



**GRIFFITH COLLEGE DUBLIN**

**Factors Influencing the Behavioral Intention towards Full Hybrid Car: An Empirical  
analysis of Automobile industry in Delhi**

Research dissertation presented in partial fulfilment of the requirements  
for the degree of

**MSC in International Business Management**

Griffith College Dublin

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**04<sup>th</sup> June 2021**

### 3 Candidate Declaration

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I certify that the dissertation entitled: **Factors Influencing the Behavioral Intention towards Full Hybrid Car: An Empirical analysis of Automobile industry in Delhi** submitted for the degree of **MSC in International Business Managements** the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

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### 1. Dedication

This dissertation is dedicated to God, and then my parents and my mentor; without their support I would not have been able to accomplish this paper. I would also like to dedicate this dissertation to my friends who have always been there for me every time I needed them.

## 2. Acknowledgements

I am truly very excited and honoured to be here while taking this opportunity to express my profound gratitude and deep regards from the core of my heart to Ms. Carla De Tona for her guidance, support, monitoring and constant encouragement throughout the dissertation. Her encouragement gives me strength to look beyond my limits and get the best out of me, without her encouragement I would not finish this dissertation. Thank you very much!

I pay thanks to all my dear friends, their motivation made me realize that I can stand head and shoulder, and I am indebted to my Akanksha, Abhinandan & Parth for their constant encouragement.

Finally, but by no means least, thanks go to my father & mother, my sister for almost unbelievable support. They are the most important people in my life and I dedicate this thesis to them.

## 5 Abstract

**Purpose:** The basic purpose of this study is to measure and evaluate the factors of hybrid cars that influence the behavioural intention of consumers for the purchasing of hybrid cars. This study is done to measure the relationship between environmental concern, economic concern, and consumer's perception about hybrid cars on the behavioural intention of consumers in purchasing hybrid cars in Delhi.

**Methodology:** The data was collected by using a close-ended questionnaire responded by 165 participants using cars in Delhi. Positivist approach was applied for this research for the convenience of sampling and also to obtain the quantitative data. The analysis of collected data was done by using SPSS and MS Excel of Pearson Correlation, Regression, and Anova.

**Findings:** Based on the evidence that was provided in this research, the results indicated that multiple factors of hybrid cars influence the behavioural intention of consumers for purchasing of hybrid cars. This study has evaluated the influence of environmental concern, economic concern, and consumer perception of consumers on the use of hybrid cars on behavioural intention of consumers towards the purchasing of hybrid cars.

The statistical analysis of quantitative data suggested that the influence of these factors on purchasing intention of consumers of hybrid car is 48.4%. Furthermore, all these factors have a significant impact on the purchasing intention of hybrid cars as per the findings of this research. The results of this research are direct reflection on its demographic profile which shows that the majority of individuals were male.

**Keywords:** Environmental concern, Economic concern, Consumer's perception about the use of hybrid cars, Behavioural intention of consumers towards the purchasing of hybrid cars

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## **8 List of Abbreviation**

CBT: Consumer Behavior Theory

TPB: Theory of Planned Behavior

PT: Perception Theory

EV: Electric Vehicle

## 9 Chapter 1: Introduction

### 1.1 Overview

Behavioural intention of the consumer is the prime element that drives the sales and consumption of environmentally friendly innovations, services and products. It has been found in Wang (2016) that consumers tend to purchase environmentally friendly products only when their behaviour is compelled by their desire to save the environment from damage. Similarly, it has also been noted that the behavioural intention is the driving force that compels individuals to purchase products that have lesser impact on the environment as the initiative for environment protection and betterment (Neizari, 2017). Behavioural intention towards purchasing products or services that are environmentally friendly is referred to as green purchasing intention, it includes the intentions, knowledge and compulsion consumer feels towards that particular product or service.

The notion of behavioural intention also entails that the consumers tend to buy the same product if the perceived benefit to the environment remains unchanged even after using the product or the service in consideration (Sangroya, 2017). According to Shalender (2021), products with green labels are more popular among the environmentalists.

Transportation is considered as one of the biggest contributors in generating carbon emissions, followed by electric power in the whole world (Utami, 2020). Studies like Young (2019) and Coffman (2017) have discussed the different elements that support innovative techniques that can reduce the amount of carbon emitted through transportation modes, aiming for a sustainable environment. As the consequence of various efforts being made in the same context, there are now various alternatives to the traditional modes of transport that used petrol and diesel for their engines. According to Wang (2016), hybrid electric vehicles were developed in order to reduce the carbon emissions and to increase the efficiency of fuel.

However, these hybrid electric vehicles are still equipped with engines that use either diesel or petrol that contribute to air pollution while generating carbon dioxide.

As an attempt to reduce the pollution, full electric vehicles are produced that aim to generate no amount of carbon emission, while using the power from sources that are based on renewable energy. The research of Coffman (2017) highlights that these vehicles can be charged through solar charging stations and have the ability to eliminate the greenhouse gas emission to up to 34%. Even though full electric cars have existed since the past few decades, , the popularity of these vehicles is scarce (Abhyankr et al, 2017). On the other hand, the research of Babu (2019) indicates that the consumption of hybrid cars are increasing with the passage of time as more and more individuals are interested in products that are not only economical but also contribute to the betterment of the environment.

In India, approximate emissions of CO<sub>2</sub> gas is measured at 928 Grams per kWh, as noted in Jiang et al (2016). Therefore, the country needs to opt for measures that counter its impact on the planet as well as on the environment for its living beings.

Hybrid vehicles and fully electric cars are among the few examples of environmentally friendly products that are widely considered for their efficiency in reducing pollution as opposed to the fuel cars.

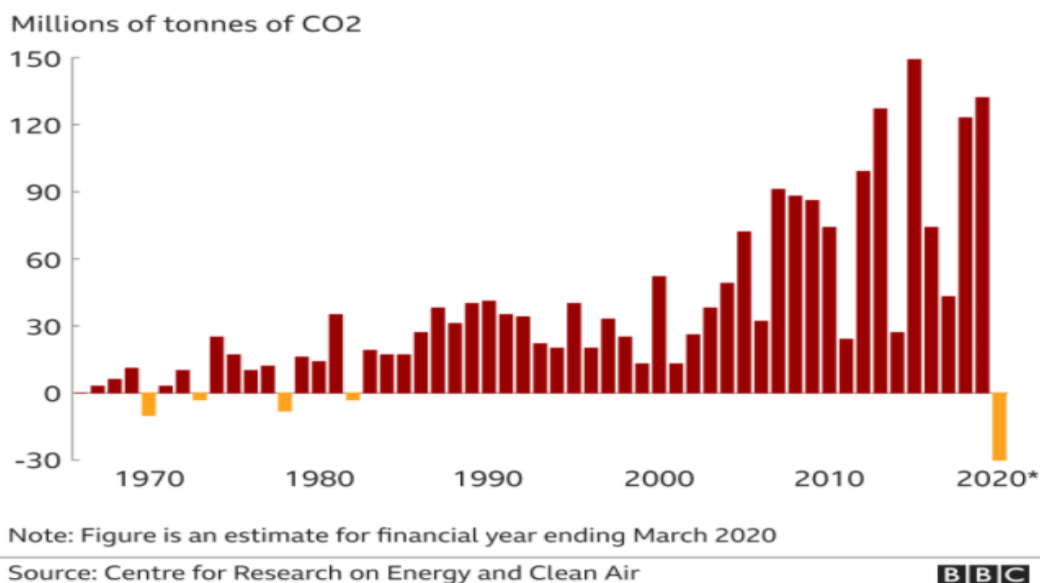


Figure 1: Co2 Emission Statistics

(Source: Centre for Research on Energy and Clean Air)

In 2013, Delhi launched the campaign for the same reason, and called it “National Electric Mobility Mission Plan (NEMMP) 2020”. The purpose of this plan was to ensure that the country accomplishes its goal for national energy security while promoting the concept of electric and hybrid vehicles as an attempt to address growth, pollution and capabilities regarding production (Yong and Park, 2017).

Hybrid cars consist of two main power sources such as IC engine and electric motor and when both sources work together for provision of better efficiency and power then the vehicle or car is known as hybrid car. There are three main types of hybrid cars such as plug-In hybrid, fully hybrid, and mild hybrid. There are multiple brands of hybrid cars present in India but the best hybrid cars in India and the efficiency of each hybrid car is different. The two hybrid cars of Toyota brand are Toyota Camry Hybrid and Toyota Vellfire having the working efficiency of 19.6km/l and 16km/l respectively are the most popular versions of hybrid cars (Yong and Park, 2017). Honda Accord Hybrid also present in India has 23.1km/l working efficiency. The two

cars of Lexus brand are also activated in India that are Lexus 300h Exquisite Hybrid and Lexus NX 300h Hybrid with the working efficiency of 22.58km/l and 18.3km/l respectively. MG Hector Hybrid is also a well-known hybrid car activated in India with the working efficiency of 15.8km/l. Maruti brand is most activated in terms of hybrid cars as four different models of this brand in hybrid cars are activated in India. Maruti Suzuki S-Cross Hybrid, Maruti Suzuki Baleno Hybrid, Maruti Suzuki Ciaz Hybrid, and Maruti Suzuki Vitara Breeza Hybrid having working efficiency of 18.5km/l, 23.8km/l, 20km/l, and 18.76 km/l respectively (Khandelwal, et al 2016).

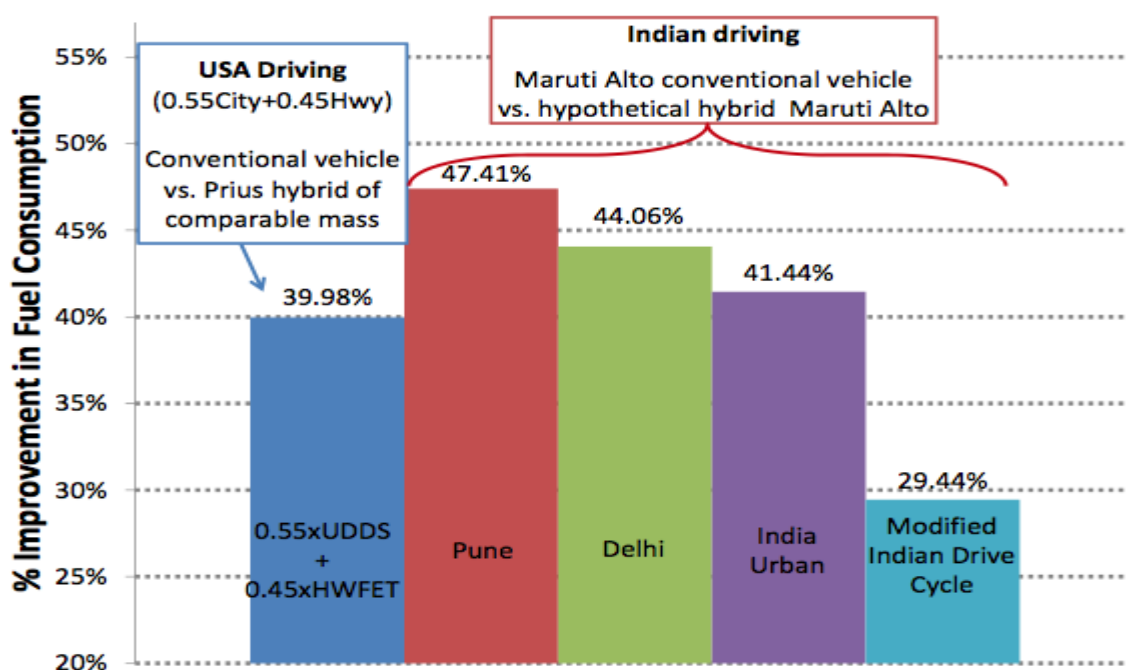


Figure 2: Improvement in Fuel Consumption

(Source: Khandelwal et al., 2016)

It is stated by Coffman (2017) that manufacturers are now aiming to develop a more comprehensive version of electrical vehicles to comply with the new sustainability standard and also assure the high level of consumer concern.

As opposed to India, developed countries carries abundance of literature found on the subject of consumer perception and behavioural intention towards hybrid cars in the context of the economic and environmental impacts of battery electric vehicles (BEVs), such as Hawkins, Gausen, & Strømman, 2012; Kennedy, Ibrahim, & Hoornweg, 2014); However, there is very limited literature on this topic in India, especially Delhi, which is considered to be one of the dense cities of the nation. In order to do so, this study focuses on understanding the impact of environmental concern, economic concern and perceptions of consumers in regards with the hybrid cars that lead to their behavioural intention to purchase these. This study specifically addresses the context of the Automobile industry in Delhi.

## **1.2 Background**

The growing trend has led Indian regulators, planners, and policymakers to support the shift of consumption from conventional cars to hybrid vehicles. For the same purpose, Piyush Goyal, the Minister of State for India's Ministry of Coal, Power, New and Renewable Energy, announced an aspirational goal of converting all vehicle sales in India to battery electric vehicles (BEVs) by 2030, as reported in Economic Times (2016). In addition to this, National Mission on Electric Mobility (NMEM) has set the goal to deploy up to 7 million electric and hybrid vehicles by the year 2020 (DHI, 2012). In 2012, India has already announced the sets a countrywide goal of deploying 6 to 7 million hybrid and electric vehicles (EVs) by 2020 (DHI, 2012).

Since it has been established in the research of Neizari (2017) that there are variety of different elements and factors that contribute in the behavioural intention of the consumers towards purchasing a car, most of these factors are based on either situational elements. The research of Ghasri, Ardeshiri and Rashidi (2019) suggests that psychological elements such as perception of environment and the product play a significant role in shaping the intention to purchase a product.

Among many other factors that contribute in the equation of behavioural intention and actual purchase of the hybrid cars, it has been noted that the purchasing behaviour of the individuals in regards with the electric car are dependent on certain variables such as psychological factors, cost, short battery range, and charging inconveniences. In accordance with the research of Ghasri, Ardeshiri and Rashidi (2019), the perception of monetary and non-monetary benefits associated with the adoption of full electric and hybrid electric cars play a key role in the behavioural intention of the individuals when compared with conventional vehicles. The concept of hybrid and full electric cars have been discussed in a variety of different studies, such as Abhyankr et al, (2017) and Coffman (2017). Most of these studies have suggested the implication of environmental concerns as the primary reason why most people intend to possess a hybrid or a full electric car. However, in literature of Yong and Park (2017) it has been found that there are more elements attached in the equation of perception and buying intention of the consumer. This research identifies a gap in literature that indicates that Delhi has projected a significant rise in the sale volume of hybrid cars in the past few decades. However, the factors influencing the said decisions have not been discussed in literature. Moreover, the implication of perception of economic benefit and of the hybrid cars among consumers of Delhi have not been given adequate attention in studies. This research aims to bridge the research gap identified.

### **1.3 Research Question and Purpose**

The advancement and development in the field of electric vehicles have rapidly attained the attention of many scholars and researchers, such as Ghasri, Ardeshiri and Rashidi (2019) and Neizari (2017), who have studied the behavioural intention of the consumer towards fully electric vehicles and hybrid electric vehicles. However, it has been noted that the perception of the consumers, as well as the willingness of the consumers tend to play a huge role in the

purchase of these hybrid electric vehicles. The research of Sefora et al (2019) suggests that the notion of hybrid electric vehicles emerged from the developed countries and spread across different countries all over the world because of its ability to contribute in the environmental protection through minimizing the carbon emission, while being economical for its consumers as well.

