INTERNATIONAL JOURNAL OF RESEARCH IN
COMPUTER APPLICATION & MANAGEMENT

IJRCM

IJRCM

CONTENTS

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

http://ijrcm.org.in/

ii

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

http://ijrcm.org.in/

iii

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

http://ijrcm.org.in/

iv

CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to the recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography: Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript** anytime in *M.S. Word format* after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website (*FOR ONLINE SUBMISSION, CLICK HERE*).

GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1.   **COVERING LETTER FOR SUBMISSION**:

                                                                                              DATED: _____

THE EDITOR

IJRCM

Subject: **SUBMISSION OF MANUSCRIPT IN THE AREA OF** _____ .

(e.g. Finance/Mkt./HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

DEAR SIR/MADAM

Please find my submission of manuscript titled '_____' for likely publication in one of your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published anywhere in any language fully or partly, nor it is under review for publication elsewhere.

I affirm that all the co-authors of this manuscript have seen the submitted version of the manuscript and have agreed to inclusion of their names as co-authors.

Also, if my/our manuscript is accepted, I agree to comply with the formalities as given on the website of the journal. The Journal has discretion to publish our contribution in any of its journals.

NAME OF CORRESPONDING AUTHOR	:
Designation/Post*	:
Institution/College/University with full address & Pin Code	:
Residential address with Pin Code	:
Mobile Number (s) with country ISD code	:
Is WhatsApp or Viber active on your above noted Mobile Number (Yes/No)	:
Landline Number (s) with country ISD code	:
E-mail Address	:
Alternate E-mail Address	:
Nationality	:

* i.e. Alumnus (Male Alumni), Alumna (Female Alumni), Student, Research Scholar (M. Phil), Research Scholar (Ph. D.), JRF, Research Assistant, Assistant Lecturer, Lecturer, Senior Lecturer, Junior Assistant Professor, Assistant Professor, Senior Assistant Professor, Co-ordinator, Reader, Associate Professor, Professor, Head, Vice-Principal, Dy. Director, Principal, Director, Dean, President, Vice Chancellor, Industry Designation **etc**. *The qualification of author is not acceptable for the purpose*.

NOTES:

a) The whole manuscript has to be in *ONE MS WORD FILE* only, which will start from the covering letter, inside the manuscript. *pdf. version is liable to be rejected without any consideration*.

b) The sender is required to mention the following in the **SUBJECT COLUMN of the mail**:

New Manuscript for Review in the area of (e.g. Finance/Marketing/HRM/General Mgt./Engineering/Economics/Computer/IT/Education/Psychology/Law/Math/other, please specify)

c) There is no need to give any text in the body of the mail, except the cases where the author wishes to give any **specific message** w.r.t. to the manuscript.

d) The total size of the file containing the manuscript is expected to be below **1000 KB**.

e) Only the **Abstract will not be considered for review** and the author is required to submit the **complete manuscript** in the first instance.

f) *The journal gives acknowledgement w.r.t. the receipt of every email within twenty-four hours* and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of the manuscript, within two days of its submission, the corresponding author is required to demand for the same by sending a separate mail to the journal.

g) The author (s) name or details should not appear anywhere on the body of the manuscript, except on the covering letter and the cover page of the manuscript, in the manner as mentioned in the guidelines.

2.   **MANUSCRIPT TITLE:** The title of the paper should be typed in **bold letters**, **centered** and **fully capitalised**.

3.   **AUTHOR NAME (S) & AFFILIATIONS:** Author (s) **name**, **designation**, **affiliation** (s), **address**, **mobile/landline number** (s), and **email/alternate email address** should be given underneath the title.

4.   **ACKNOWLEDGMENTS:** Acknowledgements can be given to reviewers, guides, funding institutions, etc., if any.

5.   **ABSTRACT:** Abstract should be in **fully Italic printing**, ranging between **150** to **300 words**. The abstract must be informative and elucidating the background, aims, methods, results & conclusion in a **SINGLE PARA**. *Abbreviations must be mentioned in full*.

6.   **KEYWORDS:** Abstract must be followed by a list of keywords, subject to the maximum of **five**. These should be arranged in alphabetic order separated by commas and full stop at the end. All words of the keywords, including the first one should be in small letters, except special words e.g. name of the Countries, abbreviations etc.

