al. (2024)	The moderating effect of corporate image study on consumer buying behavior in financial insurance services through commitment-trust characteristics	To examine how agents, perceived cost, and service quality function as commitment-trust variables	Used variance-based structural education modeling	Corporate image moderated the relationships and had a significant impact on sensitive insurance firms. The findings revealed that consumers remained concerned about costs and the quality of agents' services, regardless of the financial companies' corporate image.
Araújo et al. (2023)	The effect of consumer behavior on brand image and brand equity and its impact on consumer Buying Behavior	To examine how corporate social responsibility (CBB) affects customer purchasing behavior as well as brand equity and image	Panel regression was utilized in the study	The findings indicated that men were more influenced by CBB's impact on brand image, whereas regular consumers were more affected by CBB activities' effect on brand equity.
Catic and Poturak (2022)	The influence of brand loyalty on consumer purchase	To examine the relationship between brand loyalty factors and brand	Spearman's rank correlation, a nonparametric substitute for	Age, education level, and income of confectionery customers were found to

	behavior.	loyalty	Pearson's correlation, was used	significantly influence brand loyalty characteristics. Furthermore, all brand loyalty factors showed a statistically significant relationship with overall brand loyalty.
Wang et al. (2021)	The role of customer behavior perceptions in brand equity, brand credibility, brand reputation, and purchase intentions	To determine the advantages of CBB integration for business development	Regression and correlation were employed in the study to examine the data	The results indicated that consumers' intentions to purchase a company's brands in the future were shaped by their perceptions of the company's CBB. This influence of CBB on purchase intentions was mediated by brand equity, brand credibility, and brand reputation.
Nguyen (2020)	The impact of customer behavior on brand image	To evaluate how organizational trust and	Multiple regression analysis was employed in	Organizational trust and organizational identification fully mediated the

	through organizational trust and organizational identification	organizational identity in Vietnamese pharmaceutical companies affected consumer buying behavior and brand image	the study to examine the data.	relationship between CBB and OC in Vietnamese pharmaceutical companies.
Mubarak et al. (2019)	The impact of customer behavior on a bank's corporate image.	To Investigate how consumer buying behavior (CBB) affects the banking industry's corporate image	The researchers employed regression and descriptive statistics (means, percentages, and standard deviation)	The banks' corporate image improved, with statistically significant positive correlations found between CBB activities and corporate image. However, customers held differing views on the importance of these initiatives.
Zaman (2019)	The link between customer buying behavior (CBB) and affective brand image	To investigate empirically how CBB affects affective brand image (AOC) while controlling for organizational identity (OI) and CBB	Descriptive statistics and correlation were employed in the study	CBB significantly enhanced AOC, and the study found that organizational identity strongly mediated the relationship between CBB and AOC.

		strategic relevance.		
Lee et al. (2017)	The effects of customer behavior on corporate reputation and customer loyalty, providing evidence from the Taiwan non-life insurance industry	To find out how CBB affected customer loyalty and company reputation	Panel regression was utilized in the study to examine the data	CBB initiatives significantly boosted customer loyalty and company reputation, while also greatly enhancing brand image.
Thang (2017)	The impact of Customer behavior on brand image: Evidence from Vietnamese service firms	To investigate the connection between brand image and customer buying behavior (CBB) in Vietnam's service industry.	Regression analysis and descriptive statistics were employed in the study	The study found that labor relations, health and safety, and training and education had significant correlations with brand image, whereas work-life balance and social discourse did not show a significant relationship.

2.4 Research Gap

To address the existing fragmentation and enrich scholarly discussion, our study provides a bibliometric and thematic analysis of the literature, highlighting both theoretical and practical implications (Vrontis & Christofi, 2021). The bibliometric review recognizes

global geo-mapping of the most active countries, profiles of leading international research groups, and a summary of prominent themes among electric vehicle scholars (Biancone et al., 2022). These foundations support the aim of this literature review, which applies the Theories, Contexts, Characteristics, and Methodology (TCCM) framework to organize and synthesize diverse consumer data related to the electric vehicle market (Chakma et al., 2021). Furthermore, by identifying specific research questions (RQs) that warrant further investigation, the analysis highlights emerging research areas needed to advance understanding of consumer behavior toward electric vehicles (Gupta et al., 2020).

Chapagain's (2021) work explores how internal, external, and combined consumer buying behavior (CBB) practices impact a company's profitability and reputation. However, the relationship between CBB and brand image within the Nepalese context remains largely unexplored. Additionally, it is rare to find studies that examine these variables together as a cluster, which could provide new insights into the existing research. A review of the literature reveals a clear research gap regarding CBB and company performance in Nepal. Despite growing interest in CBB, especially its link to business performance, this area has received limited attention from researchers in the region.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is a systematic approach to solving a problem and the study of how research should be conducted. It refers to the procedures researchers follow to describe, explain, and predict phenomena. This chapter outlines the methodology used in the study, covering sections such as research plan and design, sample description, instrumentation, data collection procedures and timeline, as well as the validity, reliability, and analysis plan. Without a clear methodology, the conclusions reached may be misinterpreted.

3.1 Research Design

This study employed a descriptive and causal comparative research design. The causal comparative approach is used to describe the cause-and-effect relationships between various factors influencing customer behavior namely cultural, social, personal, and psychological factors and different types of sentiment analysis, including environmental sentiment, infrastructure sentiment, product sentiment, and economic sentiment. The study design primarily focuses on data collection methods, the tools utilized, and the sampling strategy.

3.2 Population and Sample, and Sampling Method

Using primary data, this study aims to evaluate the impact of consumer behavior on the sentiment analysis of electric vehicles. The study population consists of general EV buyers in the Kathmandu Valley, representing diverse ages and professional backgrounds. The sample size for this unknown population was calculated using the formula provided by Charan (2013).

$N = z^2/d^2 \times (p \times q)$

Where,

z = Z-score or a standard normal deviation

p = estimated proportion of the study variables

q = 1-p

d = acceptable error

The study uses 95% confidence level (Z = 1.96), a 5% margin of error (e = 0.05), and has no prior estimate of p, so the calculation would be:

$n = (1.96)^2 * 0.5 * (1-0.5)/0.05^2$ (p = 0.5, if there is no prior information of 'p', the study uses 0.5 which maximize variability and gives the largest sample size).

n = 3.8416 * 0.25 / 0.0025

n = 384.16

Therefore, we need around 385 respondents for the sample of the study while this study used 400 respondents for the sample.

3.3 Nature and Sources of Data

Primary data were collected for the study using a survey method with a structured questionnaire. The questionnaire was divided into two sections. The first section gathered information on participants' socioeconomic status, including age, gender, income, and education level. The second and third sections used a five-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree) to assess customer behavior and sentiment analysis related to the product. The researcher distributed the questionnaire via Google Forms, and data collection took place over the course of one month.