Even though most of the studies such as Sangroya (2017) and Shalender (2021) indicate that the consumer acceptance is highest in the case of hybrid electric vehicles as compared to car on petrol which is the consequence of psychological perceptions of the electric vehicles. Therefore from the above literature gap, it is essential to understand the relationship between different perceptions consumer hold in regards with the purchase of hybrid electric cars, Therefore, the study will go to answer following research questions;

1. What are the most prominent factors that impact the behavioral intention of consumers to purchase hybrid cars?
2. How does concern related to the environment impact on the behavioral intention of consumers in Delhi to purchase hybrid cars?
3. To what extent economic benefits impact on the behavioral intention of consumers in Delhi to purchase hybrid cars?
4. How perception related to hybrid cars impact on the behavioral intention of consumers in Delhi to purchase hybrid cars?

There have been a few studies in the past, such as Jena (2020) that have focused on highlighting the key variables that indicated conscious behaviour of environment friendly individuals. Most of these concerns or the variables were associated with the perception and values of each individual, fundamentally associated with the perception of the environment and his or her ability to make it better. Therefore, the primary aim of this research is to evaluate the factors that contribute in the behavioural intention of the individuals while purchasing the hybrid cars.

As noted in the research of Adnan et al (2017) most of the individuals with the purchase intention of hybrid electric vehicles tend to consider the comparison between costs endured by the hybrid electric vehicles against conventional cars. Similar is the case with features offered by the car, battery capacity and convenience. In addition to this, one of the significant influences in purchasing hybrid electric vehicles is the price of the vehicle in general. On the other hand, the study of Jena (2020) suggested that performance and features are the general motivating factors along with the long recharge times that positively impacts the consumer's decision to purchase the hybrid electric vehicles, along with the psychological and socio psychological elements that are associated with establishing behavioural intention of the consumer. The purpose of this research is to investigate the way consumer perception associated with the purchasing hybrid cars impact their behavioural intention. The research specifically investigates the consumer base of hybrid cars in Delhi with the purpose of identifying the market and to highlight the consumer perception towards hybrid cars.

#### **1.4 Research Gap**

The inclination of first world developed countries have always been towards innovating machinery that protects the environment and offers economic solutions to the mass audience. The advent of hybrid cars and fully electric cars have projected their concerns in regards with the environmental and economic impact of owning the car (Adnan et al. 2017). There are many studies that have highlighted this concern, however, the focus of this website remains on the implication of using these cars in developed countries. Developing countries, such as India, have recently projected an increasing trend towards the purchase of hybrid cars, however, there are not many studies that have investigated the contributing factors towards causing the rise of purchase of hybrid cars. This research identifies the lack of studies in contributing factors on behavioural intention of consumers towards hybrid cars and aims to bridge the said gap through this study. For this purpose, following are the aims and objectives:

### 1.5 Research Aim and Objective

The aims and objectives to research are stated as follows;

The fundamental aim of this research is to investigate the contributing factors that may impact the behavioral intention of consumers, in regards with the purchase of hybrid cars. This study focuses on the behavioral intention of consumers towards hybrid cars in Delhi, India.

Focusing on the aim the objectives of this research include:

3. To evaluate the impact of environmental concern on behavioral intention of consumers.
4. To examine the impact of economic benefit on behavioral intention of consumers.
5. To assess the impact of consumers' perception towards hybrid cars on behavioral intention of consumers.

#### ***Evaluate the impact of environmental concern on behavioral intention of consumers.***

Young argues that (2019) environment concern is a notion that reflects an individual's belief that the world is weakening. It indicates the level of awareness a person has on his or her actions that may or may not give rise to the environmental problems. Thus, the need to opt for solutions and alternatives that either reverses the said damage or minimizes the impact represent the willingness of each individual to contribute to the environmental protection. Therefore, the research of Neizari (2017) suggested that consumer behavior is significantly impacted by the environmental factors, which further compels buyers to purchase goods that are safe for the environment and can be recycled and reused. Similarly, the research of Iqbal, Hassan and Habibah (2018) highlights that individuals who are not concerned by the environment, tend not to purchase products that adhere to the protection of the same.

In addition to this, the research of Wang (2016) has concluded that environmental concern is one of the major contributors that positively impacts the decision making process of consumers towards electric vehicles. Hence, it can be said that the environmental concern can be

considered as a key motivator for individuals to purchase the electric vehicle or the hybrid vehicle as opposed to the conventional cars. In order to explore this notion further, following is the first objective of this research:

***Evaluate the impact of consumers' perception towards economic benefit on behavioral intention of consumers.***

The perception of economic benefit, as indicated in the research of Adnan et al (2017) have been considered as the economic benefit that an individual enjoys as a consequence of purchasing the product. As highlighted in the research of Utami (2020) the increase in gasoline prices can significantly influence the behavioural intention positively towards purchasing the fully or hybrid electric vehicle. It can further be influenced through the considerations on decreased maintenance and running costs. Furthermore, the research of Chiu, Bool and Chiu (2017) suggests that the accumulated cost of electric vehicles is eight times less than the cost endured using cars that run on natural gas, diesel or gasoline. Therefore, the increasing rate of gasoline prices and the inexpensive nature of electricity has a significant impact on the purchase of electric vehicles when compared with conventional cars. Therefore, the second objective of this research is:

***Evaluate the impact of consumers' perception towards hybrid cars on behavioral intention of consumers.***

As evident through the research of Iqbal, Hassan and Habibah (2018) positive attitude of a consumer towards a specific product is one of the biggest and most influential elements that contribute to the purchase of the product. It implies that the perception of a certain product reflects his or her acceptance towards the product and its consumption. The purpose of this research is to understand the way perception and attitude of the consumer towards hybrid car impact their behavioral intention.

The research of Jena (2020) suggests that comfort, charging conveniences, comfortable driving performance of the car, cost of battery replacement, battery life, and the price of purchase are the determining elements for creating the perception. Furthermore, past experiences with the similar models and vehicles which were positive can also significantly increase the probability of individuals buying hybrid vehicles again. The perception of hybrid cars can be negative if the factors of influence are charging influence and shorter battery change.

The research of Adnan et al (2017) suggests that lack of choice in vehicles, high electric rates, and lack of adequate infrastructure can be deemed as negatively influential on the perception of individuals towards hybrid cars. Furthermore, the studies like Babu (2019) have suggested that the performance of hybrid vehicles are highly dynamic which can manipulate or influence the decision-making process and behavioural intention of the consumers. Therefore, it is essential to discuss the relationship between perception of consumers and behavioral intention of the consumers. Hence, the third objective of this research is:

### **1.6 Structure of the Study**

In this research, there are fundamentally five chapters that comprehensively progresses through one another from the introduction to conclusion. The first chapter of this study is an introduction, which briefly explains the context of the research, purpose of the research, its aim and objectives, and its significance in the field of study. It is subsequently followed by the second chapter which accumulates the findings and debates from past studies on the subject of behavioral intention of consumers and their perception in regards with the purchase of hybrid cars. It also illustrates the conceptual framework that consequently visualizes the relationship between independent and dependent variables. The third chapter of this study reflects methodology and research design and briefly discusses the philosophy, approach and strategy being implemented in the research to collect data, interpret results and draw conclusions. This section also highlights the methods of data collection, sources of information, accessibility, and

the ethical considerations. The fourth chapter of the study discusses the data that has been obtained for this research using the methods as described in the third chapter. It reflects the findings, results and interpretation that leads to discussion in context with the past studies. Lastly, the fifth and final chapter of the research concludes the information, data and results that have been progressed through a variety of steps as devised for the research. In addition to this, it also includes the implications of the findings and results, while also discussing the contribution that this research may have in the field of study. Moreover, the last chapter also reflects on the limitations that were experienced during the research along with the recommendation for practice and future research.

## 10 Chapter 2: Literature Review

### 2.1 Overview

The twenty century is the era that is more centered towards the sustainable production as well as consumption of goods or services. This is the era of industrialization due to which the environment is changing rapidly and these changing environment parameters enhance the need for innovation as well as new ideas of industries and manufacturers to protect the environment. The innovation in cars as an electric vehicle is also an innovative example that overcomes the environmental issues caused by conventional cars. The increase in the trends of sustainability towards the environment also motivate the manufacturers to establish as well as discover such methods of production that provide benefits and protection to the environment. The production of electric vehicles is also a major example that is developed to gain sustainability and to address the environmental concern. The study of Siddiki et al. (2015) explained that the emergence of electrical vehicles as a contribution towards the sustainability of the environment may not be fully accomplished in developing as well as emerging countries in near future. According to Shetty et al. (2020) the demand for the information as well as sustainability spread equally worldwide in both developing and developed countries and provide information and awareness to those individuals who care about the protection of the environment and economy of a state. The manufacturers of vehicles tried their best to produce and develop a better and more sustainable version of these electric vehicles to meet the new standards of sustainability and also ensure the concerns of consumers

Siddiki et al. (2015) has explained that Delhi has preferred to develop and implement a plan of hybrid cars that helps in reduction of pollution. The basic objective of such an initiative is to accomplish the natural energy security goals by promoting electric as well as hybrid cars to reduce the pollution issues. The study of Wang et al. (2016) explained that the Delhi government is involved in implementing such policies and investment so that consumption of

hybrid and electric cars become increased and saturated by year 2020. In this planning the infrastructure has improved and focus on providing better subsidies as well as incentives. The study of Gyimesi & Viswanathan et al. (2011) assumed that manufacturers of the automobile industry have faced multiple challenges especially in the behavioral intention of consumers. Manufacturing industry of automobiles should focus on some factors considering the consumer's behavior intention are perception of consumers, knowledge of consumers, and awareness about sustainability and electric cars. The basic purpose of this study is to align the goals of a manufacturer

The main purpose is to align the goals of the manufacturer with the needs of consumers as well as to comply with the policies communicated by the government that influence the intention of consumers regarding hybrid car purchases. Moreover, in the context of purchasing electrical vehicles, it is identified that the experienced users are more likely to make the purchase of hybrid cars as compared to any other product.

According to Gyimesi & Viswanathan (2011), the Government of Delhi has been focusing on the incorporation of electric vehicles by the year 2030, as a result of its agreement with Paris, restating its commitment for the same. In addition to this, the government of Delhi plans to incorporate electric vehicles as a part of its infrastructure as a step towards incentives and subsidies. However, it is noted in Jackson, Gillaspay, and Purc-Stephenson (2009) that manufacturers in the automotive industry are facing immense challenges in shaping the behavioral intention of consumers. Therefore, in order to understand the needs of consumers, most of the manufacturers focus on the attitudes, trends, knowledge, awareness, and perception of the individuals to comply with. The purpose of taking in account these factors is to modify policies formed by the government that influence the behavioral intention of purchasing hybrid cars.

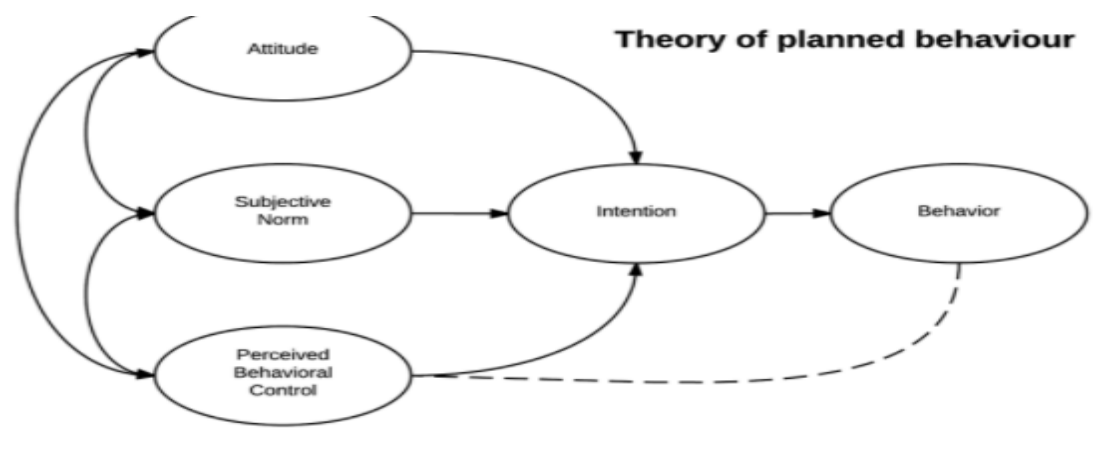
## **2.2 Theoretical Background**

In the early twenty-first century new organizations are working successfully in the automobile industry to maintain the benefits with the concept of production of hybrid cars. Some examples of these organizations are Tesla Motors in the US, REVA in India, BYD in China, and Think in Norway work hard to meet the needs and demands of consumers with electric or hybrid cars, but there is still a lack of the idea of production of complete hybrid cars. The presence of hybrid cars imparts significant changes in the Indian automobile industry, and the increasing acceptance of these hybrid cars will lead towards the more futuristic models. The emergence of these hybrid vehicles is also favored by changes in the global climate. Industrialization plays a major role in global climate change so there is a need to take this issue seriously and take some measures to overcome these issues. A large number of electric cars or hybrid cars sold all over the world due to its high demand to overcome these global issues. Car acquisition is a detailed-oriented as well as time-consuming process having multiple environmental factors.

The choice process became very difficult in Asian economy due to the presence of multiple choices, buyers frequently encountering these issues. The market has revealed the fact that male buyers prioritize aesthetics such as performance, interiors, as well as features of product while the prioritizing features of female buyers are convenience of product, performance, and accessibility of product. Based on these prioritization factors, males are more likely to purchase the electric cars.

This study focuses on the factors that are related to the behavioral intention of consumers towards the purchasing of hybrid cars. In this study, two main theories: theory of planned behavior and perception theory used to measure objectives as well as analysis of consumer behavior intention.

**Theory of Planned Behavior** This theory explained that the experience of an individual is a major contributor towards the purchasing behavior of consumers.



*Figure 3 Theory of Planned Behavior*

### 5.1.1 2.2.1 Theory of planned behavior

The theory of planned behavior explained that experience as well as knowledge of an individual are known as the major contributing factors that influence the buying behavior of individuals (Steinmet et al, 2016). This theory focuses that consumers are likely to attract towards the buying or purchasing of an object that enhances their trustworthiness. This theory also includes the products or services that encourage the consumers to make informed decisions about the purchasing of those products. The behavioral intention of consumers is developed or shaped by the various advertisements as well as social or digital media. The study explained that individuals who have experience of electric cars are more inclined towards its purchasing as compared to individuals who don't have any experience of its use. The higher level of education of individuals towards the vehicles is also a major factor that influences the willingness of consumers towards the purchase of these electric vehicles.

The awareness about these cars is also becoming a major factor in contributing towards the decision-making process of hybrid cars that is followed by the knowledge of hybrid cars. It is

concluded that an individual who has knowledge about the benefits of these cars is more interested in purchasing hybrid cars as compared to those individuals who already have semi-electric cars. This is done because owners of hybrid electric cars already have enough knowledge as well as experience for the decision making to purchase these cars. Thus, the theory of planned behavior explains that enhancing the knowledge of consumers regarding the benefits as well as facilities of a product can be used as an incline behavior intention of consumers to the purchase of hybrid cars.