7.   **JEL CODE:** Provide the appropriate Journal of Economic Literature Classification System code (s). JEL codes are available at www.aeaweb.org/econlit/jelCodes.php. However, mentioning of JEL Code is not mandatory.

8.   **MANUSCRIPT:** Manuscript must be in *BRITISH ENGLISH* prepared on a standard A4 size *PORTRAIT SETTING PAPER*. *It should be free from any errors i.e. grammatical, spelling or punctuation. It must be thoroughly edited at your end*.

9.   **HEADINGS:** All the headings must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.

10. **SUB-HEADINGS:** All the sub-headings must be bold-faced, aligned left and fully capitalised.

11. **MAIN TEXT:**

THE MAIN TEXT SHOULD FOLLOW THE FOLLOWING SEQUENCE:

INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESIS (ES)

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

LIMITATIONS

SCOPE FOR FURTHER RESEARCH

REFERENCES

APPENDIX/ANNEXURE

The manuscript should preferably be in *2000 to 5000 WORDS*, But the limits can vary depending on the nature of the manuscript.

12. **FIGURES & TABLES:** These should be simple, crystal **CLEAR**, **centered**, **separately numbered** & self-explained, and the **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. *It should be ensured that the tables/figures are referred to from the main text.*

13. **EQUATIONS/FORMULAE:** These should be consecutively numbered in parenthesis, left aligned with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word may be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.

14. **ACRONYMS:** These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section e.g. Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.

15. **REFERENCES:** The list of all references should be alphabetically arranged. ***The author (s) should mention only the actually utilised references in the preparation of manuscript*** and they may follow Harvard Style of Referencing. **Also check to ensure that everything that you are including in the reference section is duly cited in the paper**. The author (s) are supposed to follow the references as per the following:

- All works cited in the text (including sources for tables and figures) should be listed alphabetically.

- Use (**ed.**) for one editor, and (**ed.s**) for multiple editors.

- When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc., in chronologically ascending order.

- Indicate (opening and closing) page numbers for articles in journals and for chapters in books.

- The title of books and journals should be in italic printing. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.

- For titles in a language other than English, provide an English translation in parenthesis.

- *Headers, footers, endnotes* and *footnotes* should **not be used** in the document. However, **you can mention short notes to elucidate some specific point**, which may be placed in number orders before the references.

PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:

BOOKS

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.

- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

UNPUBLISHED DISSERTATIONS

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

WEBSITES

- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

A STUDY ON THE EFFECT OF ENVIRONMENTAL AWARENESS AND ENVIRONMENTAL ATTITUDE ON CONSUMER BEHAVIOUR TO PURCHASE ECO FRIENDLY CAR IN THE CITY OF PUNE AND AURANGABAD

DR. SURESH CHANDRA PADHY
DIRECTOR
BALAJI INSTITUTE OF INTERNATIONAL BUSINESS (BIIB)
TATHAWADE

AMEER HUSSAIN A
ASST. PROFESSOR
BALAJI INSTITUTE OF INTERNATIONAL BUSINESS (BIIB)
TATHAWADE

ABSTRACT

Enormous economic growth, advent of scientific and technological innovations, intense competition with the intention of getting quick money coupled with population growth have exploited the natural resources to the maximum possible which have resulted in the degradation of our natural environment and also have threatened the existence of living beings of the planet includes rising greenhouse gases, land degradation, acid rain, global warming, hole in ozone layer, depletion of forest cover, extensive loss of bio-diversity and natural habitat etc. The rapid urbanization in India has also witnessed an exponential growth and increase of the number of vehicles. Vehicular Pollution or air pollution arising out of vehicle emission is one of the biggest threats to human life. Rapid increase of passenger cars and commercial vehicles are one of the main reasons of air pollution in the environment. In the current study, effect of environmental knowledge, attitudes and behaviour of car owners on purchasing behaviour related to automobiles was analysed by using Structural Equation Model (SEM). The main purpose of this study is to construct a structural equation model to understand and examine the relationship between knowledge, attitude and behaviour of car owners in terms of environment and its related effect due to automobiles. In this study, the data from 1067 car owners by means of survey were collected from Pune and Aurangabad of Maharashtra State. The result shows that environment knowledge has a significant positive relationship with the environmental conscious attitude. The strength of significant relationship between attitude and behaviour is greater as compared the strength of significant relationship between knowledge and behaviour of car owners towards environmental issues related to automobile. The model supported the idea that the awareness of environmental issues during manufacturing, use and disposal of the automobiles changes the attitudes of people. The awareness and attitudes then result in the way they behave with respect to the environment concerns.