3.4 Data Collection Procedure

The collected questionnaires were analyzed using the Statistical Package for Social Sciences (SPSS). One key advantage of SPSS is its user-friendly interface and efficient data management capabilities (Busatlic, 2021). The questionnaire items were rated on a five-point Likert scale ranging from 1 to 5, with 1 representing Strongly Disagree (SD), 2 Disagree (D), 3 Neutral (N), 4 Agree (A), and 5 Strongly Agree (SA).

3.5 Method of Analysis

All respondents' answers were coded and compiled using an SPSS spreadsheet. SPSS was utilized to analyze the survey data and assist in interpreting the results. Various analytical methods, including frequency analysis, descriptive statistics, causal comparative analysis, and brand awareness assessment using Cronbach's Alpha, were applied to draw conclusions. The survey data was processed and examined using both Microsoft Excel and SPSS. Before inputting the data into SPSS Statistics 23, it was first coded. Microsoft Excel was used to organize, manage, analyze, and interpret the data. Additionally, cross-tabulation based on respondent strata was performed to assess the relevance of the responses.

a. Descriptive Analysis

Descriptive statistics are brief, informative coefficients that offer an overview of a specific dataset, whether it represents a sample or the entire population. They are divided into two types: measures of central tendency and measures of variability (spread). The mean, median, and mode represent central tendency, while standard deviation, variance, minimum, and maximum values indicate variability.

b. Correlation Analysis

Correlation analysis is a statistical method used to measure the strength and direction of the linear relationship between two variables (Levin & David, 1994). It helps determine how closely two variables are linearly related. A positive correlation means the variables increase or decrease together, while a negative correlation indicates that as one variable increases, the other decreases. The correlation coefficient (r) ranges between +1 and -1. The formula to calculate the correlation coefficient between two variables, x and y, is as follows:

$$\text{Correlation Coefficient (r)} = \frac{n\Sigma xy - \Sigma x\Sigma y}{\sqrt{n\Sigma x^2 - (\Sigma x)^2}\sqrt{n\Sigma y^2 - (\Sigma y)^2}}$$

Where,

r = coefficient of correlation

ΣXY = Sum of product of two series.

ΣX^2 = Sum of squared in X series

ΣY^2 = Sum of squared in Y series

n = number of years

c. Regression Analysis

Regression analysis is a set of statistical techniques used to estimate the relationship between one or more independent variables and a dependent variable. It helps predict future outcomes and assess the strength and nature of these relationships.

The Study Model

$Y = a + b_1X_1 + b_2X_2 + b_3X_2 + b_4X_3 + e$

Where,

Where, $\hat{Y}$ = Sentiment Analysis i.e. Environment Sentiment, Infrastructure Sentiment, Product Sentiment and Economic Sentiment (dependent variable)

X_1 = Cultural Factors

X_2 = Social Factors

X_3 = Personal Factors

X_4 = Psychological Factors

a = Intercept

b_1, b_2…. = Slope of Independent variables

e = Error

Measurement of Reliability

Cronbach's alpha was employed in this study to assess the internal consistency of item scales for continuous dependent and independent variables. The results of the reliability test for the Likert scale questions, based on the alpha values, are presented in Table 2.

Table 2

Reliability Test

Variables	Cronbach's Alpha	No. of Items
Cultural Factors	0.755	5
Social Factors	0.745	5
Personal factors	0.623	5
Psychological factors	0.817	5
Environmental sentiment	0.782	5
Infrastructural sentiment	0.870	5
Product sentiment	0.677	5
Economic sentiment	0.517	5

Source: Self-Survey, 2025

Table 2 presents the reliability statistics for the data collected through the questionnaire survey. The Cronbach's alpha values for cultural factors, social factors, personal factors, psychological factors, environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment are 0.755, 0.745, 0.623, 0.817, 0.782, 0.870, 0.677, and 0.517, respectively. These values indicate that the questionnaire data is sufficiently reliable to proceed with further analysis.

3.6 Research framework and Definition of Variables

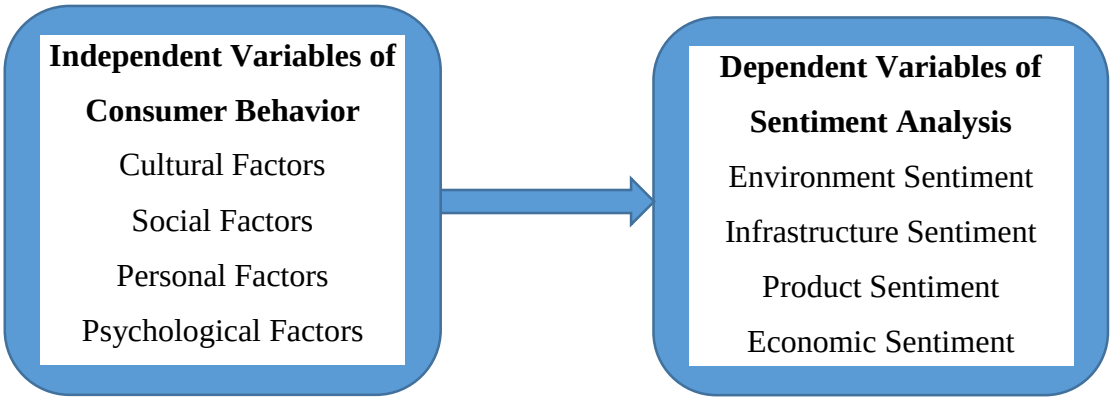

Figure 1

Research Framework

Source: Senyapar, 2024; Secinaro et al., 2022

Cultural Factors

A cultural factor refers to the shared values, beliefs, norms, customs, and traditions of a group that influence their purchasing decisions and consumption habits. Culture shapes consumers' preferences, perceptions, and behaviors, guiding what they view as appropriate, desirable, or acceptable when selecting products or services.

Social Factors

A social factor refers to the external influences arising from a consumer's interactions with others that shape their purchasing decisions, preferences, and consumption patterns. These influences come from an individual's relationships, social networks, cultural norms, family structure, roles, status, and reference groups, all of which affect how they perceive products and make buying choices.

Personal Factors

Personal factors are individual characteristics that influence a person's buying decisions. These internal traits, unique to each person, significantly affect how, why, when, and what they purchase. In consumer behavior, personal factors include demographic and psychological attributes such as age, gender, income, occupation, lifestyle, education, and personality, all of which shape preferences, purchasing habits, and decision-making processes.

Psychological Factors

Psychological factors in consumer behavior refer to the internal cognitive and emotional processes that influence how consumers identify needs, interpret marketing messages, assess choices, and make purchasing decisions. These factors explain why consumers may respond differently in similar situations and highlight the role of mental states in shaping decisions beyond external circumstances.

Environment Sentiment

Environmental sentiment, in sentiment analysis, refers to the overall emotional tone or attitude conveyed in texts such as news articles, social media posts, reports, or reviews regarding environmental issues, policies, practices, or events. It captures whether the public, media, or stakeholders express positive, negative, or neutral feelings about topics like climate change, sustainability, pollution, conservation, or green technologies.