### **5.1.2 2.2.2 Perception Theory**

Perception theory is used to measure the customer experience or the buying intention of consumers such as the ability of an individual to perceive the items from a specific point of view for better understanding. The perception theory starts from the basic assumption that all perceptions as well as feedback come after the experience of the buyer. The basic meaning of this theory revolved around the needs as well as perception of people and also the viewing perspective of consumers. Price is the main factor that motivates the buying decision of consumers for any product. The value of money for these hybrid cars is known as a more prominent and important factor of these kinds of technologies, so that's why consumers need to pay premium prices for hybrid cars. When a consumer has paid premium prices then they want value as well as quality in return. The perception theory proposed by Daryl Bem (1972) that it is the process of development of initial attitudes of people by observing their own behavior towards the product. An individual develops an attitude or belief of an attitude by observing and reflecting upon the causes of his own actions during a situation. The individual assumes that the manner in which he or she communicates with the environment, his own attitudes, inner feelings and abilities are derived from his or her external behavior. This theory is developed to provide a brief explanation about the cognitive dissonance when a person believes two opposite sides (Démuth, 2013).

### **2.3 Empirical Reviews**

Khandelwal (2016) studied the intention to purchase hybrid cars within India. In this study the multiple factors related to purchase intention of hybrid cars in India are discussed and results of previous studies served as the reference for automobile companies that plan for the launching of hybrid cars in India. In this study five different constructs were extracted from previous study to measure the purchase intention of hybrid cars that are seeking green products information, social value of green products, social value of hybrid car purchase, and emission importance. The results of this study determined that Indian consumers showed a high purchase intention towards the hybrid cars as people understand the importance of social value of hybrid car purchase (Khandelwal, et al 2016).

Saxena (2014) study reveals that the electrical consumption of two, three, as well as four wheel light-duty electric vehicles in India. The government of India has announced the National Electric Mobility Mission Plan to set the targets for deployment of electric vehicles within India. There are multiple challenges that this mission has faced such as the impact of large numbers of EVs on the already strained electric grid. In this study a detailed vehicle powertrain model was used to determine the efficiency of conventional vehicles and electric vehicles. The powertrain methodology in this study is validated against experimental measurement of electrical consumption for a Nissan leaf. The average electrical consumption in road driving conditions is 133 Wh/km for 4-wheeler low power, and 165 Wh/km for 4-wheeler high power. Including the effect of different driving requirements, different air loading levels and additional supply components, different vehicle weights and different levels of engine performance, the influence of differences in many parameters are modeled (Saxena, Phadke, and Gopal, 2014). Consumers' reactions to new technologies are influenced by a combination of internal and external factors.

A study by Coffman, Bernstein, and Wee (2017) concluded that some of the latest power models are better than the previous ones. In addition, government policies and regulations encourage consumers to choose electric vehicles. This study identified the impact on consumer purchasing and decision-making on electric cars. The study looks at how consumers' purchasing habits have changed as a result of the lower cost of plug-in vehicles. The study also sought to define the determinants of consumers' intentions to purchase a new car that meets their current needs but is less expensive. Individual customers who buy plug-in vehicles over traditional gasoline-powered vehicles are motivated by advanced technology and materialistic factors.

In India, there has been a revolution in the automobile industry, and Anoop Pandey (2020) conducted a study to evaluate the vehicle revolution and the future of electric cars in India. The advent of electric cars revolutionized the automotive industry by reducing the importance of traditional automobiles. There are a lot of reasons for bringing this transition in, including reducing air pollution by lowering carbon emission from engines. Several factors contributed to the increased adoption of electric vehicles, including technical advancements, an improvement in government and public transport network, and an increase in the data storage of traction batteries when connected to the grid. Several questions come to mind when thinking about electric vehicles, including battery use, charging stations, and infrastructure for electric vehicles. As a result, it has been decided that hybrid cars will usher in a new era in the world, and people in India have shown an interest in purchasing these hybrid vehicles (Pandey, Manocha, D. and Saini, 2020).

Mak, Rong, and Shen (2013) described the intent of hybrid cars as information that can help save the world by cutting emissions in the automotive industry to a greater extent. According to the report, the main issue about hybrid cars is their small battery power, which allows users to travel 100 miles on a single charge before needing to be recharged to go forward.

Dijk, Kemp, and Valkering et al. (2013) has done a study to assess the diffusion models in the level of environmental technologies such as production of hybrid cars and their potential to incorporate the regulatory connections as well as technical evaluation. This study is done to measure the acceptance of new technology by agent-based analysis to measure that which technology is better. The model used in this study, actor behavior is modeled based on the actor frames as well as continuous appraisal of technology by potential adopters as well as suppliers. This study explained that this model is analytical novel or incorporated in five main feedback loops such as interactive learning, social learning, scale and learning economies, and endogenous taste formation among consumers. This model has discussed that decisions of consumers influence each other as well as supply of innovation is influenced by shaping and investment decisions of suppliers. Thus this model is applicable in various scenarios of clean vehicles and the results of this study explain that success of hybrid electric cars depend on the supplier shifting towards HEV development as well as production and also on consumers valuing hybrid cars more environmentally.

The report found that the development and production of hybrid electric vehicles is critically dependent on suppliers changing their focus to hybrid car development and production. According to Utami (2020), several countries, including India, Europe, Norway, the United Kingdom, France, and Indonesia, are eager to implement the Strategic Plan for Regional Electricity. It'll also assist states in effectively and efficiently managing the rising low sustainability factors. Furthermore, with the introduction of this scheme, cars with internal combustion will be completely banned, and users will be encouraged to fly electric cars.

This is a significant contribution to addressing fossil fuel problems and air pollution. Furthermore, the research is quantitative research, and responses were collected to determine knowledge of electric vehicles. The Toyota Prius PHEV, on the other hand, is on the market to test the legitimacy of hybrid cars. Following the creation of a market preference factor survey,

it was discovered that the business prospects are promoting the traditional treatment changing to a hybrid or electric vehicle. In addition, the study recommends that relevant stakeholders, such as governments, work to change people's perceptions of EVs in order to encourage the adoption of hybrid vehicles. Consumers all over the world are being urged to adopt eco-friendly practices. According to McLeay (2018), implementation of hybrid treatment is still a work in progress. Because of the low-carbon economy, this definition needs to be expanded. The research was carried out on a quantitative scale, with a designed questionnaire distributed to 817 participants to demonstrate how five types of risks, comprising public, brand extensions, time, monetary, and psychological risks, influence consumer purchasing behavior. Consumers are giving preference to electric cars to some degree because of the increasing intensity of emissions, according to the findings.

Orlov (2018) claimed that changes in consumers' attitudes toward efficiency relating to energy and vehicle characteristics have an effect on vehicle selection. The research was descriptive and was focused on empirical evidence. According to the results of the study, there is a substantial increase in the adoption of electrically powered goods as a result of emerging technologies. The environmental effect, on the other hand, does not have a major relationship. Furthermore, results suggest that a lack of financial assets could be another impediment to the production of electric vehicles. According to Mahdin (2018), the probability of adopting a hybrid autonomous motor is rapidly growing. In the following analysis, a quantitative method was used, as well as a survey technique, to determine the effect. This study cultivated the modest contribution of consumer behavior in order to gain an understanding of the transforming decision-making aspects and shaped decisions to buy a hybrid car in order to meet society's increasing concern about environmental friendliness.

According to Shalender (2021), India is classified as having a high energy intake. As a result, it is incredibly motivated to reduce greenhouse gas emissions and energy consumption. Hybrid

cars are also a sustainable mode of transportation, according to analysis. It has the potential to reduce the nation's reliance on gasoline while also significantly lowering carbon emissions. Customers' intentions to buy a hybrid car are predicted using the extended TPB model in this study. Furthermore, the author of this study used the Theory of Planned Behavior to be certain. Here with this research, qualitative findings indicate that the factors explained, such as moral norm, behavioural regulation, perceived value, and greater environmental awareness, have a positive relationship with the buyers adoption rate. Furthermore, the degree expected behaviour mode theory was found to be highly acceptable in predicting consumer intention to purchase hybrid c. Environmental security, as shown by Neizari (2017), has been one of today's most important challenges. Furthermore, as a result of industry growth and globalisation, natural resources and ecosystems are constantly under stress, posing threats such as climate change, smog, and environmental degradation. Furthermore, ensuring the protection of the natural world is a major challenge for this issue. Consumers are now becoming more aware of environmental concerns and the effect of various aspects on the community. Also addressed in the report is the fact that the automotive industry has a significant harmful impact on the environment, resulting in a variety of issues that can be mitigated by implementing green projects such as hybrid treatment.

## **2.4 Hypotheses Development**

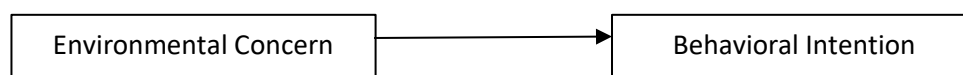
In this section, an overview of some previous studies about the topic has been discussed considering the hypothesis development and measuring the relationship between dependent and independent variables of this study.

### *5.1.3      2.4.1 Environmental Concerns and Behavioural intention*

Environmental concern is major as most consumers who have to buy eco-friendly and sustainable products should measure the impact of that product on the environment. Coffman, Bernstein, and Wee et al. (2017) has done a study to explain that all those individuals who are

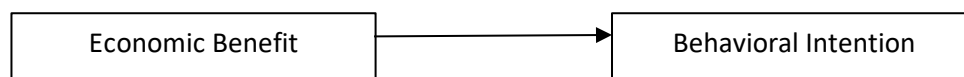
concerned about the environment safety and their health have better choice to buy electric or hybrid cars as there is no consumption of fuels present in it due to which these cars cannot harm land and environment. Most individuals should consider various elements related to the safety of the environment during the purchasing of an electric or a hybrid car. The consideration of environmental concern is known as the primary factor or contributor in the behavioral intention of consumers or individuals towards the purchasing of electric vehicles. This is a major factor because of its multiple benefits such as more economical and improved efficiency as compared to conventional cars. This study explained that consumers used these cars as they are eco-friendly with lower expulsion of pollution. Most of the individuals who are concerned about the negative effects of battery waste as well as gases emission by conventional vehicles have the option to use electric or hybrid cars. Thus, the environmental concern is known as the purpose of motivation that is involved in helping all these individuals to make an informed decision about the electric cars. Mak, Rong and Shen et al. (2013) has conducted a study and explained that environmental concern of a vehicle is known as secondary towards the effect of cost, functionality, and performance of vehicle. Dijk, Kemp and Valkering (2013) et al. concluded that individuals who wanted to provide benefit to the environment by reducing all these risks purchase these hybrid or electric cars. It is also assumed that the purchasing decision of a consumer is highly influenced by the concept of sustainability of these hybrid cars towards the environment. Thus, form above studies hypothesis is developed given as follows:

*Hypothesis 1: The perception of consumers regarding environmental concerns has a direct impact on their behavioral intention to purchase hybrid cars*



#### 5.1.4 2.4.2 Perception of Economic Benefit and Behavioral intention

The study of Siddiki et al. (2015), explained that the economic benefit of hybrid cars is also a major factor towards the behavioral intention of consumers in purchasing hybrid cars. This study has explained that the ratio of sales of electric cars has increased as compared to conventional or fuel burning cars. The ratio in this increase is due to the increasing as well as inflating prices of the fuels and expenses or money that is spent on these cars. It is argued that maintenance cost and fuel cost is lower in electric cars as compared to traditional or conventional cars, so it is concluded that electric cars have multiple economic benefits. Dijk, Kemp and Valkering et al. (2013) have done a study to focus on the fact that the cost of traditional cars is approximately 8 folds higher than electric cars as compared to the electric or hybrid cars. This study explained that the inexpensive nature of gasoline as well as electricity act as a contributing factors to motivate the consumers in purchasing electric vehicles as compared to conventional cars. Thus, to measure the relationship present between the perceptions of economic benefits of hybrid cars on the behavioral intention of consumers towards the purchasing of hybrid cars, the following hypothesis is developed.

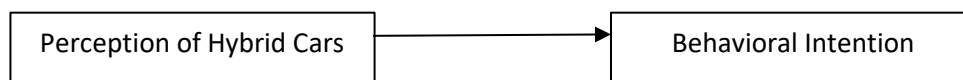


#### 5.1.5 2.4.3 Perception of Hybrid Cars and Behavioral intention

Multiple studies have been done to measure and evaluate the potentiality of perceptions of consumers that imparts an important role on the preferences of the consumers towards the purchasing of electric vehicles. The study of Siddiki et al. (2015) explained that some barriers are present that affect the perception of consumers towards electric vehicles. Some of these barriers are price as well as the limited range of hybrid cars that affect the purchasing intention of consumers. There are also some elements or factors that motivate the individuals in purchasing or buying of electric cars as compared to the conventional cars.

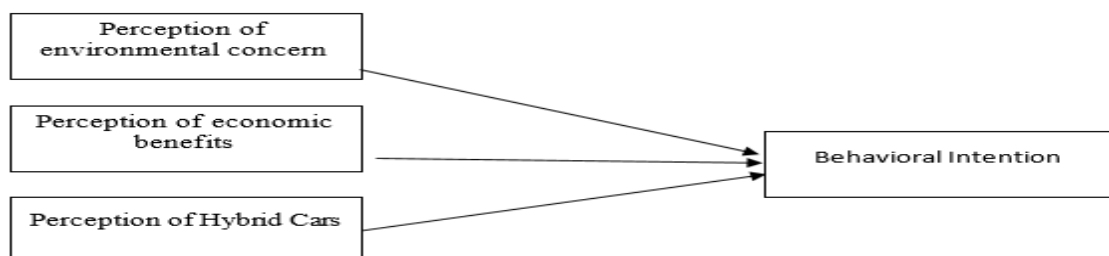
In this study, the functional characteristics of electric cars are explained by the barriers towards the purchasing of hybrid cars. Thus due to this factor, perception of consumers is known as the most influential factor to motivate the behavioral intention of consumers towards the purchasing intention of hybrid cars. Thus, to measure the relationship between perception of consumers towards electric cars as well as behavioral intention of consumers, following hypothesis is developed:

*Hypothesis 3: The perception of consumers regarding hybrid cars has a direct impact on their behavioral intention to purchase hybrid cars*



## 2.5 Conceptual Framework of Research

The illustration of the conceptual framework of this study is done by considering the dependent as well as independent variables of this study. The conceptual framework for this study was designed based on the formulation of the above hypothesis to complete the study by measuring the significant or insignificant relationship present between the independent and dependent variables of this study.



*Figure 5 Conceptual Framework*

#### 5.1.6 2.5.1 *Perception of Environmental concern*

The change in climate is known as a global issue and every country has developed policy to impart a role in improving the environment. Some countries have planned to shift their local transport such as public transport, cars, and bikes to electric vehicle technology. Consumers also wanted to use hybrid cars as compared to conventional cars due to its multiple benefits. The study explained that hybrid cars reduce the emission of harmful gases such as carbon dioxide and greenhouse gases as compared to the traditional cars. The hybrid cars were costly at the start but costs of these cars have been reduced with the passage of time. Thus individuals want to buy hybrid cars but they can buy these cars when the prices of these cars can also come near to the prices of traditional cars (Sangroya, 2017).