KEYWORDS
automobile, environment, structural equation model, knowledge, attitude, behavior.

1. INTRODUCTION
ince historical times, human being has been exploiting natural resources mindlessly to their benefit without giving a proper thought to its horrified consequences in the long run. The sole thought being continued lust for the better and comfortable life. Till almost up to 18th century exploitation of natural resources almost went un-noticed for many reasons such as high per capita availability of resources, unavailability of high capability modern machineries used for exploiting natural resources, less knowledge about the utilisation of natural resources in various applications etc. However, a paradigm shift had taken place across the world in their approach to the life style by the human beings after 17th century due to advanced scientific and technological innovations in various areas. With the intention of getting quick money, dream to collect more and more profit and in order to lead a very luxurious life, all the strategies were applied and all games were played to exploit the natural resources for various purposes by using the advanced technologies without considering its negative consequences which ultimately resulted in pollution, rising greenhouse gases, land degradation, acid rain, global warming and hole in ozone layer (Rojsek, 2001). Further to this, various species have reached to an end and hence ecosystem has affected adversely (Saloni, May 2011). Of late, consumers have realised the detrimental effect of exploitation of natural resources and pollution on environment and have become more concerned about the environmental problems and started demanding environment friendly products. Recently Government is also taking various steps such as banning plastic bags, forcing car manufacturers follow Euro norms etc. banning of deforestation etc. to protect the environment and planet earth. Public awareness on environmental issues and its consequences and strict environmental legislations have forced manufacturing firms to manufacture and use eco-friendly products. Hence, evolution of green marketing practices has taken place.

1.1   AUTOMOBILE INDUSTRY SCENARIO IN INDIA
The **Automobile industry** in India is one of the largest and growing sector in the world and occupies a prominent place on the canvas of the Indian economy. Due to migration of people from rural to urban, there is growing demand for Transportation in Metros and cosmopolitan cities. Further to this, increase in household income, easy availability of cars and the loan facilities have further added the number of cars in urban areas. As per Society of Indian Automobile Manufacturers, annual vehicles sale in India is expected to go more than 90 lakhs by 2020. This enormous growth for Automobile industry is not a good news for the Metros as the emission from vehicles is a matter of concern for the urban population. Epidemiological studies has reported that air pollution causes a thousands of health problems leads to number of deaths in Indian cities. Air pollution causes loss of productivity and further to this it adds extra health care cost. According to McKinsey projections, urban vehicle stock (including cars, two-wheelers, and other automobiles) is expected to touch 200 million by 2030 and India will be emerging as the third largest market for motor vehicles by 2030. It is estimated that, transport sector contributes around 14% towards global emission of greenhouse gases worldwide. More number of vehicles in future will have more vehicular emission and depletion of non-renewable fossil fuels and in turn will have adverse impact on environment. Although vehicles of today are more fuel efficient and much cleaner than the older ones, but the potential environmental benefits are knocked off by higher uses.

Moreover, Transport sector is one of the main user of energy Transportation sector accounts for a major share of energy consumption in India. As per Pollution Conservation Research Association (PCRA) report, the average consumption patterns of petroleum products by the Transportation sector (Petrol, Diesel, CNG, Aviation Fuel) is 51% vis-à-vis Industry (Petrol, Diesel, Fuel Oil, Naphtha, Natural Gas) 14%.

However, transportation sector is one of the important components of the economy which is very much essential for the growth and development of the society. Efficient transport system brings multiplier benefit to the society such as better accessibility to markets, employment and entrepreneurial opportunities, livelihoods developments and additional investments etc.

We have reached at a stage where we can see a dangerous situation ahead of us. At this juncture, all out efforts should be done to protect our mother earth and the environment so that our future generation will not face the problem of their survival. Using green product is one of the solutions to overcome the dangerous effect of pollution and the consequences. The roots of environment problems lie in human behaviour. Therefore, the solution for rectifying the environment problem also lies with the change of behaviour of people. Environment conscious manufacturing and the efforts put in to produce green products are directly related with the consumer's awareness, attitude and involvement into the process (Arslan, T. et al, 2011). It is becoming increasingly important for companies to

understand consumer's knowledge on environment and their attitudes towards it in order to predict the purchase behaviour towards environmentally friendly behaviour.