Infrastructure Sentiment

Infrastructure sentiment refers to the overall emotional tone or opinion—positive, negative, or neutral—expressed in textual data such as news articles, social media posts, reports, or public commentary about infrastructure-related topics. These topics may include transportation systems, energy grids, water supply, construction projects, telecommunication networks, and other public or private infrastructure developments.

Product Sentiment

Product sentiment refers to the overall emotional tone or attitude expressed by customers or users toward a specific product. It is evaluated through sentiment analysis techniques that classify textual data such as reviews, comments, social media posts, or survey responses as positive, negative, or neutral, capturing customer opinions, feelings, and attitudes about the product.

Economic Sentiment

Economic sentiment refers to the overall attitude, feelings, or perceptions of individuals, businesses, investors, or consumers toward the current and future state of the economy. It is quantified by analyzing the tone, polarity (positive, negative, or neutral), and intensity of economic-related textual content such as news articles, social media posts, financial reports, and surveys using natural language processing techniques.

CHAPTER IV
RESULTS AND DISCUSSION

This chapter presents a detailed discussion of the study's key findings and the analysis of collected data. The respondent data was analyzed using statistical tools such as SPSS and MS Excel, employing methods including frequency distributions, charts, percentages, means, standard deviations, correlation, and regression analysis. The results are organized and displayed in tables and summaries to facilitate better understanding of the research outcomes. Furthermore, the study's theoretical frameworks were tested through this data analysis, which also served to achieve the overall research objectives.

4.1 Demographic Characteristics

4.1.1 Profile of respondents

The profile of the respondents typically includes demographic, social, and other characteristics that help define the participants in a study or survey. Common components include demographic information (such as age, gender, education, and income), geographic characteristics (like location or region), socio-economic status, behavioral or psychographic traits (such as lifestyle, attitudes, or preferences), and factors relevant to the study's objectives. These details help provide context for understanding the sample and interpreting the research findings.

In this study, the majority of the respondents were female, totaling 264 individuals, which accounts for 66% of the total sample (see Table 2). Meanwhile, male respondents numbered 136, representing 34% of the total participants.

Table 3

Gender of Respondents

Respondent Character	No. of Responses	Percentage (%)
Male	136	34
Female	264	66
Total	400	100

Source: Self- Survey, 2025

Table 4

Age group of Respondents

Age	Respondents	Percentage (%)
Under 25	8	2
26-35	336	84
36-45	40	10
46-55	12	3
Over 55	4	1
Total	400	100

Source: Self- Survey, 2025

All respondents were divided into five age groups, with the majority falling within the 25-35 age range (336 respondents), accounting for 84% of the total sample. Respondents under 25 years old and those over 46 years old together made up only 6% of the total.

Table 5

Present Position of Respondents

Status	Respondents	Percentage (%)
Other	4	1
Worker	80	20
Manager	188	47
Officer	128	32
Total	400	100

Source: Self- Survey, 2025

Among the four job positions, managers were the most common, with 188 respondents representing 47% of the total. Officers and workers accounted for 32% and 20% of the responses, respectively.

Table 6

Earnings per Month of Respondents

Status	Respondents	Percentage (%)
Up to Rs.24000	12	3
Rs.24001- Rs.40000	44	11
Rs.40001- Rs.74000	64	16
Above Rs.74000	280	70
Total	400	100

Source: Self- Survey, 2025

Most respondents reported their monthly earnings, categorized into four groups: up to Rs. 24,000; Rs. 24,001 to Rs. 40,000; Rs. 40,001 to Rs. 74,000; and above Rs. 74,000. According to Table 5, 3% of respondents earn up to Rs. 24,000, 16% earn between Rs. 24,001 and Rs. 40,000, a majority of 70% earn between Rs. 40,001 and Rs. 74,000, and 11% earn above Rs. 74,000 per month.

4.1.2 EV experiences of respondents

Could you please share the table or the data on respondents' EV experience? That way, I can help summarize or analyze it for you!

Table 7

Experience-Wise Distribution of Respondents

EV Experience	No. of Respondents	Percentage (%)
Up to 1 Years	4	1
1 Years to 3 Years	280	70
3 Years to 5 Years	64	16
5 Years to 10 Years	40	10
Above 10 Years	12	3
Total	400	100

Source: Self- Survey, 2025

Table 7 indicates that 4 participants (1% of the total 400 respondents) have less than one year of experience with electric vehicles. Meanwhile, 280 respondents (70%) have between one and three years of experience. Furthermore, 64 respondents (16%) have experience ranging from three to five years, and 40 respondents (10%) have between five and ten years of EV experience. Lastly, 12 respondents (3%) reported having more than ten years of experience.

4.1.3 Respondents' frequency of using EV

"Respondents' usage of EV services is categorized into daily, weekly, monthly, and other frequencies. The 'other' category includes those who use EV services less frequently than once a month. The table below presents a detailed breakdown of the respondents' usage frequency."

Table 8

Frequency of Using EV Services-Wise Distribution of Respondents

Frequency of using Services	No. of Respondents	Percentage (%)
Daily	12	3
Weekly	96	24
Monthly	282	72
Others	10	2
Total	400	100

Source: Self- Survey, 2025

Table 8 shows that out of the total sample of 400 respondents, 96 individuals (24.20%) use EV services on a daily basis, while 12 respondents (3%) use them weekly. A majority of 282 respondents (72%) reported using EV services monthly. Additionally, 10 respondents (2%) indicated that they use EV services less frequently than once a month.

4.2 Descriptive analysis

"This section presents the descriptive analysis of data gathered through the questionnaire during the research phase. Descriptive analysis is a statistical method used to summarize and describe the key features of the collected data, focusing on the sample itself rather than making inferences about the broader population. In this study, a five-point Likert scale was employed—ranging from 1 (Strongly Disagree) to 5 (Strongly Agree)—to

assess four independent variables: cultural factors, social factors, personal factors, and psychological factors. The dependent variables included environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment.

4.2.1 Individual Descriptive Statistics

Table 9

Descriptive Statistics of Cultural Factors

Code	Variables	Mean	S.D.
CF1	I prefer products that reflect the traditions and values of my culture.	2.7475	1.14762
CF2	I avoid products that conflict with my cultural or religious beliefs.	2.9100	1.15985
CF3	I feel more connected to brands that represent my subcultural identity.	3.1500	1.12279
CF4	I follow the purchasing behavior of people in my social class.	2.6450	1.30316
CF5	I consider family opinions before making purchasing decisions.	2.5975	1.32661

Source: Self- Survey, 2025

Table 9 presents five cultural variables related to consumer preferences and behaviors, along with their mean scores and standard deviations. The mean values range from approximately 2.60 to 3.15 on the five-point scale, indicating a moderate level of agreement with these cultural influences. CF1, which reflects a preference for products that align with cultural traditions and values, has a mean score of 2.75, suggesting a moderate tendency among respondents to favor culturally aligned products. CF2, concerning the avoidance of products that conflict with cultural or religious beliefs, has a slightly higher mean of 2.91, indicating a noticeable inclination to reject such products. CF3, which measures the connection to brands representing subcultural identity, has the highest mean score of 3.15, showing a stronger association with brands that reflect subcultural affiliations. CF4, related to following the purchasing behavior of social class peers, has a mean of 2.65, pointing to a moderate influence of social class norms. CF5, which considers the influence of family opinions on purchasing decisions, has the lowest mean score at 2.60, though it still suggests some level of familial impact on consumer

behavior. The standard deviations, ranging from approximately 1.12 to 1.33, indicate a fair degree of variability in the responses, reflecting diverse viewpoints within the sample.