#### 5.1.7 2.5.2 *Perception of Hybrid cars*

Climate changes are a global issue and countries are doing the policy according to their capacity to improve the environment. Countries planned to shift local transport like cars, bikes and public transport to EV technology (Electric vehicle). The consumer is willing to use hybrid cars as compared to traditional vehicles. Hybrid cars reduce the emission of carbon dioxide and provide better mileage as compared to traditional vehicles. At the start of technology, the product is costly and by the passage of time, cost decreases. As far as cost is concerned, the public likes the traditional vehicles and they are willing to buy a hybrid car when the prices are near equal to traditional vehicles (Sangroya, 2017).

#### 5.1.8 2.5.3 *Behavioural intention*

Behavioral intention of consumers also imparts an important role on the purchasing of these cars. It is believed that the behavior of consumers will produce a given outcome or experience of an individual. There is a need to focus on providing the benefits of a product during the development of changes in the behavior of people. Such as the change in behavior of the public is happening due to the change in tourists, as it increases the tourism in countries that provide

multiple benefits such as economic benefit to the state. Tourists from different regions also provide their feedback on social media and promote travelling in that state or country. Thus, in the same way there is a need to have awareness campaigns about the changes in global climate as well as drawbacks about these changes (Teoh, 2019). In these awareness campaigns there is a need to provide awareness of how much these changes can affect the next generation. Thus, behavioral intentions can change the behavior of the public to bring some expected outcomes.

## **2.6 Conclusion**

This is the age of technology, and sustainable and main focus of this era is the sustainable production and consumption of products. This sustainability in products has become multiple innovations that provide multiple benefits to the environment from global climate change. There are multiple examples of eco-friendly products, the production of electric vehicles is also an eco-friendly product that is developed to protect the environment from various issues such as to reduce the environmental pollution that is produced by the consumption of fuels present in conventional vehicles. Every country has focused on sustainability. Delhi also launched a campaign by name of “National Electric Mobility Mission Plan 2020” to attain the new standards for the protection as well as sustainability in environment. The hybrid cars are specialized cars that comprise two main power sources and used to protect the environment. There are multiple hybrid cars used in India but most famous brands of hybrid cars used in India are Toyota, Honda, Lexus, Maruti Suzuki, and MG Hector Hybrid. There are three hypotheses developed regarding this study: perception of consumers regarding economic benefits, environmental concerns, and perception of hybrid cars in the purchasing of hybrid cars. It is concluded that the perception of hybrid cars changed with the passage of time and people used hybrid cars to protect the environment.

## 11 Chapter 3: Methodology and Research Design

### 3.1 Overview

The purpose of this particular research is to examine the factors that are influential on the behavioural intention of users towards the full hybrid cars in Delhi, India. India is one of the most fast-growing industries, especially in the automobile sector. The use of automobiles has increased tremendously in India over the past few years. A hybrid vehicle typically uses two types of energy sources, used in different circumstances. Electric cars give more torque while combustion vehicles provide maintenance at high speeds. Some of the hybrid cars that are introduced in Indian market are Maruti swift, Hyundai i20, Hyundai Creta and Mahindra Thar. India is also expected to become the third largest consumer of the automobile industry in 2021. An increase of 2.7% in vehicle purchase was recorded in 2018-19 fiscal year. This includes 4.86% in two wheelers, 10.27% in three wheelers compared to previous fiscal year ("Automobile Industry in India - Auto Sector Growth Analysis", 2021). As an emerging economy and especially in the automobile sector the study focuses the consumer's behaviour towards full hybrid cars.

The chapter methodology and research design deals with the different factors that are influencing the behavioural intentions towards the usage and adoption of full hybrid cars. The chapter will observe the different research philosophies and the approaches that are adopted for the study. What are the different research strategies? The different types of data collecting resources are observed and the primary source of data collection is used for the research purposes. The process for the data analysis is also discussed in the chapter, which includes the software used for the data analysis as well. In the last part of the chapter a suitable conclusion is also provided to summarize the chapter.

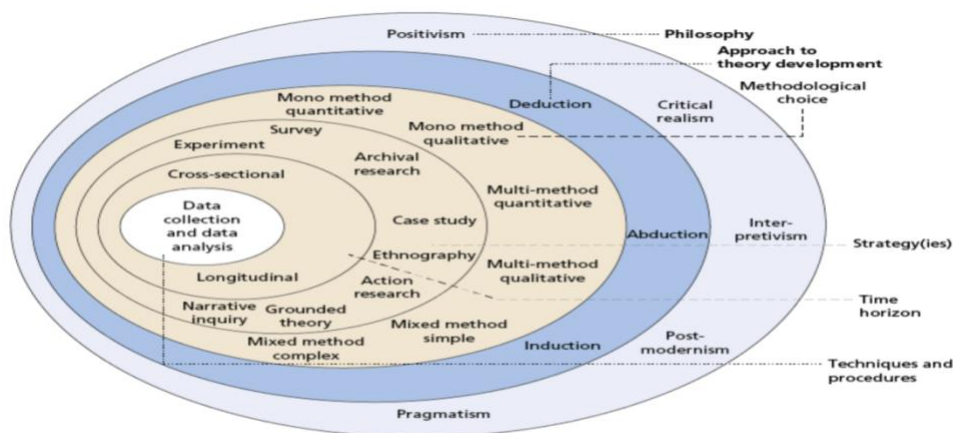
### **3.2 Research Philosophy and Approach**

The first step is the research philosophy of a particular research that depicts, portrays and provides with a layout a set of different beliefs that are related to the reality that is being focused in a research (Zikmund, Babin, Carr, & Griffin, 2013). The supposition established with the philosophy of a research proves helpful in carrying out a research. There are basically three main approaches as far as the philosophical structure of a research is concerned. The first one is Positivism, the second is Interpretivism and the last theory that is used for the research on a particular study is Pragmatism. All the philosophies for the research are based on the aims and goals of the study or the research.

Positivism, this research philosophy focuses on the factual information obtained from the observations. The positivism research philosophy is usually only associated with the collection of data and then providing suitable explanation on the basis of the collected data (Sahay, 2016). The second philosophy in research Interpretivism is the best suited research philosophy if the aim or objective of the outcome of the study or research is conducted on social or cultural aspects of the society (Pham, 2018). The third research philosophy Pragmatism is more related to the ability of the decision making of the individual in the real-world scenarios. This method of research points out the main concerns and issues in the initial phase, an investigation is done on the research to address the issues in the concluding part of the research (Russill, 2016).

For this research the research philosophy that is being adopted is Positivism. The reason for selecting this approach is that the research is independent and the nature of the research is virtuously objective. Also positivism is selected as there is large numerical data to be observed in the research. The nature of the research is based on factual information. Moreover, we would have to build the hypothesis testing for the research as well is also a reason for selecting this philosophy of research.

According to Saunders (2009), in the introduction of the research onion, the approach towards the research is the second important aspect for the researcher to keep in sight. Research approaches consist of two major types. The first research approach is the Inductive approach and the second one is the Deductive approach for the research (Sik, K. (2015). The selection or adoption of any one of the approaches for the research work solely depends on the aims and the objectives of the researcher. Either of the approaches is based on different desired outcomes and findings from the study.



Source: ©2018 Mark Saunders, Philip Lewis and Adrian Thornhill

Figure 6: Research Philosophy

Source (Saunders, 2018)

For this particular research the Deductive type of research is selected. These follow the different stages in sequence, proposed by the study of Robson, (2002). In this research the theoretical and empirical work is used to transform into hypothesis testing. The deductive approach used the theory that already exists on the particular subject to test the theory, using descriptive and empirical data.

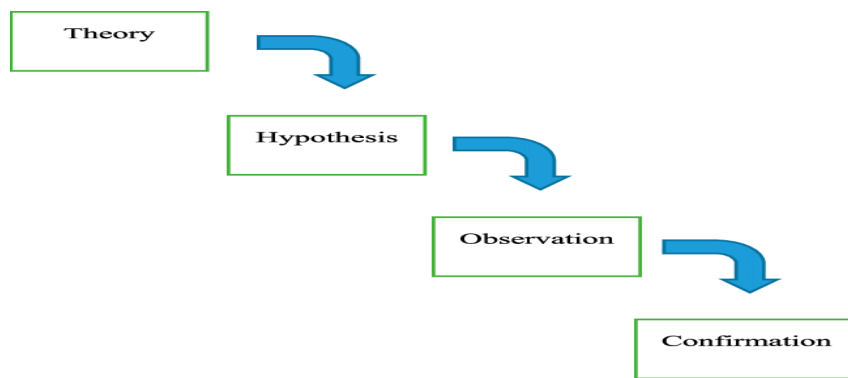


Figure 7: Flow of Deductive Research Approach

(Source: Robson, 2002)

As person Robson, (2002), deductive approach is based on addressing the research study in a pattern. This particular research is also based on the deductive approach. The different empirical and the theoretical information is further translated and utilized for hypothesis testing. This particular research utilizes the prevailing theory provided for a specific field, and examines and evaluates the theory utilizing the empirical as well as descriptive information.

The deductive approach was adopted because it is a more suitable approach when the purpose and aim of the research is to determine the relation between two different variables or factors. The other reason is that deductive approach helps in the determination of measuring the variables or concepts that are quantifiable.

### 3.3 Research Strategy

The next aspect is the research strategy while performing or carrying out a research (Zednik and Jäkel,2016). This is related to the adoption of the style for the research that is the best fit. This allows the researcher to point to the sources for the collection of data and also allows them to identify the mediums of data analysis. There are various research styles differentiated by the benefits and the constraints of the styles (Blumberg, Cooper, and Schindler ,2014).

The researchers are broadly conducted in two major categories. The research strategy that are adopted by the researcher is the Qualitative and the other one is Quantitative. The researchers are usually carried out adopting qualitative, but the importance of quantitative approach can not either be neglected (Winberg ,1997).

## Qualitative vs. Quantitative

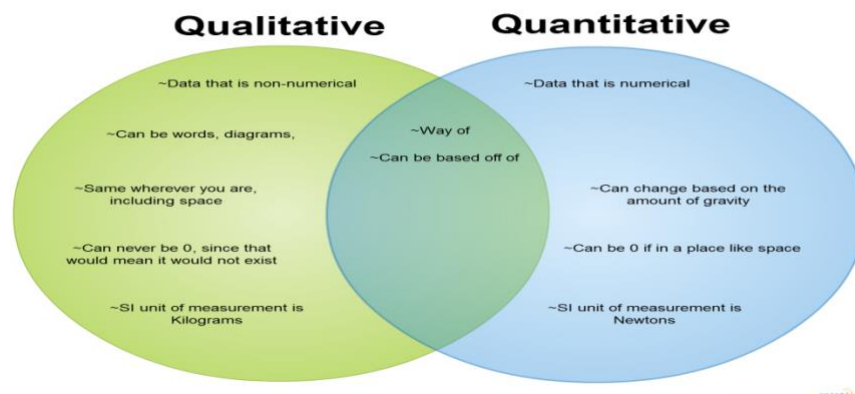


Figure 8: Qualitative vs Quantitative

(Source: Blumberg, Cooper, and Schindler, 2014)

The qualitative method for the research is concerned with topics that are non-numerical and deals with general attributes related to the human. Such as determining the experiences, ideas of participation and human perspective. It is helpful if the research focus is on examining human skills and attributes.

The quantitative methodology for the research deals with the research and studies which are based on some numerical facts and the nature of quantitative research is objective based as well.

This research will be carried out opting the quantitative method of research. The justification for adopting this method is that there are many areas of the research that will be addressed using the statistical and mathematical methods which includes the central tendencies (Mean,

Median and Mode), tabulations as well as graphs. It also helps in conducting a research work that involves a greater amount of data and it also enables the researchers to summarize data that are in accordance with the phenomenon of the particular study. In accordance to the philosophical framework of positivism to obtain the aims of research, quantitative method is opted (Collis & Hussey, 2013).

### **3.4 Collecting Primary Data**

Data collection is the essence for the conduction and the completion of any research work (Mkandawire, 2019). The data collection for any research work is classified into two main classes; Primary data and secondary data. The classification depends on the nature of the method of data collecting techniques used by the researcher. Primary data involves the process of collecting and acquiring data first handed for the research purpose by the researcher. Primary data can be collected through different means. This includes data collection through surveys, experiments, observation of certain fields and also interviews are conducted to avail the data by the researcher (Windle and Silke, 2019).

The collected data is then analysed, summarized and on the basis of this data the future predictions and forecasts are interpreted from the data. The process that involves data collection through primary sources is usually an expensive methodology. The second form of collecting the data is through secondary sources. The main sources for the collection of secondary data are the official government publications, research articles by prominent authors. Other forms of secondary data includes books, journals, and also the online sources are also available (Johnston,2017).

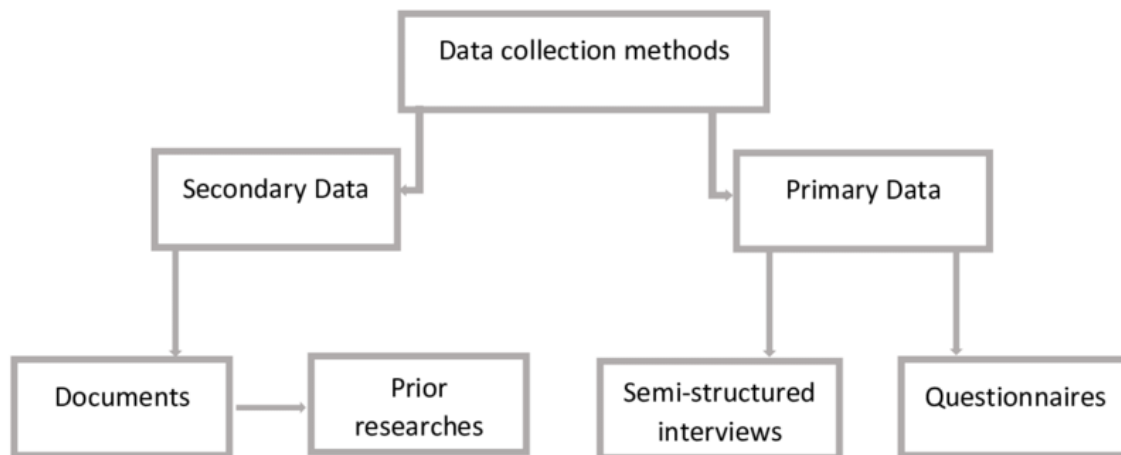


Figure 9: Data Collection Methods and Process

(Source: Windle and Silke, 2019)

The data collection method that is adopted for this particular research is Primary sources of data collection. Collecting the data through the medium of the primary data sources is likely to increase the originality and the genuinely of the research work.