1.2   RELEVANCE FOR THE STUDY

In this study, an analytical model was developed to study the relationship between environmental knowledge, attitude and behaviour of consumers (car owners) and its effect on environment conscious behaviour related to Automobile. In the process of investigation, the correlation between the knowledge and attitude of consumers (car owners) were estimated and the effect of knowledge on behaviour as well as effect of attitude on behaviour were calculated through the Structural equation model.

2. LITERATURE REVIEW

According to Mostafa (2007) the relationship between awareness about green product and green product consumption is very week. Irrespective of any part of the world numerous studied has identified that there is positive relationship between the attitude and consumer behaviours towards Green products. (Sinnappan and Rahman, 2011, Kim and Chung, 2011). Tan (2010) in his study found that the volunteers are ready to change their attitude to purchase green products as they are not aware of the alternative. Hence we can conclude that attitude and awareness both put together plays an important role in deciding the purchase intention of Green products.

Abdul Wahid and Abustan (2009) who studied the young consumers of Malaysia and came up with their find that they are not ready to change their attitude to purchase green products. Ther Fraj & Martinez (2007) found that environmental attitudes are best at predicting the environmental behaviour. Dono et al. (2009) came up with the result that environmental attitude and environmental behaviours are closely related. Arslan, T. et al (2011) suggested that environmental attitudes could be kept as an estimator for environmental behaviour. However, no significant relationship was found between attitude relating to the surrounding environment and purchasing behaviour based on environment

Tahir, Albayrak et al (Jul 2011) highlighted that importance of scepticism which has negative influence on the consumer behaviour towards green products and consumer effectiveness which has a positive influence on the consumer behaviour towards green products. However, he also warned about the high level of scepticism which can reduce the consumer effectiveness and purchase behaviour of green products.

Elvan Sachin et al (2012) reported that Values and attitudes were the most important independent variable which determine the sustainability behaviour of the university students. Further The study of Bipul Kumar (2012) study indicated that a right set of knowledge about the environment a positive impact on the attitude relating to the sustainable products.

Chan Yew Ling has studied the various factors that affects the purchase intention of Green personal care products. He identified that attitude and self-efficacy as the most important factors that affects the Purchase decision of Green products. Generally, Consumers who use green products are believed to be open minded and socialise more compared to consumers who use non-green products. In the reference group an individual can affect the entire group or the group can affect the individual and decide his/her behaviour in a socially acceptable manner. (Kelman, 1958). As per Social Impact Theory, Strength of the social influence group, their physical approach and number of people in the group will decide whether a person will follow the influence group or not.

Eco Friendly cars are priced higher than normal cars. The question before us is how much the car owners are ready to pay premium amount. According to a survey conducted by an advertising agency- J. Walter Thompson atleast 82% consumers are ready to pay 5% more for a product which are environment friendly. Another survey conducted for Australian consumers by Suchard and Michael (1991) cane up with their finding that 61.5% consumers are ready to pay 15% to 20% more for environment friendly product. These result indicate that the consumers are ready to pay premium price for a eco-friendly product compared to non-eco-friendly product.

2.1   SUMMARY OF LITERATURE REVIEW

TABLE 1: SUMMARY OF LITERATURE REVIEW

Citation	Area/ Focus of Study	Outcome	Gaps in the study
Mostafa (2007)	Hierarchical Analysis of the green consciousness of the Egyptian consumer	A weak relationship between the consumers green product awareness and their actual consumption behaviour	Specific and qualified relationship between green product awareness and their consumption behaviour
Fraj & Martinez (2007)	An Empirical analysis on ecological consumer behaviour	Environmental attitudes are the estimators of the environmental behaviour	Specific product category and the relationship between attitude and the behaviour
Dono et al (2009)	The relationship between environmental activism, pro-environmental behaviour and social identity.	There is a significant relationship between environmental attitude and environmental behaviour	Current study was exploratory. Quantified relationship between sustainable attitude of consumers and their purchase behaviour.
Arslan, T. et al	Structural equation model for environmentally conscious purchasing behaviour.	Environment attitudes could be used as the estimator of the environmental behaviour.	No statistically significant relationship between environmental attitude and environmentally conscious purchase behaviour was found.
Tahir, Albayak et al (jul 2011)	The influence of scepticism green purchase behaviour	Perceived consumer effectiveness is the most important determinant that positively influence to green purchase behaviour	Relationship between knowledge, attitude and behaviour is not measured.
Elvan Schin et al	University students behaviour pertaining to sustainability	Attitude and values were found to be significant deterrminant of university students behaviour pertaining to sustainability.	It is based on the self-reported data of the university students without internalising the subject.
Bipul Kumar (2012)	To Understand the purchasing behaviour for environmentally sustainable products.	Right set of environmental knowledge has significant and positive impact towards sustainable products.	The study was conducted by considering mainly those constructs which were part of theory of planned behaviour.