Table 10

Descriptive Statistics of Social Factors

Code	Variables	Mean	S.D.
SF1	I am more likely to purchase a product if it is recommended by friends or family.	2.9050	1.18722
SF2	I prefer brands that are popular among my social group.	2.8700	1.11634
SF3	I discuss my purchasing decisions with others before finalizing them.	2.8575	1.14037
SF4	I feel more confident about a purchase if others in my community approve of it.	2.7675	1.08922
SF5	I am more inclined to shop from brands that reflect my social identity.	2.5625	1.09732

Source: Self- Survey, 2025

Table 10 displays the mean and standard deviation values for various social factors affecting consumer behavior. Among the five social factor statements, SF1 has the highest mean score of 2.9050, indicating that recommendations from friends or family exert the strongest influence on purchasing decisions. This is closely followed by SF2, with a mean of 2.8700, and SF3, at 2.8575, suggesting that the popularity of products within social groups and discussions with peers also significantly impact consumer choices.

SF4, with a mean score of 2.7675, indicates a moderate influence of community approval on consumer behavior. In contrast, SF5, which relates to the alignment of brands with an individual's social identity, has the lowest mean score at 2.5625, suggesting it has the least impact among the social factors considered. Overall, the findings imply that interpersonal and group influences—especially recommendations from others and the desire for social conformity—play a more significant role in shaping purchasing decisions than the alignment of brands with personal social identity. The standard deviation values,

all hovering around 1.1, point to a moderate level of response variability, indicating some differences in opinion across the sample.

Table 11

Descriptive Statistics of Personal Factors

Code	Variables	Mean	S.D.
PF1	I tend to prefer brands that align with my self-image.	2.9300	1.11049
PF2	I often buy products that reflect my lifestyle and personality.	3.0775	1.15318
PF3	My purchasing decisions are influenced by my age and life stage.	2.9775	1.14686
PF4	I usually buy products that I feel match my social status.	2.9700	1.14778
PF5	I am more likely to purchase items that match my personal interests and hobbies.	2.8000	1.16765

Source: Self- Survey, 2025

Table 11 summarizes the impact of personal factors on consumer behavior using five variables (PF1 to PF5). Among these, PF2 records the highest mean score of 3.08 (SD = 1.15), indicating that consumers are most influenced by products that align with their lifestyle and personality. PF3 and PF4 follow closely with mean scores of 2.98 and 2.97, respectively, suggesting that age, life stage, and perceived social status have a moderate effect on purchasing choices. PF1, with a mean of 2.93, reflects a tendency among consumers to favor brands that match their self-image. PF5 shows the lowest mean at 2.80, suggesting that personal interests and hobbies exert comparatively less influence. Overall, the data indicates that individual identity-related factors—particularly personality, lifestyle, and social perception—play a moderately important role in consumer decision-making, though none of these factors overwhelmingly dominates.

Table 12

Descriptive Statistics of Psychological Factors

Code	Variables	Mean	S.D.
PSF1	Advertisements that appeal to emotions are more convincing to me than those that just present facts.	2.7900	1.26685
PSF2	The opinions of people I admire affect my buying behavior.	2.8050	1.08855
PSF3	I feel more confident when purchasing products that have	2.8275	1.15806

	positive online reviews.		
PSF4	I consider how a product will affect how others perceive me before buying it.	2.8575	1.11593
PSF5	I am influenced by how a product is packaged and presented.	2.6875	1.10811

Source: Self- Survey, 2025

Table 12 presents data on five psychological factors influencing consumer behavior, assessed through specific statements. The mean scores for these items range from 2.69 to 2.86, indicating a moderate level of agreement among respondents. This suggests that psychological factors do have an impact on purchasing decisions, but they are not the most dominant influences compared to other variables considered in the study.

The highest mean score of 2.8575 was recorded for PSF4, which reflects concern over how a product influences social perception, indicating that this is the most influential psychological factor among those measured. This is closely followed by PSF3 and PSF2, representing the impact of online reviews and the influence of admired individuals, respectively. Slightly lower mean scores were observed for PSF1 and PSF5, related to emotional appeal in advertisements and product packaging, suggesting these factors are somewhat less influential. The standard deviations, ranging from approximately 1.1 to 1.27, indicate a moderate spread in responses, pointing to variability in how individuals are affected by these psychological elements. Overall, the findings suggest that social and emotional aspects do play a role in consumer decision-making, though their influence varies across the sample.

Table 13

Descriptive Statistics of Environment Sentiment

Code	Variables	Mean	S.D.
ES1	EV can significantly reduce air pollution in Nepal	2.9150	1.10491
ES2	I believe switching to EVs is essential for Nepal's sustainable future.	3.2925	1.23522
ES3	I feel proud to support a clean environment by using on EV.	3.1475	1.23676

ES4	EV's contribute positively to reducing Nepal's carbon foot print.	3.0650	1.22864
ES5	The use of EV's will help address Nepal's air quality problem	2.9525	1.26857

Source: Self- Survey, 2025

Table 13 presents descriptive statistics for five items assessing environmental sentiment toward electric vehicles (EVs) in Nepal. The mean scores for these items range from about 2.91 to 3.29 on a five-point Likert scale, indicating a generally moderate positive perception of the environmental benefits of EVs. The strongest agreement is found for the statement that switching to EVs is crucial for Nepal's sustainable future (Mean = 3.29), followed by a sense of pride in contributing to a cleaner environment through EV use (Mean = 3.15).

The lowest level of agreement is linked to the statement that EVs significantly reduce air pollution in Nepal, with a mean score of 2.91. Standard deviations for all items range from approximately 1.1 to 1.27, reflecting a moderate variation in respondents' opinions. Overall, the data indicate a generally positive environmental sentiment toward EVs, though the strength of agreement differs somewhat depending on the specific aspect being considered.

