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COMPARATIVE STUDY OF TATA NEXON E-VEHICLE AND PETROL VEHICLE WITH SPECIAL REFERENCE TO TIRUPUR CITY

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ABSTRACT
One of the top automakers in India, Tata Motors, produces the small SUV known as the Nexon. Since its 2017 introduction, the Nexon has gained popularity among Indian automobile consumers. The car, which is offered in both petrol and diesel versions, has won numerous accolades for its appearance, functionality, and design. The Tata Nexon distinguishes itself from its competitors with an appealing and contemporary appearance. The SUV has a dynamic appearance thanks to its curved bonnet, narrow headlamps, and strong, assertive front grille. Strong rear bumpers, wide wheel arches, and a sloping roofline on the Nexon are other design elements that improve the vehicle's appearance.
KEYWORD: *Tata, Suv, Nexon, Petrol And Diesel*

INTRODUCTION AND DESIGN OF THE STUDY

INTRODUCTION

The Tata NEXON is a compact SUV manufactured by Tata Motors, one of the leading automobile companies in India. The NEXON was launched in 2017 and has since become a popular choice among car buyers in India. The vehicle is available in both petrol and diesel variants and has received several awards for its design, features, and performance.

The market for electric vehicles (EVs) has been expanding as a result of rising concerns about environmental pollution and the need to lessen reliance on fossil fuels. One of India's top automakers, Tata Motors, has unveiled the TATA NEXON EV, a small, all-electric SUV that aims to provide environmentally friendly and sustainable mobility. In this comparative study, we will evaluate the TATA NEXON EV's functionality, effectiveness, and overall driving experience in comparison to the TATA NEXON'S gasoline-powered sibling.

The TATA NEXON EV is propelled by a 30.2 kWh lithium-ion battery that produces a maximum torque of 245 Nm and 129 PS at its peak. The 1.2-litre turbocharged petrol engine in the Tata NEXON petrol model has a maximum output of 120 PS and a maximum torque of 170 Nm. When going from 0 to 100 km/h, the NEXON EV accelerates in 9.9 seconds, while the gasoline-powered model needs 10.5 seconds.

OBJECTIVES OF THE STUDY

- To study the profile of the TATA NEXON E-vehicle and Petrol.
- To know the perception and preference of customer towards TATA E-vehicle and petrol vehicle.
- To compare the satisfaction level of customers with the TATA NEXON E-Vehicle and petrol vehicle.

SCOPE OF THE STUDY

The performance, efficiency, and overall user experience of the TATA NEXON E-vehicle and petrol car will all be covered in the comparison study. The study will examine the technical details of the TATA NEXON EV and the TATA NEXON, which is powered by petrol. An analysis of the NEXON EV's driving experience, range, and charging choices will also be included in the study's scope. The cost-effectiveness and environmental impact of both vehicles will also be looked at in the study. The study will also contrast the two vehicles' amenities and safety features, including the infotainment system, air conditioning, and safety features. The NEXON EV's access to and availability of charging infrastructure in India will also be considered in the study. In comparison

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RESEARCH METHODOLOGY
Research methodology is the specific procedures or techniques used to identify, select, process, and analyse information about a topic.

DATA COLLECTION
The study makes use of primary data. The questionnaires were filled out by the respondents for the purpose of collecting primary data, questions were filled by the respondents.

NATURE OF THE DATA
The majority of the data is based on primary data.

SAMPLE TECHNIQUE
A convenient sample technique tool was adopted for the data collection.

SAMPLE SIZE
Sample size taken in this study is 122 respondents.

AREA OF THE STUDY
The area of the research will be confined in Tirupur city.

PERIOD OF STUDY
The study spans the four-month period between December 2022 and March 2023.

TOOLS FOR ANALYSIS
• Ranking Analysis
• Percentage Analysis

LIMITATION OF STUDY

- The research study is based on Questionnaire collected from the Respondents.
- Sample size is restricted to 122 students.
- This study is focused with special reference to Tirupur city
- Findings of this study purely depends upon the factors, satisfaction level & strategies of the students.

SIMPLE PERCENTAGE ANALYSIS
Simple percentage analysis refers to a special kind of rates, percentage are used in making comparison between two or more series of data

SIMPLE PERENTAGE ANALYSIS =
NUMBER OF RESPONDENTS / TOTAL NUMBER OF RESPONDENTS * 100

RANK ANALYSIS
Data that has been compared to other pieces of data and assigned a “place” in relation to those other pieces of data is known as ranked data.

REVIEW OF LITERATURE

Jani Das (2022)1 “Comparative life cycle GHG emission analysis of conventional and electric vehicles in India” In this study, the life cycle GHG emissions of electric vehicles in terms of equivalent carbon emission (kgCO2eq) are compared with conventional vehicles for a life cycle inventory in Indian conditions. It has been concluded that there is a reduction of about 40% embodied equivalent carbon in an ICEV in comparison with an EV in Indian conditions.

M.Tekin(2022) 2 “Development and comparative analysis of a pure fuel cell configuration for a light commercial vehicle” In this study, the energy and fuel consumption values of a vehicle's internal combustion engine and fuel cell configurations were compared on a tank-to-wheel basis. First of all, a fuel consumption model was created for the conventional vehicle with 1.3 diesel engine. Subsequently, the fuel cell configuration of the same vehicle was designed by selecting a suitable fuel cell, electric motor, battery, and transmission.