Many studies have been conducted exploring the consumer's knowledge, attitude and behaviour related to green products, green marketing practices and green buying behaviour in the context of Indian consumers (Mishra & Sharma, 2010; Datta, 2011). However, no academic research has been found to understand the relationship between knowledge, attitude and purchase behaviour in regard to environment friendly automobiles. There is a gap in the literature which discusses the relationship between the knowledge, attitude and behaviour of consumers in the context of purchasing the environmental friendly automobiles.

The present study attempts to establish the relationship between environmental knowledge and their attitude towards environment as well as purchase behaviour of green products more specifically automobiles using the Structural Equation Model.

3. OBJECTIVES

1.   To study the Automobile Industry and its harmful effect of growing vehicular pollution in the country.
2.   To study and measure different aspects of Awareness and Attitude that effects Consumer Behaviour of Car owners.
3.   To analyse the inter relationship between the Awareness, Attitude and its effect on Consumer Buying Behaviour to Purchase Eco friendly car
4.   To come up with suitable model based on the analysis and verify the same.
5.   To give suitable recommendation to the Marketers and Policy makers based on our analysis and result.

4. METHODOLOGY & MEASUREMENT

4.1 APPROACH

The survey questionnaire used for collecting data from consumers (car owners) was designed having following four sections in it:

1. Demographics
2. Awareness of Green Marketing and other environmental issues due to Automobiles.
3. Attitude of car owners towards pollution due to Automobiles
4. Behaviour of car owners towards Green Marketing.

In order to capture the demographic profile of the respondents (car owners), Gender, Age, Educational Qualification and Occupations sections were included in the structured questionnaire. Similarly, a 5 point Likert Scale (Agree / Disagree) has been used to collect the data from the respondents with regards to their Awareness, Attitude and Behaviour towards Green Marketing.

TABLE 2: MEASUREMENT SCALE USED

S No	Statement	Allotment No
1	Completely Disagree	1
2	Disagree	2
3	Neither Agree nor Disagree	3
4	Somewhat Agree	4
5	Complete Agree	5

In the 'Awareness' Section of the structured questionnaire, 13 different statements have been framed to understand the consumers (car owners) awareness levels on the issues of environment pollution, Meaning of Green and its understanding by the consumers and the government rules and regulations on environment. Similarly, in the 'Attitude' Section of the structured questionnaire, 12 different statements have been framed to understand the consumers (car owners) interest and concern towards environmental issues, perception regarding Government's responsibility towards controlling pollution and also to find out whether consumers are concerned or indifferent towards the issue of environment. In the 'Behaviour' Section of the structured questionnaire, 15 different statements have been framed in order to find out the action and reaction of the consumers (car owners) to save the environment and their preparedness to act.

4.2 SAMPLE DESIGN

The sample survey for conducting the research was carried out in Pune and Aurangabad. 800 consumers (car owners) from Pune and 267 consumers (car owners) from Aurangabad have participated in the sample survey. Responses were collected from 1067 consumers (car owners) through a structured questionnaire. The demographic profile of 1067 respondents who have participated in sample survey is outlined in **Table 3** below.