#### **5.1.9 3.4.1 Sources**

There are many sources for the collecting of primary data. The first mean of attaining primary data is through self-conducted public surveys. The process of survey usually contains a questionnaire, constructed in such a way that provides us the correct information required for the research (Kara, H. (2013). The participants are also provided a clear view of the objectives of the research. As discussed in figure 9 There are different types of surveys that can be conducted for the collection of data and information. The first type of survey includes the formal in person conduction of an interview. The other type of survey includes the conduction of surveys using the telephonic sources. And in the current time period the most adopted means of survey conduction is through the online sources. The fourth type of survey includes the paper

survey, as very obvious from the name itself the survey is conducted through a paper with a suitable questionnaire.

The other source of collecting primary data is based on semi structured interviews. The process involves the questioning constructed with the aim of research objectives, from the participants. The interviews for research purposes are conducted by the researcher in person with the volunteers or participants. This method also provides useful information for the research work.

The method that is adopted for this particular research work is through primary source, by the means of online survey questionnaires through google form. The survey was conducted through online internet source which was google form, one the prominent reason for which was to ensure that minimum physical interaction is done to avoid in potential threat of the Covid-19. The surveys were conducted among the hybrid car customer in Delhi

The main purpose for the adoption of the primary source of survey was to engage the public group from the different sectors, as they are the highest consumers of the automobile industry. The survey methodology for the research provides the best sources of information required for the research work. The online survey was conducted from 165 respondents from Delhi.

#### ***3.4.1.1 Likert Scaling***

The questionnaire for the survey was conducted using the Likert scaling. In the study of Cummins and Gullone, (2000), In the study of Saunders et al., (2009) has also emphasized the essence of the reliability as well as the validity of a survey questionnaire. Likert scaling provides a questionnaire with dependability and also brings consistency in the data collection process. The consistency in the responses is measured by the mean of Cronbach's alpha. For the approval of the response's consistency 0.7 threshold of Cronbach's alpha is required (Gliem and Gliem, 2003).

The advantage of the likert scaling is that it does bound the respondent, in giving response to the survey question in the form of Yes or No, rather it provides a detailed range of the options that the respondent can respond to.

Collis and Hussey, (2013) have highlighted in their study the internal cogency data collection is also vital for the aims of the research. In the process of laying out a questionnaire for this research, the considerations that are constructed; the internal cogency, validity of the question to provide information for predictions, validity of the content and the validity of questions in accordance with the hypothesis.

#### ***3.4.1.2 Questionnaire Framework***

The data is the basis for a good survey as it provides the structure for the whole research work. The extraction of useful and correct data depends upon the nature of the questions that are provided to the respondents of the survey (Jelača, et al. 2016). For this particular research to avail the correct sort of information and data that generates conclusion, mathematical and statistical, the survey questionnaire was drafted as attached in Appendix 1 .The part of questionnaire related to the demographic aspects were provided, open end questions were set, gender question, categorical questions were also included. Second part of the questionnaire was based on rating which were based on five stages ranging from ‘strongly agree & strongly disagree’.

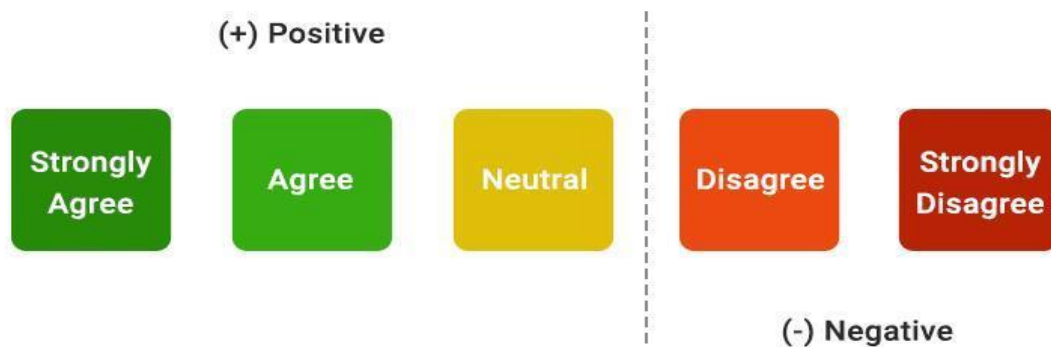


Figure 10: Five Point Scale

### ***3.4.1.3 Secondary Sources***

Secondary sources were also utilized for the research. The most prominent source which helped in the research were the previous studies and researches on this particular topic. It provided the basis for the research work. Government statistical sites and business publication of the automobile sector were also brought into consideration during the research work.

### ***5.1.10 3.4.2 Access and Ethical Consideration***

All the research work and studies should be conducted with a set of well-defined and clearly stated guidelines while conducting the research. The participants or the volunteers for the survey are of such importance that the completion of any research work is not possible. Therefore, the concerns and consents of respondents should be the first priority of the researcher. In this particular survey all of these aspects were kept in sight while conducting the survey.

The ethical considerations can be subdivided under three main types. The first one is the autonomy of the respondents or participants, the second is the principle of justice and the third is principle of no harm (Hammersley, 2015).

The first consideration of anatomy of participants implies that the researcher guarantees the provision of respect to the volunteers for the survey. This consists of full independence to the participants in order of their participation. The respondent may join in the survey or may withdraw from the survey if any sort of potential threat or mental or psychological pressure is felt. The volunteer is also independent in providing the sort of personal information.

The principle of Justice implies the researcher to treat with all fairness, to related stakeholders. This also demands the researcher to make sure the establishing conclusions are based on the pure view of the participants.

Principle of no harm requires the researcher to conduct the research in such a way that it enhances the overall well-being of the society. Also, efforts are required to diminish the potential harm by the research to the society.

### **3.5 Approach to Data Analysis**

The analysis of the collected data is the most important aspect of the research in order to derive informative conclusions from the study. This particular research is based on the factor, the 'behavioural intentions' of the consumers towards the 'hybrid cars'. The first thing that needs clarification is that this topic is a phenomenon of "Regression analysis" because we are considering the effect of one variable on the other variable (Darlington and Hayes, 2017). The behavioural intention of the consumer is a dependent variable while three independent variables are also outlined. The first variable is the 'perception of environmental concern' the second variable is the 'perception of economic benefits' and the third independent variable is 'perception of hybrid cars'. These relations among the dependent and independent variables can also be determined using the Hypothesis testing (Koch, 2013). The claims can be developed using the hypothesis testing criterion as follows.

Hypothesis 1: The perception of consumers regarding environmental concerns has a direct impact on their behavioural intention to purchase hybrid cars.

Hypothesis 2: The perception of consumers regarding economic benefit has a direct impact on their behavioural intention to purchase hybrid cars

Hypothesis 3: The perception of consumers regarding hybrid cars has a direct impact on their behavioural intention to purchase hybrid cars.

To analyse the data on the statistical basis, SPSS (Statistical Package for Social Sciences) form the licensed and official IBM version was utilized. To determine the themes and sequence MS (Microsoft Excel) was also used. This provides a detailed analysis for the representation of the entire data set of the research. These statistical tools provide the necessary tools to test the hypothesis testing based on the dependent measures such as ratio, ordinal and nominal. For the reason that the data collected through survey was scaler with five levels and nominal as well, Reliability test were also carried out along with Multiple Linear Regression. These tests were adopted in order to evaluate the inferential question as well as the differential questions as well. The process for SPSS involves entering data using a code book. In SPSS the data recode the responses by giving 1 to strongly disagree and 5 to strongly agree response in a closed end survey questionnaire.

## **11.6 Conclusion**

First the research philosophy of positivism was opted and the research approach was a deductive one. Then the research approach was based on quantitative one because the research involved the numerical data as well. Then the initial phase of the research includes data collection. Both the sources of primary as well as secondary were utilized for data collection for the research. In the primary source, a survey questionnaire was conducted using the proper Likert scaling. In secondary sources automobile bossiness companies reports and journals were utilized. Government sites for statistical data were also used. The research analysis included hypothesis testing, Reliability test were also carried out along with Multiple Linear Regression were carried out using the SPSS software.

## 12 Chapter 4: Findings, Data Analysis and Discussion

### 4.1 Overview

This chapter presents the analysis of the collected data which was done through a questionnaire. Total 165 respondents were reached out, and then the data analysed through different statistical techniques which include demographic analysis, reliability analysis, and multiple linear regression analysis. This section reveals the relationship between environmental concerns and behavioural intention of the consumers; the perception of economic benefit and behavioural intention of the consumers, and lastly, the perception of hybrid cars and behavioural intention of consumers when purchasing hybrid cars.

### 4.2 Data Analysis and Interpretations

The data obtained for this research to measure the factors that influence the behavioural intention towards the full hybrid cars. The analysis of collected data is done to ensure its reliability, validity, and correlation of all factors. The regression analysis has also been performed to test the hypothesis of the research for acceptance and rejection of the hypothesis.

#### 4.2.1 Demographic Characteristics

The demographic characteristics of all respondents and participants of this research given as follows

Table 1: Demographic Characteristics - Gender

<b>Gender</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	Female	70	42.4	42.4	<b>42.4</b>
	Male	95	57.6	57.6	<b>100.0</b>
	Total	165	100.0	100.0	

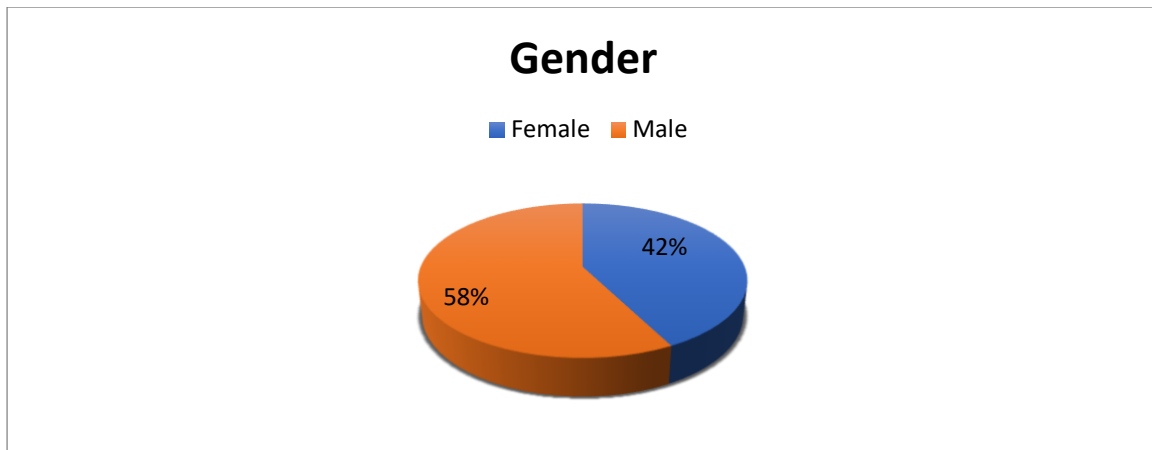


Figure 11: Demographic Characteristics - Gender

The results explained that males are majorly participating in this research as total participants of this study are 165 from which 95 are males while 70 are females. Thus, the majority of participants of this study are males , Females are 57.6% while 42.4% are males.

Table 2: Demographic Characteristics - Age

<b>Age</b>					Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 to 25 years	108	65.5	65.5	<b>65.5</b>			
	26 to 30 years	36	21.8	21.8	<b>87.3</b>			
	31 to 35 years	18	10.9	10.9	<b>98.2</b>			
	above 30 years	3	1.8	1.8	<b>100.0</b>			
	<b>Total</b>	<b>165</b>	<b>100.0</b>	<b>100.0</b>				

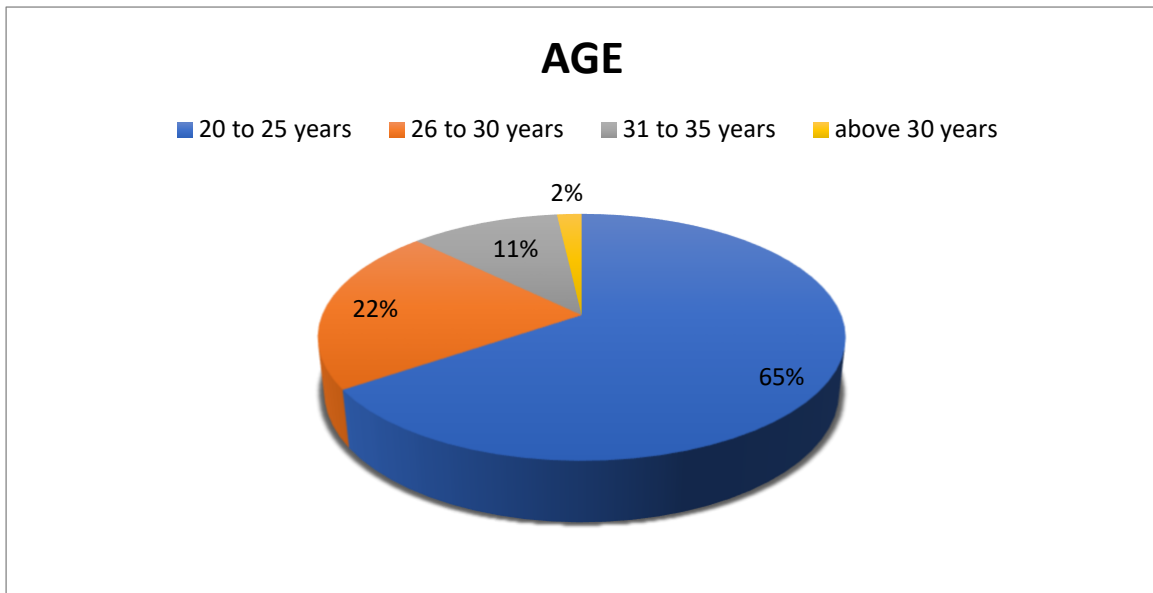


Figure 12: Demographic Characteristics - Age

The above given graph and table shows that the majority of the participants have 20 to 25 years. The second majority group of participants of this study are 26 to 30 years. The total participants of this study are 165 from which 65.5% of participants have 20 to 25 years, 21.8% of participants belong to 26 to 30 years, 10.9% of participants belong to the 31 to 35 years old, and only 1.8% of participants belong to the more than 30 years old.