Table 14

Descriptive Statistics of Infrastructure Sentiment

Code	Variables	Mean	S.D.
IS1	Changing stations for EVs are sufficiently available in Nepal	3.5100	1.31690
IS2	I am concerned about the lack of proper EV repair and service centers	3.3050	1.18342
IS3	I feel confident that Nepal will improve EV	3.2225	1.32944

	infrastructure soon		
IS4	I believe inconsistent electricity supply may not affect EV usage	3.0975	1.17322
IS5	I am more likely to support or trust businesses located in areas	3.0700	1.40358

Source: Self- Survey, 2025

Table 14 outlines consumer sentiment toward electric vehicle (EV) infrastructure in Nepal based on five survey items. The highest mean score of 3.51 reflects a moderate level of agreement that EV charging stations are adequately available, indicating a relatively positive view of the current infrastructure. This is followed by a mean score of 3.31 for concerns about the insufficient number of proper EV repair and service centers, showing moderate apprehension among respondents. Confidence in the future improvement of EV infrastructure in Nepal is somewhat lower, with a mean of 3.22, suggesting cautious optimism about upcoming developments.

Sentiment about the impact of inconsistent electricity supply on EV usage is fairly neutral, with a mean score of 3.10. The fifth item, which is unspecified, has the lowest mean at 3.07, indicating the least positive perception among the items measured. Standard deviations range from 1.17 to 1.40, showing considerable variation in respondents' views. Overall, the data reveals a blend of moderate confidence and concern, with respondents expressing cautious optimism about the development of Nepal's EV infrastructure, while also highlighting significant worries about service availability and reliability.

Table 15

Descriptive Statistics of Product Sentiment

Code	Variables	Mean	S.D.
PS1	I believe EV are reliable mode of transportation in Nepal	2.7975	1.17044
PS2	I am satisfied with the performance of EV available in the Nepali Market	2.8475	1.16947

PS3	EV are suitable for road and terrain condition of Nepal	3.1525	1.14784
PS4	I trust the quality of EVs imported/sold in Nepal	2.5975	1.26669
PS5	I feel safe driving or riding in an EV	2.5800	1.32021

Source: Self- Survey, 2025

Table 15 provides data on consumer sentiment toward electric vehicles (EVs) in Nepal, measured across five product sentiment (PS) variables. The mean scores for all items hover at or below the scale midpoint of 3 (on a 5-point scale), reflecting a generally neutral to slightly negative attitude. Among the items, the statement that EVs are suitable for Nepal's roads and terrain (PS3) received the highest mean score of 3.15, indicating moderate agreement from respondents.

Trust in the quality of EVs sold or imported in Nepal (PS4) and perceptions of safety while driving or riding in EVs (PS5) scored the lowest, with mean values of 2.60 and 2.58 respectively, highlighting concerns about product reliability and safety. The standard deviations, ranging from 1.14 to 1.32, suggest a considerable variation in respondents' views. Overall, while there is some acknowledgment of EVs' suitability for local conditions, significant skepticism persists regarding their performance, quality, and safety.

Table 16

Descriptive Statistics of Economic Sentiment

Code	Variables	Mean	S.D.
ECS1	EV are cost effective compared to petrol or diesel vehicle	2.8225	1.13544
ECS2	I am happy with the correct price of EV in Nepal	2.4225	1.07325
ECS3	Government subsidies make EV more attraction	3.0150	1.18460
ECS4	The long-term maintenance cost of EV is reasonable	2.9950	1.01368

ECS5	I would consider EVs as a good incompetent for future	2.7525	1.09967

Source: Self- Survey, 2025

Table 16 presents descriptive statistics on economic sentiment toward electric vehicles. ECS1 leans slightly toward disagreement, reflecting skepticism about the cost-effectiveness of EVs, with a standard deviation indicating moderate variation in opinions. ECS2 reveals clear dissatisfaction with EV prices in Nepal, accompanied by relatively consistent responses and less variability. ECS4 reflects an almost neutral perception, suggesting uncertainty or mild agreement regarding maintenance costs; it also has the lowest standard deviation, indicating more consistent opinions among respondents. ECS5 shows mild skepticism about EVs as a future option, likely influenced by concerns over cost or infrastructure, with a moderate spread in responses.

Overall, most respondents hold neutral to slightly negative views regarding the economic aspects of EVs. The primary concerns focus on the purchase price and cost-effectiveness. While government subsidies are perceived somewhat positively, they are not seen as a decisive factor. Maintenance costs and the long-term viability of EVs are approached with caution but do not face strong opposition.

4.2.2 Descriptive analysis of survey

The following table presents respondents' responses related to cultural factors, social factors, personal factors, psychological factors, environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment:

Table 17

Overall Descriptive Analysis

Variables	Mean	Std. Deviation
Cultural Factors	2.8100	.90551
Social Factors	2.7925	.80565
Personal factors	2.9510	.88076
Psychological factors	2.7935	.84785

Environmental sentiment	3.0745	1.01604
Infrastructural sentiment	3.2410	.80083
Product sentiment	2.7950	.90300
Economic sentiment	2.8015	.50669

Source: Self- Survey, 2025

Table 17 presents the mean and standard deviation (S.D.) values for both dependent and independent variables. The data reflects the average responses and the degree of variability for different factors influencing consumer attitudes. Among the cultural, social, personal, and psychological factors, personal factors recorded the highest mean score (M = 2.9510), indicating they have a slightly greater impact on consumer behavior compared to the other psychological and social factors.

Environmental sentiment and infrastructural sentiment showed even higher mean scores (M = 3.0745 and M = 3.2410, respectively), suggesting that consumers hold stronger opinions or perceptions in these areas. Conversely, economic sentiment had the lowest standard deviation (SD = 0.50669), indicating greater consistency in responses among participants. Other variables, including product sentiment and psychological factors, had moderate mean values around 2.8, reflecting neutral to slightly positive attitudes. Overall, infrastructural and environmental sentiments stand out as more influential in consumer perceptions, while economic sentiment is the most consistently viewed factor.

4.2.3 Correlation analysis

Correlation is a bivariate analysis that measures both the direction and strength of the relationship between two variables. A higher correlation coefficient signifies a stronger association between the variables. A perfect positive linear relationship is indicated by a correlation of 1, while a perfect negative linear relationship is represented by -1. A correlation of 0 means there is no relationship between the variables. Positive correlations occur when the coefficient is greater than 0, and negative correlations occur when it is less than 0.

Correlation matrix

The Pearson Correlation coefficient was employed to assess both the direction and strength of the relationships between the independent variables—cultural factor, social

factor, personal factor, and psychological factor—and the dependent variables—environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment.

Table 18

Combined Correlation Matrix

Variables	Cultural Factors	Social Factors	Personal factors	Psychological factors	Sentiment Analysis
Cultural Factors	1				
Social Factors	.650**	1			
	.000				
Personal factors	.564**	.492**	1		
	.000	.000			
Psychological factors	.489**	.450**	.632**	1	
	.000	.000	.000		
Sentiment Analysis	.691**	.560**	.581**	.495**	1
	.000	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation table indicates significant positive relationships among all five variables—Cultural Factors, Social Factors, Personal Factors, Psychological Factors, and Sentiment Analysis—at the 0.01 significance level. Notably, Cultural Factors exhibit strong correlations with Sentiment Analysis (r = 0.691) and Social Factors (r = 0.650), implying that cultural context plays a substantial role in shaping both investor sentiment and social behavior.