TABLE 3: PROFILE OF THE RESPONDENTS OF THE SURVEY

		Cities					
		Pune		Aurangabad		Total	
		Count	Per (%)	Count	Per (%)	Count	Per (%)
Number of Respondents		800	100%	267	100%	1067	100%
1	Male	618	77	245	92	863	81
2	Female	182	23	22	8	204	19
Age Group		800	100	267	100	1067	100
1	Upto 25 Years	212	27	7	3	219	21
2	26 to 35 Years	304	38	117	44	421	39
3	36 to 45 Years	127	16	126	47	253	24
4	46 and above Years	157	20	17	6	174	16
Education		800	100	267	100	1067	100
1	Below HSC	18	2	4	1	22	2
2	HSC	21	3	10	4	31	3
3	Same College	60	8	10	4	70	7
4	Graduate/Post Graduate General	402	50	152	57	554	52
5	Graduate/Post Graduate Professional	299	37	91	34	390	37
Occupation		800	100	267	100	1067	100
	Shop Owner	54	7	29	11	83	8
	Businessman-No employees	45	6	35	13	80	7
	Businessman-with employees (Upto 10)	86	11	38	14	124	12
	Businessman-with employees (10 to 100)	64	8	14	5	78	7
	Company executive Jr.(Upto GM)	162	20	35	13	197	18
	Company executive Sr (SM and Above)	46	6	49	18	95	9
	Government Employees (Upto Class 2)	38	5	1	0	39	4
	Government Employees (Above Class 2)	42	5	1	0	43	4
	Others	263	33	65	24	328	31

ANALYSIS OF AWARENESS

All the statements of the Awareness section have been analysed to see the proportions of the respondents agree, disagree and neutral to the statements and to understand the consequences behind it. Percentage of the respondents agrees to the Awareness statements, arranged in descending order has been depicted in fig.

TOTAL AWARENESS SCORE - OVERALL

It is pertinent to know the overall awareness score of environmental issues among car owners. Overall awareness or Total Awareness Score was calculated for each respondent by adding the rating score on all 13 statements and divided by the number of respondents. It can be mentioned here that, the Minimum Awareness score can be 13 and Maximum Awareness score can be 65 as the range of likert scale is from 01 to 05 and 13 questions are answered under the heading 'Awareness'. Statistics of total score are calculated and presented in the table 4 below. It is found through the calculation that the minimum score is 24 and maximum is 65 and average is 45.39.

TABLE 4. TOTAL AWARENESS SCORE STATISTICS OVERALL – RESPONDENTS (CAR OWNERS)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	SD
Awareness Score	1035	24	65	45.399	5.56413

Since average score 45.4 is way above the 39 (as 13 x 3 =39, mid-point of a 5 point scale is 3 and 13 statements), it can be mentioned here that, in general the respondents are aware of the environment related issues.

FIG. 1: DISTRIBUTION CHART OF TOTAL AWARENESS SCORE- RESPONDENTS (CAR OWNERS)
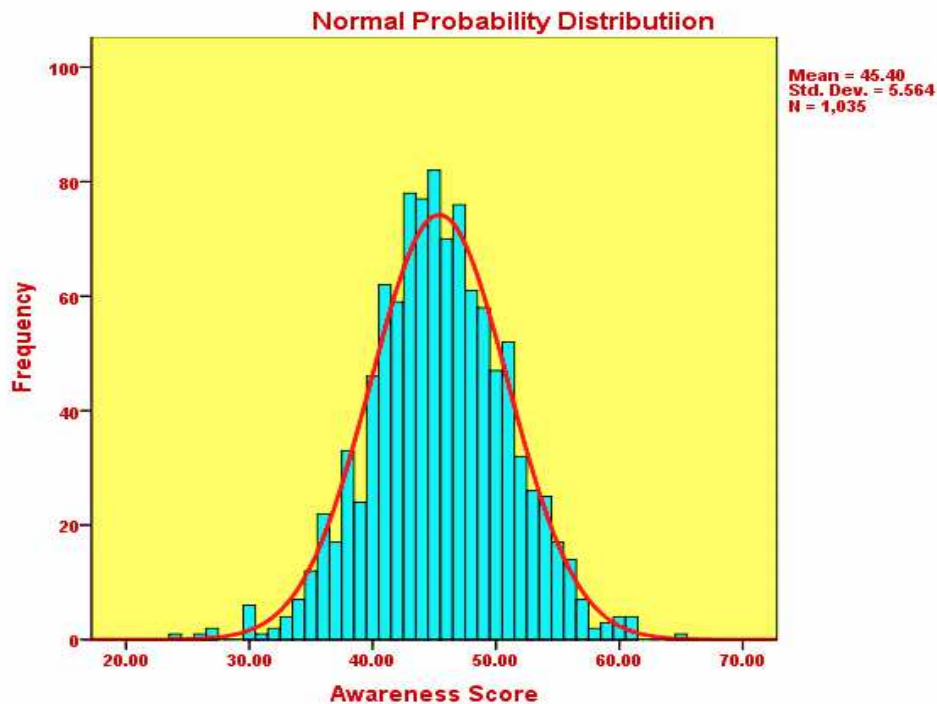
Further to this, 'Total Awareness Score' of each respondent are presented to see whether the rating of all responses follow the normal distribution curve or not. The **Fig 1** below is the Distribution chart of Total Awareness Score and is found to be a Normal Distribution Curve.