Table 3: Demographic Characteristics - Qualification

<b>Qualification</b>		Frequency	Percent	Valid Percent	<b>Cumulative Percent</b>
Valid	Bachelors	102	61.8	61.8	<b>61.8</b>
	Intermediate	8	4.8	4.8	<b>66.7</b>
	M. Phil.	4	2.4	2.4	<b>69.1</b>
	Masters	51	30.9	30.9	<b>100.0</b>
Total		165	100.0	100.0	

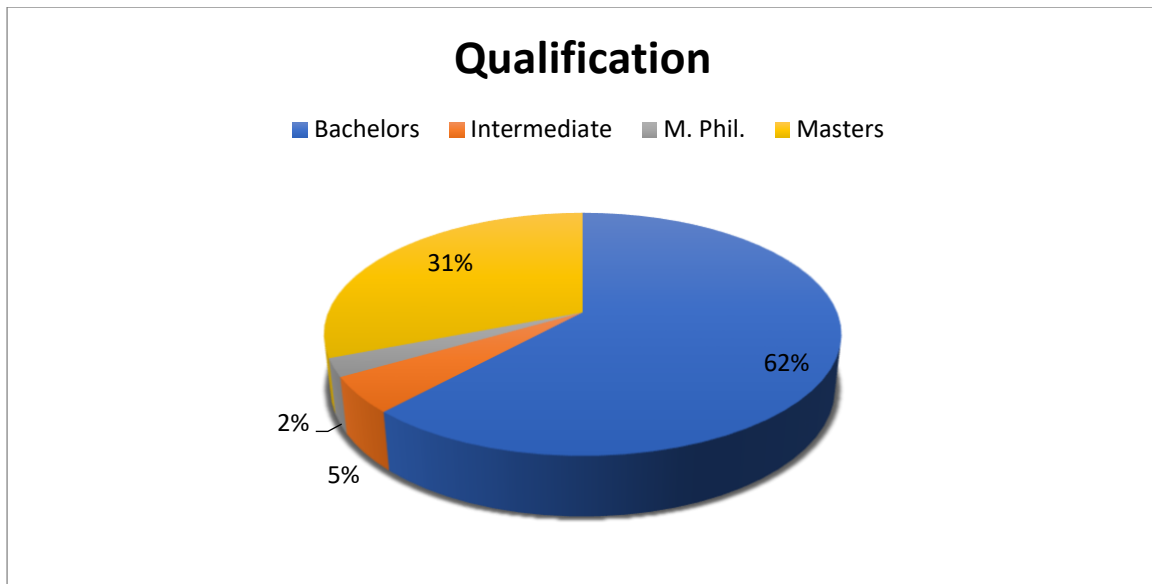


Figure 13: Demographic Characteristics - Qualification

The results explained that most of the participants of this study are bachelors and the second dominant group of study is master. The table 3 shows that 61.81% of participants have bachelors, 4.8% of participants are intermediate, 2.4% of participants are M.Phill, and 30.9% of participants have masters.

Table 4: Demographic Characteristics - Income

<b>Income</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15,000 to 25,000	74	44.8	44.8	<b>44.8</b>
	26,000 to 35,000	25	15.2	15.2	<b>60.0</b>
	36,000 to 50,000	29	17.6	17.6	<b>77.6</b>
	Above 50,000	37	22.4	22.4	<b>100.0</b>
	<b>Total</b>	<b>165</b>	<b>100.0</b>	<b>100.0</b>	

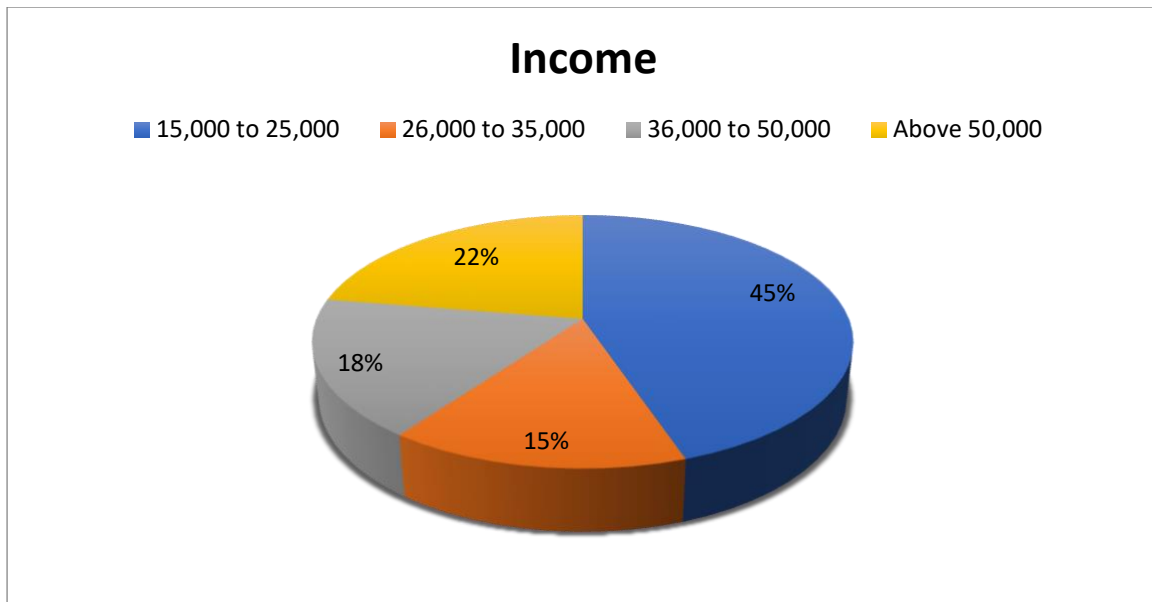


Figure 14: Demographic Characteristics - Income

The income of an individual is very important for this study because if a participant has a highly paid job then he can afford a hybrid car and vice versa. The above given table explained that most of the participants of this study don't have highly paid jobs but have normal pay ranging from 15,000 INR to 25,000 INR. The second major group of this study have highly paid jobs above 50,000 INR which ensure that they can afford this car. The results explained that 44.8% of participants have a normal pay of 15,000 INR to 25,000 INR, 15.2% of participants have pay range of 26,000 INR to 35,000 INR, 17.6% of participants have pay range of 36,000 INR to 50,000 INR, and 22.4% of participants have more than 50,000 INR. Thus, the results ensure that 22.4% of participants can afford this car.

Table 5: Demographic Characteristics – Do You have your own car

<b>Do You have your own car</b>		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	<b>Yes</b>	<b>165</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

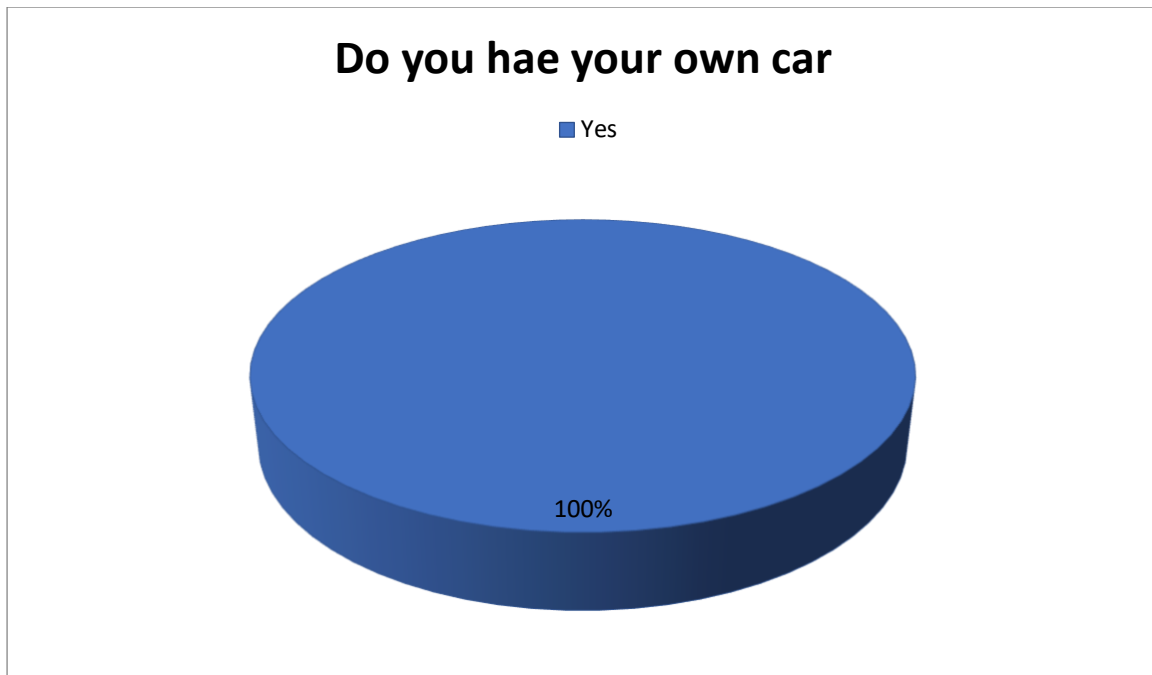


Figure 15: Demographic Characteristics – Do you have your own car

The above given table and figure shows that every participant of this study have its own car.

Table 6: Demographic Characteristics – Do You know about Hybrid cars

<b>Do you know about hybrid Cars?</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	27	16.4	16.4	16.4
	To some extent	81	49.1	49.1	65.5
	Yes	57	34.5	34.5	100.0
<b>Total</b>		<b>165</b>	<b>100.0</b>	<b>100.0</b>	

Table 6 shows how many participants of this study know about hybrid cars. The table shows that most of the individuals know about the hybrid cars but to some extent, the second major group of participants know about the hybrid cars, and least individuals and participants don't know about the hybrid cars. The results show that 49.1% of participants know but to some extent about the hybrid cars, 34.5% of participants properly know about the hybrid cars, and 16.4% of participants don't know about the hybrid cars.

#### 4.2.2 Questionnaire Responses

There are twelve questions present in the questionnaire of this study. The questionnaire responses of all questions of all participants are given as follows.

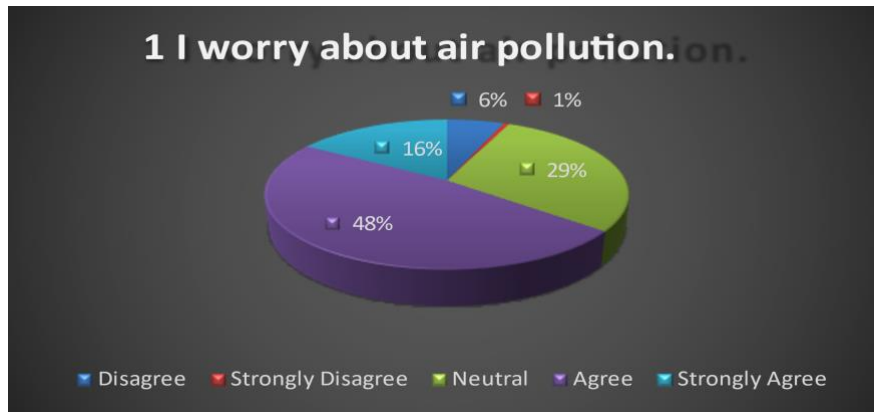


Figure 17: Response to Question 1

The response for question 1 shows that the majority of participants worry about the air pollution that is majorly caused by burning of fuels. The second majority of participants show neutral behavior regarding air pollution, and the third majority of participants show that they strongly agree about the air pollution. Thus 29% of participants show neutral behavior, 16% participants show strongly agree behavior, 6% people are disagree, and 1% participants are strongly disagree with the worries about air pollution.

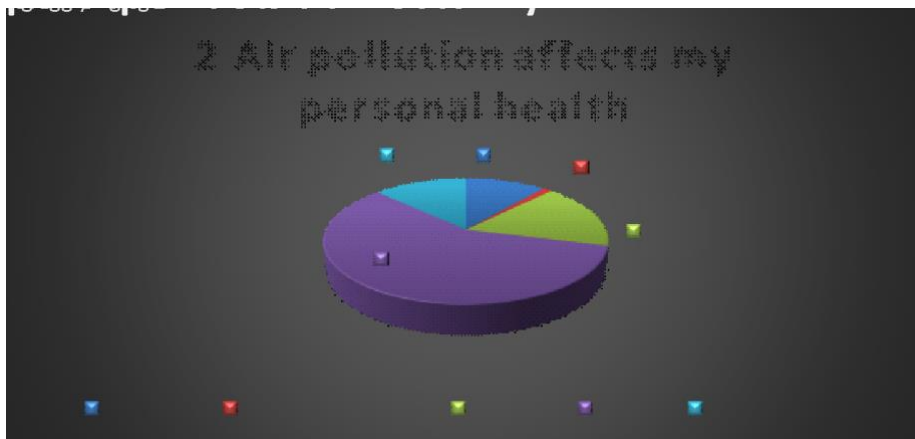
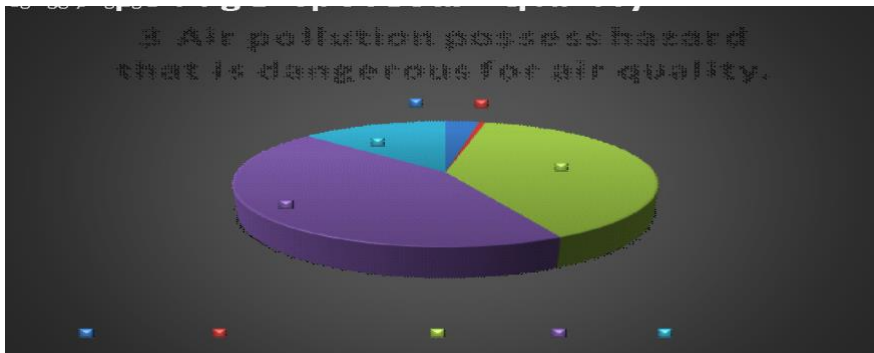


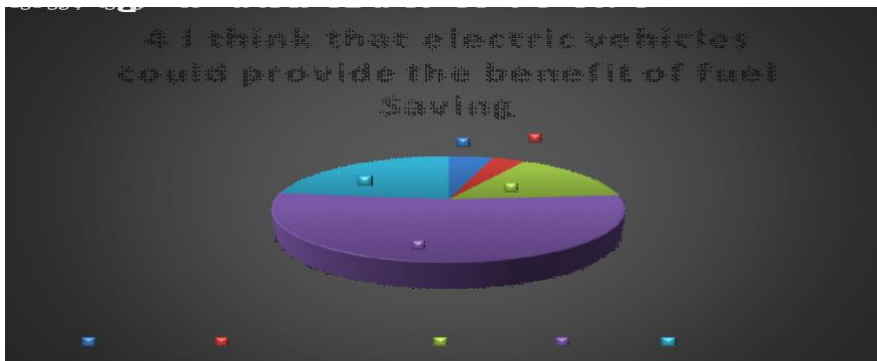
Figure 18: Response to Question 2

The fig 13 shows the results of question q of questionnaire that is about the impact of air pollution on individual's health. The majority of participants agree, and the second majority participants show a neutral behavior in such a way that their health is not affected by air pollution. This fig explained that 58% of participants show air pollution affects their health, 17% of participants show neutral as air pollution doesn't impart any effect on their health. The 13% of the total population in this research have strongly agreed with the statement. While the 11% and 1% of participants disagreed and strongly disagreed with statement.



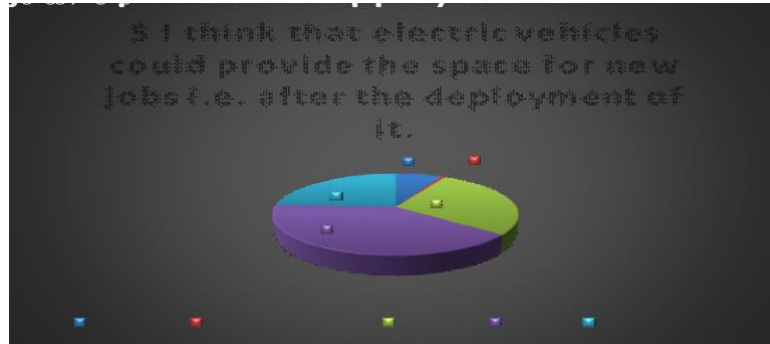
*Figure 19: Response to Question 3*

The fig 14 shows the results of question 3 that is about air pollution possess hazard that is dangerous for air quality. The results show that 44% participants agree, 39% show neutral behavior, 13% of participants strongly agree, 3% participants disagree, and 1% participants strongly disagree with the statement.