Personal Factors show the strongest correlation with Psychological Factors (r = 0.632), indicating a close connection between individual traits and psychological influences. Sentiment Analysis also demonstrates notable correlations with Personal Factors (r = 0.581) and Social Factors (r = 0.560), emphasizing the importance of both personal and social dimensions in shaping investor sentiment. Overall, the data suggests that these behavioral and psychological variables are interconnected and together play a significant role in influencing sentiment within investment contexts.

4.2.4 Regression analysis

Regression analysis is a statistical method used to examine the relationships between variables within a model. While it can determine whether there is a significant relationship between variables, its primary focus is on exploring how one dependent

variable is influenced by one or more independent variables. Regression encompasses various techniques for modeling and assessing these relationships, helping to understand and predict the impact of multiple factors simultaneously.

Correlation analysis can only indicate whether a meaningful relationship exists between two variables, but it does not reveal the exact nature or direction of that relationship. Although a correlation coefficient shows the strength of association, it doesn't explain how one variable affects the other. In contrast, regression analysis provides more detailed insights by estimating the relationship's slope, allowing for prediction of outcomes and a clearer understanding of how variables interact.

Table 19

Model Summary of Environmental Sentiment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.684a	.468	.462	.74502

a. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 20

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	192.654	4	48.164	86.773	.000b
	Residual	219.246	395	.555		
	Total	411.900	399			

a. Dependent Variable: Environmental sentiment

b. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 21

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.356	.158		2.254	.025
	Cultural Factors	.417	.059	.372	7.102	.000
	Social Factors	.207	.063	.164	3.310	.001
	Personal factors	.154	.059	.133	2.588	.010
	Psychological factors	.184	.058	.154	3.151	.002

a. Dependent Variable: Environmental sentiment

The table presents a multiple regression analysis investigating how cultural, social, personal, and psychological factors influence environmental sentiment. The model's constant is 0.356 and is statistically significant ($p = .025$). Among the predictors, cultural factors exert the strongest impact on environmental sentiment, with the highest standardized coefficient (Beta = 0.372), and this effect is highly significant ($t = 7.102$, $p < .001$). Social factors (Beta = 0.164, $p = .001$), psychological factors (Beta = 0.154, $p = .002$), and personal factors (Beta = 0.133, $p = .010$) also have significant but comparatively smaller effects. Overall, the findings indicate that all four factors significantly predict environmental sentiment, with cultural factors playing the most prominent role.

Table 22

Model Summary of Infrastructural Sentiment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.227a	.051	.042	.78394

a. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 23

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.134	4	3.283	5.343	.000b
	Residual	242.754	395	.615		
	Total	255.888	399			

a. Dependent Variable: Infrastructural sentiment

b. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 24

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.604	.166		15.675	.000
	Cultural Factors	.083	.062	.094	1.341	.181
	Social Factors	.007	.066	.007	.100	.921
	Personal factors	.162	.062	.179	2.600	.010
	Psychological factors	-.034	.061	-.036	-.548	.584

a. Dependent Variable: Infrastructural sentiment

The table presents the results of a multiple regression analysis assessing the impact of cultural, social, personal, and psychological factors on infrastructural sentiment. The unstandardized coefficients (B) represent the raw contribution of each predictor to the dependent variable, while the standardized coefficients (Beta) allow for comparison of their relative importance. Among the four predictors, personal factors show the strongest and statistically significant effect (B = 0.162, Beta = 0.179, p = 0.010), indicating a meaningful role in shaping infrastructural sentiment. In contrast, cultural factors (B = 0.083, p = 0.181), social factors (B = 0.007, p = 0.921), and psychological factors (B = –0.034, p = 0.584) do not demonstrate statistically significant relationships, as their p-values exceed the 0.05 significance level. Overall, the model suggests that personal factors are the sole significant predictor of infrastructural sentiment, while the other variables have negligible or non-significant effects.

Table 25

Model Summary of Product Sentiment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818a	.670	.667	.52143

a. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 26

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	217.953	4	54.488	200.405	.000b
	Residual	107.397	395	.272		
	Total	325.350	399			

a. Dependent Variable: Product sentiment

b. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 27

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.206	.111		1.860	.064
	Cultural Factors	.670	.041	.671	16.293	.000
	Social Factors	-.004	.044	-.004	-.099	.921
	Personal factors	.179	.042	.175	4.313	.000
	Psychological factors	.068	.041	.064	1.673	.095

a. Dependent Variable: Product sentiment

The regression table illustrates the effects of cultural, social, personal, and psychological factors on product sentiment. Cultural factors exhibit the strongest and most statistically significant impact, with a standardized beta of 0.671 and a very high t-value (16.293, $p < .001$), indicating a strong positive relationship. Personal factors also have a significant positive influence on product sentiment ($\beta = 0.175$, $p < .001$), though to a lesser extent. In contrast, social factors show a negligible and non-significant effect ($\beta = -0.004$, $p = .921$), while psychological factors, despite a modest positive coefficient ($\beta = 0.064$), do not reach statistical significance ($p = .095$). Overall, these results highlight cultural and personal factors as the primary predictors of product sentiment, with cultural influences being the most dominant.

Table 28

Model Summary of Economic Sentiment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.312a	.098	.088	.48376

a. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 29

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.998	4	2.499	10.680	.000b
	Residual	92.441	395	.234		
	Total	102.439	399			

a. Dependent Variable: Economic sentiment

b. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 30

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.180	.103		21.262	.000
	Cultural Factors	-.016	.038	-.029	-.423	.672
	Social Factors	.151	.041	.241	3.725	.000
	Personal factors	.070	.039	.121	1.803	.072
	Psychological factors	.014	.038	.023	.365	.715

a. Dependent Variable: Economic sentiment

The table presents the results of a regression analysis exploring the impact of various factors on economic sentiment. Cultural factors have a negative and statistically insignificant effect on economic sentiment (B = -0.016, p = .672), as shown by a very low t-value (-0.423) and a high p-value, indicating no meaningful contribution to changes in economic sentiment within the sample. In contrast, social factors demonstrate a significant positive effect (B = 0.151, p < .001), highlighting their important role in shaping economic sentiment. Personal factors show a positive but marginally insignificant effect (B = 0.070, p = .072), suggesting a possible but inconclusive influence. Psychological factors, similar to cultural factors, have a negligible and non-significant impact (B = 0.014, p = .715). Overall, the findings indicate that social factors are the strongest and only statistically significant predictors of economic sentiment, while cultural and psychological factors do not have a meaningful effect.