Sudhir Kumar Sharma (2022) 3 "Comparative Analysis of Energy Management Systems in Electric Vehicles" In this study the utilization of vehicles is drastically increased due to urbanization, industrialization and change of living standard. Basically, fuel-based and hybrid electric vehicles are often used in routine activities which rely on the non-renewable resources, such as petrol, diesel, LPG and CNG. Consequently, these vehicles adversely affect our environment by emitting the harmful gaseous content.

Eve Man Hin Chan (2021) 4 "Life Cycle Assessment of Electric Vehicles and Hydrogen Fuel Cell Vehicles Using the GREET Model—A Comparative Study" In this study Facing global warming and recent bans on the use of diesel in vehicles, there is a growing need to develop vehicles powered by renewable energy sources to mitigate greenhouse gas and pollutant emissions. The findings also reveal the need for greater transparency in the disclosure of relevant information on the PCF methodology adopted by vehicle manufacturers to enable comparison of their vehicles' emissions.

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2. *M. Tekin(2022) "Development and comparative analysis of a pure fuel cell configuration for a light commercial vehicle"*
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5. *Fuel Cell Vehicles Using the GREET Model—A Comparative Study" Sustainability 2021,13, 4872. Https://Doi.Org/ 10.3390/Su13094872*

TABLE 4.1
TABLE SHOWING THE GENDER OF THE RESPONDENTS

TABLE SHOWING THE GENDER OF THE RESPONDENTS GENDER	FREQUENCY	PERCENTAGE
Male	94	77.0
Female	28	23.0
Total	122	100.0

INTERPRETATION
The above table shows that 77.0% of respondents are Male and 23.0% of respondents are Female.

INFERENCE
The (77.0%) of the respondents were Male.

TABLE 4.2
TABLE SHOWING THE AREA OF RESIDENCE OF THE RESPONDENTS

AREA OF RESIDENCE	FREQUENCY	PERCENRAGE
Urban	61	50.0
Rural	31	25.4
Semi urban	30	24.6
Total	122	100.0

INTERPRETATION
The above table shows that 50.0% of respondents are Urban, 25.4% of respondents are Rural and 24.6% of respondents are Semi urban.

INFERENCE
The (50.0%) of the respondents from urban area.

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TABLE 4.3
TABLE SHOWING THE RESPONDENTS ABOUT WHICH VARIANT HAS ECONOMICAL COST FOR SERVICE

WHICH VARIANT HAS ECONOMICAL COST FOR SERVICE	FREQUENCY	PERCENATAGE
NEXON E-Vehicle	61	50.0
NEXON Petrol	61	50.0
Total	122	100.0

INTERPRETATION
The above table shows that 50% of respondents are NEXON EV, and 50% of respondents are NEXON petrol.

INFERANCE
The (50.0%) respondents are chosen both E-vehicle and petrol vehicle.

TABLE 4.4
TABLE SHOWING RESPONDENTS OF WHICH HAS CONVENIENT AND BETTER SERVICE

WHICH VARIANT HAS CONVENIENT AND BETTER SERVICE	FREQUENCY	PERCENATAGE
NEXON E-Vehicle	50	41.0
NEXON Petrol	71	59.0
Total	122	100.0

INTERPRETATION
The above table shows that 41% of respondents are NEXON EV, and 59% of respondents are NEXON petrol.
INFERANCE
The (59.0%) respondents are convenient and better service with petrol vehicle.

TABLE 4.5
TABLE SHOWS THE PRIMARY CONCER VOTE BY COMPARING NEXON E-VEHICLE AND PETROL VEHICLE

PARTICULARS	E-VEHICLE	PETROL VEHICLE	TOTAL	RANK
FUEL	40 (2) 80	82 (1) 82	162	6
POWER	49 (2) 98	73 (1) 73	171	4
COST	62 (2) 124	60 (1) 60	184	1
COST OF FUEL	41 (2) 82	81 (1) 81	163	5
COST OF MAINTENANCE	58 (2) 116	64 (1) 64	180	2
FUEL EFFICIENCY	41 (2) 82	81 (1) 81	163	5
CARBON EMISSIONS	59 (2) 118	63 (1) 63	181	3

(Source: primary data)

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INTERPRETATION
The above table shows the most of the respondents are highly satisfied with the cost of both vehicles.

INFERANCE
The majority of the respondents are satisfied with cost of both vehicles.

FINDINGS, SUGGESTIONS AND CONCLUSIONS

FINDINGS

- The study exhibits that, the majority 77.0% of respondents are Male.
- The study exhibits that, the majority 50.0% of respondents are Urban.
- The study exhibits that, the majority 50.0% of respondents are chosen both E-vehicle and petrol vehicle.
- The study exhibits that, the majority 59.0% of respondents are convenient and better service with petrol vehicle.
- The majority respondents are satisfied with cost of both vehicles.

SUGGESTIONS

- Market to the 30-40 age group: Since the majority of respondents fall in this age range, it may be beneficial to focus marketing efforts towards this demographic.
- Consider targeting men: With 77% of respondents being male, it may be wise to tailor marketing strategies to appeal to male customers.
- Emphasize the business benefits: Since the majority of respondents identified as being in business, highlighting the benefits of the Tata NEXON for business purposes could be effective.
- Highlight urban capabilities: Given that 50% of respondents are urban, emphasizing the Tata NEXON'S abilities in city environments could appeal to this group.
  could be effective.
- Focus on family-friendly features: With most respondents having 4-5 members in their family, highlighting family-friendly features of the Tata NEXON could be
  advantageous.

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