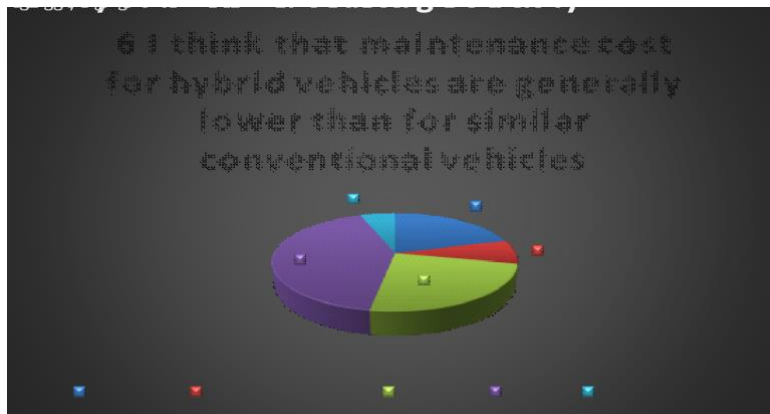
*Figure 20: Response to Question 4*

Figure 15 shows the response of question 4 that is about electric vehicles could provide benefits of fuel saving. 53% of participants agree with the statement, 15% participants neutral, 23% participants strongly agree with statement, 5% participants disagree, and 4% strongly disagree with the statement that electric vehicles provide benefit of fuel saving.



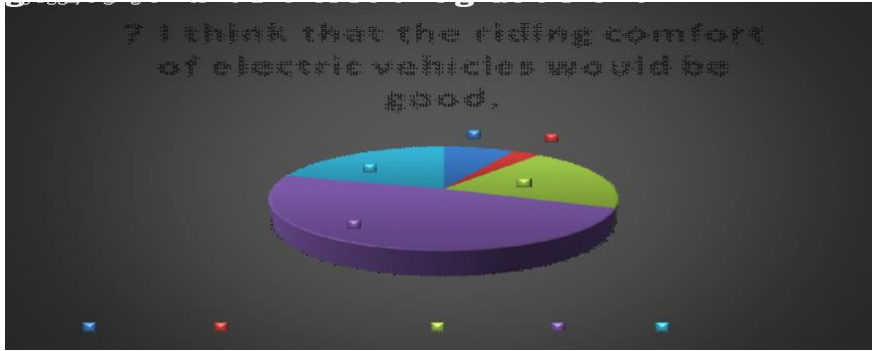
*Figure 21: Response to Question 5*

Fig 15 shows that 40% people agree, 28% people neutral. 24% people strongly agree, 7% participants disagree, and 1% strongly disagree, and 1% participants strongly disagree with the statement that electric vehicles provide space for new jobs that are after the deployment of it.



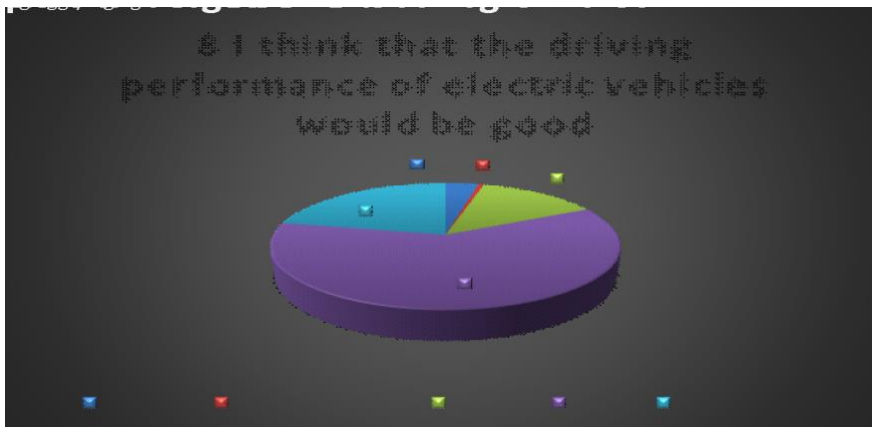
*Figure 22: Response to Question 6*

Fig 17 shows the response of question 6 and 42% participants agree, 24% participants neutral, 5% participants strongly agree, 21% participants disagree, and 8% participants strongly disagree with the statement. This response is against the maintenance cost for hybrid vehicles generally lower than for similar conventional vehicles.



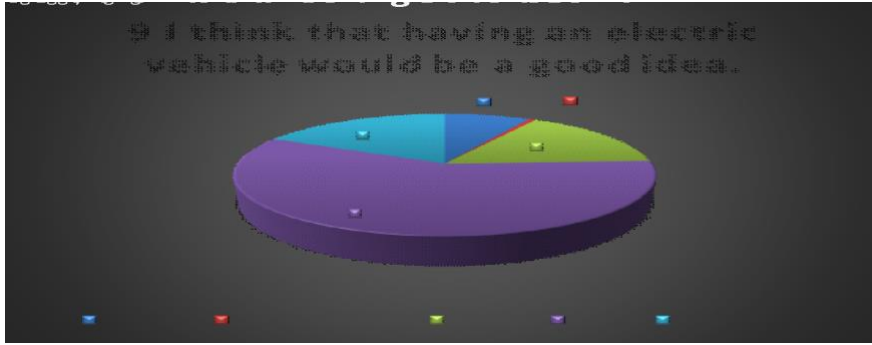
*Figure 23: Response to Question 7*

Fig 18 shows the response of the question to show that riding comfort of electric vehicles is good as compared to traditional vehicles. This response shows that 48% participants agree, 21% participants strongly agree, 20% participants neutral, 8% participants disagree, and 3% participants strongly disagree.



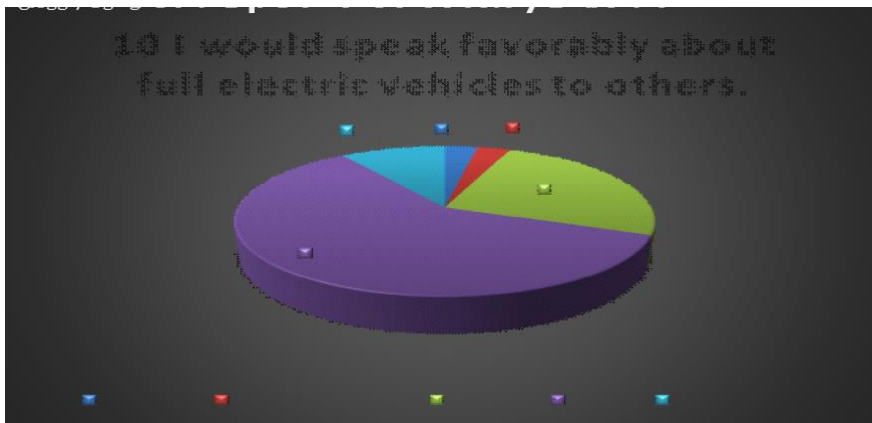
*Figure 24: Response to Question 8*

Fig 19 shows the response against question 8 that is driving performance of electric vehicles is good. The response show that 61% participants agree, 22% participants strongly agree, 13% participants neutral, and 5 % people disagree and strongly disagree with this statement.



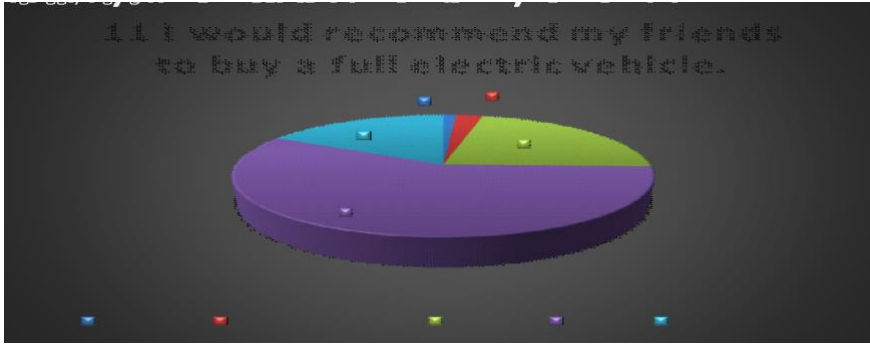
*Figure 25: Response to Question 9*

Fig 20 shows the response against question 9 that is about whether having an electric vehicle would be a good idea. The response shows that 58% participants agree, 17% participants strongly agree, 16% participants neutral, and 9 % people disagree and strongly disagree with this statement.



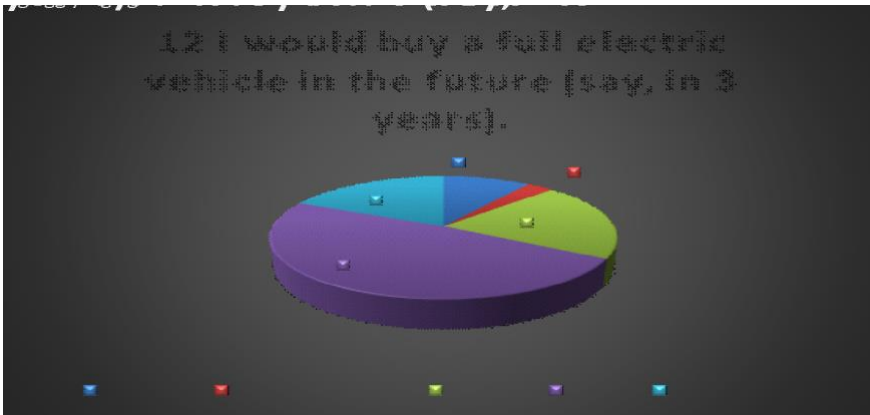
*Figure 26: Response to Question 10*

Fig 21 shows the response of participants of question 10 that is about speaking favorable about full article vehicles to others. The response show that 59% participants agree, 10% participants strongly agree, 25% participants neutral, and 6 % people disagree and strongly disagree with this statement.



*Figure 27: Response to Question 11*

Fig 22 shows the response of participants of question 11 that is about the recommendation of buying an electric vehicle to friends. The response shows that 58% participants agree, 17% participants strongly agree, 22% participants neutral, and 3 % people come under disagree and strongly disagree with this statement.



*Figure 28: Response to Question 12*

Fig 23 shows the response of participants of question 12 that either participants would buy an electric vehicle within 3 years. The response shows that 48% participants agree, 18% participants strongly agree, 21% participants neutral, and 19% people come under disagree and strongly disagree with this statement.

#### 4.2.3 Reliability

The table 7 shows the reliability analysis of environmental concern, economic concern, perception of electric cars, and behavioral intentions of consumers. The expected range of the value of Cronbach's is 0.6 to 0.9 in order to prove the construct to be internally consistent.

Table 7: Table of Reliability

<b>Variables</b>	<b>Reliability</b>	<b>Number of Item</b>
<b>Environmental concern</b>	.833	3
<b>Economic concern</b>	.789	3
<b>Perception of electric car</b>	.818	3
<b>Behavioral intention</b>	.642	3

The results of reliability statistics shows that reliability of each variable remain under the accepted range which shows that each variable or construct is accepted. The results of reliability statistics shows that all these factors impart an important role on the behavioral intention of consumers towards the Hybrid cars.

#### 4.2.4 Model Summary

Model summary explains that either the theoretical model of this study is fit or not by measuring the strengths of the relationship between dependent variable and model of the study.

Table 8: Table of Model Summary

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703 <sup>a</sup>	.494	.484	.51163
a. Predictors: (Constant), Perception of Electric vehicle, Perception of economic concern, Perception of Environmental concern				

This table is about the model summary of this study. The R value of Model Summary measures the strength of this relationship, higher the value of R determines the stronger relationship and

lower value of R determines that relationship is not strong. R value of Model summary of this study is 0.703 that shows that there is a strong relationship present between the dependent variables and independent variables of this study. R-square is known as the coefficient of determination that measures the total variation in the dependent variable that is explained by the independent variable. The value of R-square of this study is 0.494 which explains that 49.4% of total variation is explained by the independent variables while other variation is explained by some unknown factors.

#### 4.2.5 Anova Analysis

ANOVA test is used to measure the variance of all variables of study and also explain the significance of the model. The value of F used in the table of ANOVA below indicates if the variable is a fit for the research and the relationships formed, while the value of Sig represents if the relationship between predictors/constant and dependent variable exists. The value of sig, in order for the relationship to be positive, must be below 0.05, while higher the F value the more valid the model is.

Table 9: Table of ANOVA

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.106	3	13.702	52.346	.000 <sup>b</sup>
	Residual	42.144	161	.262		
	Total	83.250	164			
a. Dependent Variable: Behavioral Intention						
b. Predictors: (Constant), Perception of Electric vehicle, Perception of economic concern, Perception of Environmental concern						

Table 9 is about the ANOVA, that measures the significance of mode. The F value of this model is 52.346 which explains the accuracy of this model. The value of sig is 0.00 which shows that model is significant and fit.

#### 4.2.6 Regression Analysis

Regression analysis explains the significance, strengths, and the positive or negative relationship of dependent and independent variables of study.

Table 10: Table of Regression Analysis

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.371	.273		1.358	.176
	Perception_of_Enviornmental_concern	.316	.069	.321	4.564	.000
	Perception_of_economic_concern	.382	.071	.351	5.360	.000
	Perception_of_Electric_vehicle	.199	.071	.191	2.789	.006

a. Dependent Variable: Behavioral\_Intention

The table 10 shows the regression analysis on which the acceptance and rejection of the hypothesis is measured. When the value of sig is less than 0.05 and value of t is more than 2 then the hypothesis is accepted. The value of t and value of sig of environmental concern is 4.564 and 0.00 which measures that hypothesis is accepted. The value of t and value of sig of economic concern is 5.360 and 0.00 which measures that hypothesis is accepted. The value of t and value of sig of electric perception of cars is 2.789 and 0.006 which measures that hypothesis is accepted.

#### 4.3 Findings and Discussion

In this section of research the results obtained from quantitative research have been presented. The findings of previous literature are compared with the current findings to enhance the credibility of the research, while discussing the influence of all three factors on the behavioural intention of customers toward the hybrid cars. The interpretations are based on the results presented for reliability statistics, model summary, anova analysis and regression analysis.

#### *4.3.1 Objective of Analysis*

The purpose of this study is to measure the impact of various factors on the behavioural intention of consumers towards the use of hybrid cars, an empirical analysis of the automobile industry in Delhi. To measure this influence, this research has formulated three constructs that reflect behavioural intention of consumers towards purchasing a hybrid car. These constructs or the variables are: economic concern, environmental concern, and use of hybrid vehicles on the behavioural intention of consumers.