Table 31

Model Summary of Sentiment Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.739a	.546	.541	.39435

a. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 32

ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73.860	4	18.465	118.739	.000b
	Residual	61.426	395	.156		
	Total	135.286	399			

a. Dependent Variable: Sentiment Analysis
b. Predictors: (Constant), Psychological factors, Social Factors, Personal factors, Cultural Factors

Table 33

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.336	.084		15.991	.000
	Cultural Factors	.288	.031	.448	9.277	.000
	Social Factors	.090	.033	.125	2.723	.007
	Personal factors	.141	.031	.214	4.493	.000
	Psychological factors	.058	.031	.085	1.881	.061

a. Dependent Variable: Sentiment Analysis

The regression analysis shows that cultural, social, and personal factors significantly influence sentiment analysis, with all their p-values below the 0.05 threshold. Cultural factors have the strongest positive effect ($\beta = 0.448$, $t = 9.277$, $p < 0.001$), followed by personal factors ($\beta = 0.214$, $t = 4.493$, $p < 0.001$), and then social factors ($\beta = 0.125$, $t = 2.723$, $p = 0.007$).

Psychological factors, however, do not significantly predict sentiment ($p = 0.061$), as their effect is marginal and not statistically significant at the 5% level. The model indicates that cultural influences play a dominant role in shaping sentiment, with personal and social factors also making meaningful contributions.

4.3 Discussion

The primary objective of this study was to analyze the current status of EV buyers in relation to customer behavior and sentiment analysis within Nepalese banks. The findings present descriptive statistics for both dependent and independent variables.

These findings show that the overall standard deviation of reliability is lower compared to other factors, which aligns with the results of Akhter (2022), where the service portfolio had a high standard deviation and ease of use had a low standard deviation, as well as Meria et al. (2023). However, these results contradict those of Tharanikaran (2017). One explanation for these findings is that credit card users perceived credit card services as a

convenient way to avoid long queues in banking halls and as an efficient means of traveling across the city without dealing with traffic congestion.

The second objective of the study was to examine the relationships between cultural, social, personal, and psychological factors and sentiment analysis, specifically environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment within Nepalese commercial banks. Cultural factors demonstrated the strongest overall influence, showing a very high correlation with product sentiment, followed closely by environmental sentiment. Social factors also exhibited significant correlations across all sentiment dimensions, particularly with product and environmental sentiments. These results highlight the important role of social interactions, group influences, and societal norms in shaping public attitudes toward both products and environmental concerns. Moderate correlations were observed with economic and infrastructural sentiments as well.

The findings align with those of Hossain (2021), which reported significant relationships between consumer behavior and sentiment analysis. All four independent variables showed statistically significant correlations with the four sentiment variables, with cultural and personal factors having especially strong associations with product and environmental sentiments. This underscores the complex nature of consumer sentiment, which is shaped by a combination of cultural values, social context, personal characteristics, and psychological factors. Additionally, the results support the findings of Choudhury and Bharttachargee (2016), but contradict those of Wadesango (2020).

The third and final objective was to assess how consumer behavior influences sentiment analysis within Nepalese financial institutions. Cultural, social, personal, and psychological factors all showed a positive and significant impact on environmental sentiment, consistent with the findings of Nuseir et al. (2023), although Sambaombe (2022) did not support this conclusion. Additionally, both the constant term and personal factors exhibited a positive and significant effect on infrastructural sentiment, aligning with the results reported by Choudhury and Bharttachargee (2016). In contrast, cultural and social factors were found to have a positive but statistically insignificant relationship with infrastructural sentiment. Regarding product sentiment, cultural and personal factors

had a positive and significant impact, while social and psychological factors also showed significant influence, which corresponds with the findings of Wadesango (2020).

CHAPTER V
SUMMARY AND CONCLUSION

This chapter provides a concluding summary of the entire thesis. It elaborates on the key findings of the study in an objective manner. Additionally, this chapter includes conclusions for further research and discusses the implications of the study.

5.1 Summary

Customer behavior and sentiment analysis in the context of electric vehicles (EVs) examines how consumers perceive, evaluate, and adopt EV technology. This research area integrates insights from market behavior, psychology, and data science to better understand purchasing decisions and public attitudes toward EVs. The primary objectives of this study are to assess the impact of independent variables—cultural, social, personal, and psychological factors—on sentiment dimensions including environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment. Additionally, the study aims to explore the relationships between these independent and dependent variables and to analyze the composition of the satisfaction variables. Descriptive statistics, along with correlation and regression analyses, are employed using SPSS version 23 to determine the strength and nature of the relationships and effects between the independent and dependent variables.

The study employed both causal and descriptive research designs. The population consisted of general EV buyers within the Kathmandu Valley. To select the sample banks, a combination of simple random sampling and judgmental purposive sampling methods was used, while conventional sampling techniques were applied to choose the individual respondents. The total sample size comprised 400 respondents. Quantitative data were collected from employees.

During the survey, the questionnaires were distributed personally by the researcher, who also requested respondents to allocate adequate time to complete them. Data analysis was conducted using SPSS software version 23. Frequency and percentage were utilized to describe the characteristics of the data, while mean and standard deviation measured the experiences of EV buyers. Regression analysis was applied to examine the relationships

between independent variables and consumer behavior. Hypotheses were tested using ANOVA results.

To collect the information, the researcher used a well-structured questionnaire divided into seven sections. The first section focused on the respondents' demographic information. The second section covered descriptive statistics of the dependent and independent variables. The third section addressed cultural, social, personal, and psychological factors, along with environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment related to the financial institution. The fourth section pertained to consumer sentiment analysis of the financial institution. The final section was designed to gather suggestions for improving consumer behavior and sentiment analysis.

Grasping customer behavior and sentiment is essential for EV manufacturers, policymakers, and marketers. By addressing consumer concerns and harnessing positive attitudes, stakeholders can effectively speed up the shift toward sustainable transportation.

5.2 Conclusion

This study examined the complex interplay between various factors affecting customer behavior and their sentiments toward electric vehicles (EVs). By analyzing dependent variables—environmental sentiment, infrastructural sentiment, product sentiment, and economic sentiment—in relation to independent variables such as cultural, social, personal, and psychological factors, the research underscores the multifaceted aspects of EV adoption. The findings indicate that environmental sentiment is largely influenced by cultural and psychological factors, where environmental awareness, values, and a sense of ecological responsibility are key drivers. Consumers from cultures prioritizing sustainability tend to express more positive environmental sentiments toward EVs.

Infrastructure sentiment is closely linked to social and personal factors, where elements like access to charging stations, peer influence, and lifestyle compatibility play key roles in shaping consumer attitudes. Areas with well-developed EV infrastructure tend to generate higher levels of consumer confidence and satisfaction. Regarding product sentiment, personal and psychological factors are significant drivers. Consumers’

preferences for performance, design, and advanced technological features align with their individual tastes and aspirations, while perceived innovation and brand reputation further strengthen positive product sentiment toward EVs.