##### ***4.3.1.1 Environmental concern and behavioural intention of customer***

In the context of this research, environmental concern imparts an important role on the behavioural intention of customers in purchasing hybrid cars. In the context of this research, environmental concern has been found to have a significant and positive impact on the behavioural intention of consumers toward the purchasing of hybrid cars. The research of Coffman, Bernstein, and Wee (2017) ensures that most of the individuals showed their concern about the health and safety of the environment that is most importantly attained by purchasing electric vehicles. This study has indicated that burning of fuels imparts a highly negative impact on the environment and also damages the earth based on the responses of the majority of the participants. Moreover, it is also found that environmental concern remains as the primary contributor of most of the participants in the behavioural intention of consumers regarding the purchasing of hybrid cars. In hybrid cars fuels are not burned due to which these cars do not have a negative impact on the environment due to which most of the individuals are motivated to purchase these cars. According to the research of Mak, Rong and Shen (2013) environmental concern imparts an important role on the cost, functionality, and performance of vehicles. The cost of hybrid cars is high but the environment remains safe and doesn't impart any negative effect on the environment. The research of Dijk, Kemp and Valkering (2013) have also concluded that hybrid cars are promoted for the protection of the environment. Based on the

responses obtained through survey questionnaires, it has been found that environmental concern holds a significant position that contributes in the purchasing intention of hybrid cars of consumers. The results of this research are also aligned with the past studies on the subject.

#### ***4.3.1.2 Economic concern and behavioural intention to purchase hybrid car***

There are multiple factors from which economic concern is one factor that ensure the behavioural intention of consumers to purchase the hybrid car. In the context of this research, economic concern shows a significant and a positive relationship with the behavioural intention of consumers towards the purchasing of hybrid cars. The study of Siddiki (2015) ensures that economic benefits of hybrid cars play an important role on the consumers' intention towards the purchasing of these cars. This study ensures that cost of fuel has reduced, cost of maintenance also reduced as need for maintenance of hybrid cars are lower as compared to the traditional cars. According to Dijk, Kemp and Valkering (2013) the cost of traditional cars are high as compared to hybrid cars. This is due to the additional prices of natural cars and gasoline while in case of hybrid cars there is no need for any fuel. Thus current study and its relation with previous studies ensure that economic impact of hybrid cars impart a positive and significant impact on the behavioral intention of consumers towards the purchasing of hybrid cars.

#### ***4.3.1.2 Perception of consumers about electric vehicle and behavioural intention to purchase hybrid cars***

The perception of consumers is also known as one of the main factors that imparts an important role on the behavioural intention of consumers to purchase intention of consumers towards hybrid cars. Previous studies explained that the perception of consumers about the purchase and use of hybrid cars increased due to its involvement in the improvement of the environment. Sangroya (2017) explained that most of the countries planned to shift their gasoline transport to digital technology named electric vehicles because most of the individuals show their interest

toward the use of hybrid cars as it improves the environment and also enhances the economic situation of a state. This study explained that the prices of hybrid cars are little high as compared to the traditional cars so consumers are willing to purchase these cars when prices of these cars also become near to the traditional and gasoline cars. Thus the previous study and current study ensure that this hypothesis is accepted that perceptions of consumers imparts an important role on the behavioural intention of individuals towards the purchasing behaviour of consumers.

#### **4.4 Conclusion**

This research fundamentally focused on various factors on the behavioural intention of consumers towards the purchasing of hybrid cars. The three hypotheses are formulated for this research, the results ensure that all three hypotheses are accepted. The results of study indicate that economic concern and benefits has a significant and positive impact on the behavioural intention of consumers toward the purchasing of hybrid cars. The results also ensure that economic benefits of hybrid cars, and consumer's perceptions about hybrid cars also imparts a positive impact on the behavioural intention of consumers toward the purchasing of hybrid cars.

The demographic characteristics of research ensure that the majority of participants of this study are males, therefore, male perspective of this study is more prominent in the results as compared to the female. Most of the participants of this study belonged to the age of 20 to 25 years and were graduated. The majority of participants have their own car and know about hybrid cars. After thorough analysis, it is explained that the constructs of this research are significant, relevant, and reliable. The results of this study show that the overall impact of these factors on the behavioural intention of consumers towards the purchasing of hybrid cars is 48.4% based on the adjusted R-square.

## **13 Chapter 5: Conclusion**

This section of research discusses the implications of obtained results with respect to the research question of this study. This chapter also discusses the contribution and the limitation of research by discussing the strengths and the weaknesses of research. This last section of research also highlights the recommendations for the practical implications for consumers for the purchasing behaviour of hybrid cars, and also mentions the recommendations for the future studies and researches. This section also provides a comprehensive review about the study.

### **5.1 Implications of Findings for the Research Questions**

The results obtained for this research is based on the primary quantitative information that has been collected to obtain the results for this study. Focusing on the automobile industry in Delhi, this study adds values to the literature of hybrid cars and automobile industry and also factors that imparts their role on the behavioural intention of consumers towards the purchasing of consumers. It implies that economic benefits, environmental concerns, and perceptions of consumers about hybrid cars imparts an important role on the purchasing intention of consumers towards the hybrid cars.

Based on the findings of this research, it is concluded that protection of the environment is very important as burning of fuels imparts a negative impact on the environment that also harms the health of people. The economic effects are also important as in fuel vehicles a lot of money is spent on fuel while in hybrid cars there is no need of fuel so economic benefits of hybrid cars also increased. As this study focuses on the impact of perception of consumers, environmental benefits, and economic benefits on the purchasing intention of consumers of hybrid cars, the results of this study significantly improve the knowledge of hybrid cars' consumers towards purchasing of these cars.

## **5.2 Contributions and Limitations of the Research**

### *5.2.2 Contributions and Strengths of the Research*

One of the biggest contributions of this research is that it focused on the industry or sector at Delhi, which has a significant number of automobile companies as compared to the other areas of India. By targeting these individuals, this study has managed to ensure the relationship of various factors that influence the behavioural intention of consumers towards the purchasing of hybrid cars. It conclusively explores three dimensions of consumerism towards hybrid cars to ensure that the main viewpoints are covered. It covers the economic, environmental and

In addition to this, this study also provides a comprehensive overview on the subject area of hybrid cars and behavioural intention of consumers towards hybrid cars. This study also discusses the importance of hybrid cars over a gasoline car as it enhances the environmental protection and economic benefit. This study also highlights the need to understand the factors that enhance the effectiveness of hybrid cars and behavioural intention of consumers towards the hybrid cars.

The world has experienced recent trends of globalization and environmental concerns as the major contributors in the decision making process of decision makers as well as the consumers. This study highlights the importance of hybrid cars towards the environmental protection, and economic benefits and also signifies the value that it provides the environment because of the absence of burning of fuels. The burning of fuels plays an important role in disturbing the environment so that's why there is a need for hybrid cars to maintain the environment.

### *5.2.3 Limitations of the Study*

There are some limitations present during and the execution of this research. The scope of this study is limited to the city Delhi to ensure the specificity of this study, while also considering the time required to include participants from other cities and countries as well.

Furthermore, the number of participants of this study are also restricted that involved in survey questionnaires to 163 only. Approaching individuals through digital mediums was a challenging task as some of the respondents did not respond to the invitation to participate. Moreover, the survey questionnaire was also sent by email therefore, the results obtained were through digital mediums only which was a challenging task as it required consistent follow up to get responses before time.

### **5.3 Significance of the Study**

The recent trends of consumerism for hybrid electric vehicles have been increasing since the past few decades. The rise has been even more prominent as more and more individuals are inclined towards using products that function against environmental harm. However, the relation between perception of consumers and their buying intention can be considered as the key equation to understand the elements that contribute in purchase of these hybrid electric vehicles. The results of this particular study are significant for the manufacturers of these vehicles, as they can use this valuable information to incorporate in their innovative designs for the vehicles. This research can also be significant for the automobile industry as a journal as it efficiently describes the perception and behavior intention of their consumers, which can be used for marketing the relevant target audience. This research is significant for individuals who aim to opt for a green lifestyle and to conserve resources to protect the environment while benefiting from the economical solutions for the same. Since there has been no substantial research regarding the behavioral intention of consumers towards purchasing hybrid vehicles in developing countries like India, this research contributes in the literature of economic concern, environmental concern, consumer perception related to hybrid cars among the consumers in Delhi, India.

#### **5.4 Recommendations for Practice**

This research has evaluated three aspects of hybrid cars with respect to the influence on the purchasing of consumers of these hybrid cars, therefore the practical implication for each factor used in this research is based on the results of this research.

This study has concluded that environmental concerns of hybrid cars impart a significant and positive impact on the behavioural intention of consumers towards the consumers' purchasing behaviour of hybrid cars and automobile industry in Delhi, India. The findings of this study have been supported by previous studies that ensure that environmental concern of hybrid cars impart an important role on the purchasing behaviour of consumers. The practical implications of these findings ensure that consumers purchase these hybrid cars due to the presence of its positive impacts on the environment. Most of the car consumers from older age don't find convenience in the use of hybrid cars due to the presence of new technology, young consumers find convenience in the use of these cars. Therefore, it is recommended for the automobile industry to target young adults who perceive its convenience over conventional cars to boost the sales.

These hybrid cars are also found to be associated with multiple positive impacts on the environment such as reducing the emission of greenhouse gas, reducing the carbon footprint of gasoline cars, and ensuring the health and safety of all individuals. Thus environmental concern of hybrid cars imparts a positive role on the consumers purchasing intention of these hybrid cars. Therefore, the decision makers in the automobile industry can focus on making it more environmentally friendly to ensure more and more consumers are inclined to purchase it.

On the other hand, this study explained that economic concern of hybrid cars imparts an important role on the consumers' purchasing intention of hybrid cars. Most of the studies given in the literature part also explains that hybrid cars have multiple economic benefits that enhance

the intention of consumers for the purchasing of these cars. Some of these benefits are reducing the expenses of fuel that imparts a positive impact on the economy of a state. Therefore, it is recommended for consumers that all individuals even have normal pay and an individual that has extraordinary pay can purchase and use these hybrid cars. Furthermore, the implications of this study reflect that hybrid cars have the same efficiency and productivity so everyone can purchase this car.

Every individual should ensure to adapt the practices that are eco-friendly. The adoption of hybrid cars is somewhat lower as compared to the traditional cars because most of the individuals don't know about the benefits of these cars. The findings of this study included that gasoline cars and traditional cars increased the pollution in the environment so there is a need to adopt hybrid cars so that pollution is prevented. The other benefits of hybrid cars are no expense of fuel and the expenses of maintenance of these cars are also reduced as compared to the traditional cars. Functional characteristics, among many others, have been highlighted as the most effective tool to remove barriers in shaping the minds of consumers towards electric vehicles. Due to this, perception has been considered as one of the most influential elements in shaping the behavioral intention of consumers for purchasing the hybrid cars.

At last, the researcher suggests that there is a significant and positive relationship present between the perception of consumers about the hybrid cars and behavioural intention of consumers for the purchasing of hybrid cars. The study ensures that consumer perception is very important because most of the consumers think that the prices of hybrid cars are little high as compared to traditional cars so they purchase these cars when prices of these cars become equal to the prices of traditional cars.

Overall, this research implies that consumers of gasoline cars must consider the benefits of hybrid cars when purchasing a new car as hybrid cars have multiple benefits such as various economic and environmental benefits that ensure the health and safety of individuals.

### **5.5 Recommendations for Future Research**

In this part of study, the recommendations are given to consumers that may help future researchers of this field. The recommendations are done based on the methodological standpoint of this research and also provide advice for future studies considering the results of this study. First, future studies may carry on the same research with the presence of a larger pool of participants for more efficient, precise, remarkable, and relevant studies. Moreover, further studies also expand the scope of study by including various cities of India to compare and contrast the results obtained from various cities of India with Delhi's Automobile industry.

In addition to this, future studies may also be done to analyse other sectors in Delhi that are related to the automobile industry to measure the markets of hybrid and gasoline cars. Thus studying the impact of various factors of hybrid cars such as environmental concern, economic concern, and perception of consumers imparts an important and significant role on the consumers' intention for purchasing behaviour of individuals.

### **5.6 Final Conclusion and Reflections**

It is expected by researchers that findings and results of this study will help the consumers, the policy makers, and the automobile industry to ensure the use and importance of hybrid cars, regardless of their demographics, gender, and age to enhance the efficiency of these cars. Moreover, this study ensures that hybrid cars impart an important and positive role on the environment that also helps in the maintenance of health and safety of individuals. This research encourages consumers to purchase hybrid cars as these cars are environmentally friendly and also have multiple economic benefits.

This study also covered the basic areas of behavioural intention of consumers that are most commonly observed by the consumers. Therefore, the understanding of the factors that impact on the behavioural intention of consumers towards the purchasing of individuals does not only benefit the consumers that use hybrid cars but also benefits all car users (gasoline gas users and hybrid car users) as they would also know about the importance and benefits of these cars.

## 14 References

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## 6. Appendix

**Dear Respondents,**

As a partial fulfillment of the requirements for the degree, a study is being conducted to analyze “**Factors Influencing the Behavioral Intention towards Full Hybrid Car: An Empirical analysis of Automobile industry in Delhi**”. I will be very thankful to you, if you would spend a few minutes of your precious time to answer the questions given below. Kindly reply to the form as accurately as potential. The knowledge gathered is going to be used for the course purpose solely. Strict confidentiality will be maintained.

Please, do not hesitate to mention your Name, Age, Income, Email and other details. Your responses will not be identified with your personality, nor will your information be misused. Whatever, you say on the questionnaire will not, in any way, influence you.

**A: Demographics: (Please fill the required fields and mark tick (✓) on the appropriate box)**

Gender:

Male  Female

Age:

20 to 25 years  26 to 30 years  31 to 35 years  
 36 to 40 years  41 to 45 years  46 to 50 years  above 50 years

Qualification:

12<sup>th</sup> Pass  Bachelors  Masters  M. Phil.  Ph.D.  Other

Income:

15,000 to 25,000  26,000 to 35,000  36,000 to 50,000  
 51,000 to 65,000  66,000 to 80,000  81,000 to 100,000  Above 1 lac

Question: Do you have your own car?

Yes

- No

Question: Do you know about Hybrid Cars?

- Yes
- To Some Extent
- No

### Section B:

Read the following statements and then indicate by a tick (✓) on five point Likert Scale.

1. **SD**=Strongly Disagree; 2. **D**=Disagree; 3. **N**=Neutral; 4. **A**=Agree; 5. **SA**=Strongly Agree

S No.	Items	SD	D	N	A	SA
	<b>Environmental concern</b>					
1	I worry about air pollution.	SD	D	N	A	SA
2	Air pollution affects my personal health	SD	D	N	A	SA
3	Air pollution possess hazard that is dangerous for air quality.	SD	D	N	A	SA
	<b>Perception of economic benefit:</b>					
4	I think that electric vehicles could provide the benefit of fuel savings.	SD	D	N	A	SA
5	I think that electric vehicles could provide the space for new jobs i.e. after the deployment of it.	SD	D	N	A	SA
6	I think that maintenance cost for hybrid vehicles are generally lower than for similar conventional vehicles	SD	D	N	A	SA
	<b>Perception of electric vehicles</b>					
7	I think that the riding comfort of electric vehicles would be good..	SD	D	N	A	SA
8	I think that the driving performance of electric vehicles would be good.	SD	D	N	A	SA
9	I think that having an electric vehicle would be a good idea.	SD	D	N	A	SA

	<b>Behavioral intention</b>					
10	I would speak favorably about full electric vehicles to others.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
11	I would recommend my friends to buy a full electric vehicle.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
12	I would buy a full electric vehicle in the future (say, in 3 years).	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>