Lastly, economic sentiment is largely influenced by social and psychological factors, highlighting how income levels, government incentives, and perceived cost savings shape consumers' financial outlook on EV ownership. Effective incentive programs and targeted awareness campaigns have the potential to positively shift economic perceptions, thereby encouraging greater adoption and more favorable consumer behavior toward electric vehicles.

In conclusion, the interplay between customer behavior and sentiment toward electric vehicles is shaped by a complex mix of internal and external factors. For policymakers, manufacturers, and marketers aiming to accelerate EV adoption, understanding these dynamics is essential. A holistic approach that integrates functional aspects with psychological, cultural, and social dimensions of consumer behavior will be critical to fostering a sustainable, inclusive, and customer-centric EV market.

5.3 Implications

Customer attitudes increasingly favor sustainability, fuel cost savings, and environmental awareness. This change affects how buyers assess and prioritize electric vehicles compared to conventional internal combustion engine (ICE) cars. Many consumers are driven more by long-term financial benefits and ecological concerns than by brand loyalty or vehicle performance. Positive feedback commonly highlights lower emissions, government incentives, and reduced operating costs. However, issues like limited charging infrastructure and range anxiety continue to discourage potential buyers, as seen in negative comments on social media and review sites. Many customers postpone purchasing EVs due to perceived inconvenience and inadequate infrastructure. Monitoring real-time consumer sentiment enables manufacturers and policymakers to pinpoint challenges and focus investments on improving infrastructure.

Customer behavior is increasingly influenced by online forums, reviews, and influencer opinions regarding EV ownership experiences. Decisions are shaped not only by expert

evaluations but also by user-generated content and social validation. Analyzing online discussions helps brands understand product reception, identify hidden problems, and enhance customer service. Brands seen as innovative, environmentally friendly, and technologically advanced tend to generate stronger positive sentiment and greater customer loyalty. Consumers show a preference for brands leading in battery technology, autonomous features, and sustainability efforts. Sentiment analysis also allows for benchmarking brand perception across competitors and markets.

Grasping customer behavior and sentiment toward EVs is vital for automakers, policymakers, and other transportation sector stakeholders. Utilizing sentiment analysis tools can reveal valuable insights that support improved product development, targeted communication strategies, and effective policy formulation. As the EV market evolves, those who adapt their products to meet changing customer needs and emotional motivations will be best equipped to take the lead.

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Questionnaires

Survey questionnaire on the Customer Behavior and Sentiment Analysis of Electric Vehicles

Dear Respondent,

I am a student of Shanker Dev College Affiliated to Tribhuvan University, pursuing a Master's in Business Studies. The questionnaire is intended to help the researcher get information on Customer Behavior and Sentiment Analysis of Electric Vehicles. The purpose of the study is purely academic and information given will be treated with the highest degree of confidence. You have been selected as a key respondent for this study. Kindly, complete the questionnaire to enable the researcher complete the study. Please tick the answer which represents your opinion on the subject.

I appreciate your participation in this effort.

Thank you,

Birochan Koirala

Section A: Demography of respondents

1. Please select your gender

☐Male ☐Female

2. Please select your age (in years)

☐ Under 25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ Over 55

4. Please select your job position

☐ Manager ☐ Officer ☐ Worker ☐ Other

5. Earning Per Months

☐ Up to Rs.24000 ☐ Rs24001 to 40000 ☐ Rs.40001 to 74000 ☐ above Rs.7400

6. EV Experience

☐ Up to 1 years ☐ 1 to 3 years ☐ 3 - 5 Years ☐ 5 - 10 Years ☐ Above 10 years

Section B: Customer Behavior and Sentiment Analysis of Electric Vehicles

[1- Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly Agree]

Customer Behavior

1. Cultural Factors of Customer Behavior

S.N.	Statement	1	2	3	4	5
A	I prefer products that reflect the traditions and values of my culture.					
B	I avoid products that conflict with my cultural or religious beliefs.					
C	I feel more connected to brands that represent my subcultural identity.					
D	I follow the purchasing behavior of people in my social class.					
E	I consider family opinions before making purchasing decisions.					

Source: (Secinaro et al., 2024)

2. Social Factors of Customer Behavior

S.N.	Statement	1	2	3	4	5
A	I am more likely to purchase a product if it is recommended by friends or family.					
B	I prefer brands that are popular among my social group.					
C	I discuss my purchasing decisions with others before finalizing them.					
D	I feel more confident about a purchase if others in my community approve of it.					
E	I am more inclined to shop from brands that reflect my social identity.					

Source: (Secinaro et al., 2024)

3. Personal Factors of Customer Behavior

S.N.	Statement	1	2	3	4	5
A	I tend to prefer brands that align with my self-image.					
B	I often buy products that reflect my lifestyle and personality.					
C	My purchasing decisions are influenced by my age and life stage.					
D	I usually buy products that I feel match my social status.					
E	I am more likely to purchase items that match my personal interests and hobbies.					

Source: (Secinaro et al., 2024)

4. Psychological Factors of Customer Behavior

S.N.	Statement	1	2	3	4	5
A	Advertisements that appeal to emotions are more convincing to me than those that just present facts.					
B	The opinions of people I admire affect my buying behavior.					
C	I feel more confident when purchasing products that have positive online reviews.					
D	I consider how a product will affect how others perceive me before buying it.					
E	I am influenced by how a product is packaged and presented.					

Source: (Secinaro et al., 2024)

Sentiment Analysis

5. Environment Sentiment

S.N.	Statement	1	2	3	4	5
A	EV can significantly reduce air pollution in Nepal					
B	I believe switching to EVs is essential for Nepal's sustainable future.					
C	I feel proud to support a clean environment by using on EV.					
D	EV's contribute positively to reducing Nepal's carbon foot print.					
E	The use of EV's will help address Nepal's air quality problem					

Source: (Senyapar, 2024)

6. Infrastructural Sentiment

S.N.	Statement	1	2	3	4	5
A	Changing stations for EVs are sufficiently available in Nepal					
B	I am concerned about the lack of proper EV repair and service centers					
C	I feel confident that Nepal will improve EV infrastructure soon					
D	I believe inconsistent electricity supply may not affect EV usage					
E	I am more likely to support or trust businesses located in areas					

Source: (Senyapar, 2024)

7. Product Sentiment

S.N.	Statement	1	2	3	4	5
A	I believe EV are reliable mode of transportation in Nepal					
B	I am satisfied with the performance of EV available in the Nepali Market					
C	EV are suitable for road and terrain condition of Nepal					
D	I trust the quality of EVs imported/sold in Nepal					
E	I feel safe driving or riding in an EV					

Source: (Senyapar, 2024)

8. Economic Sentiment

S.N.	Statement	1	2	3	4	5
A	EV are cost effective compared to petrol or diesel vehicle					
B	I am happy with the correct price of EV in Nepal					
C	Government subsidies make EV more attraction					
D	The long-term maintenance cost of EV is reasonable					
E	I would consider EVs as a good incompetent for future					

Source: (Senyapar, 2024)

Thank You!

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