4.3   RESEARCH TOOL

4.3.1   STRUCTURAL EQUATION MODEL

The rationale behind the Structural Equation Model (SEM) is understand the correlation between awareness, attitudes and behaviour of the respondents towards environmental issues due to automobiles. The model supported the idea that the awareness of environmental issues during manufacturing, use and disposal of the automobiles changes the attitudes of people. The awareness and attitudes then result in the way they behave with respect to the environment concerns.

There were 13 statements in the awareness section but for the model purpose 6 key awareness statements were selected as shown in the following table. These statements were chosen based on their importance to environment. These statements had the highest mean scores.

TABLE 5: IMPORTANT AWARENESS STATEMENT

AW1	Q11-101	I can say that i am fully aware of Global Warming.
AW2	Q11-102	Vehicular emissions is the largest contributor to the pollution
AW3	Q11-103	Harmful emissions are mainly due to type of auto fuel used.
AW4	Q11-104	CNG is the most environmentally friendly auto fuel.
AW7	Q11-107	I can say that I am fully aware of the term Green House Effect.
AW10	Q11-110	"Green" means reduced emissions.

From attitudinal statements the following key statements were chosen again based on their importance:

TABLE 6: IMPORTANT ATTITUDINAL STATEMENT

AT1	Q11-201	We are running out of time to save environment
AT2	Q11-202	Neglecting environment has already started threatening our survival
AT4	Q11-204	I consider pollution due to vehicles is serious issue
AT5	Q11-205	There are other factors that pollute environment more than vehicle.
AT9	Q11-209	Environment problems have direct effect on your daily life.

The behavioural statements included in the model are the ones which exhibit typical environment friendly behaviour. These statements are given below:

TABLE 7: IMPORTANT BEHAVIOURAL STATEMENTS

BH1	Q11-301	I would pay more for a vehicle that did not pollute environment.
BH2	Q11-302	I would consider purchasing a car running on CNG as it helps saving the environment.
BH9	Q11-309	Enforcement of vehicle emission standards would help improve environmental situations.
BH10	Q11-310	Energy savings cars are the best way to reduce pollution.
BH12	Q11-312	I will consider alternative energy cars for my next purchase
BH13	Q11-313	Government should introduce heavy fines for offenders.
BH14	Q11-314	Manufacturers have a role to play to improve the environment.

The selection of key awareness, attitudinal and behavioural statements is based on factor analysis of each set of statements. After factor analysis surrogate variables from factors were chosen to be included in the model.

The current path analysis model is the recursive model. The exogenous latent variables are "Awareness" as per the measurement of independent observed variables AW1 (awareness of global warming), AW2 (awareness of vehicular pollution), AW3 (awareness of harmful emissions due to fuel used), AW4 (awareness of

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

http://ijrcm.org.in/

4

CNG being environment friendly fuel), AW7 (awareness of Green House effect), AW10 (awareness that Green means reduced emissions) and "Attitudes" as measured by AT1 (running out of time to save environment), AT2 (neglecting environment is endangering our survival), AT4 (consider pollution due to vehicles a serious issue), AT5 (Other factors that pollute environment besides vehicular pollution), AT9 (environment problems have direct effect on daily life). The endogenous latent variable is "Behaviour" as measured by BH1 (pay more for a vehicle that did not pollute the environment), BH2 (consider car running on CNG), BH9 (enforcement of vehicle emission standards), BH10 (energy saving cars are best way to save environment), BH12 (consider alternate energy cars for next purchase), BH13 (government should introduce heavier fines), BH14 (manufacturers should play role in protecting environment). It is logical to assume that consumer's awareness and attitudes will affect its behaviour.

The structural equation model was tested using AMOS, software developed by IBM SPSS.

RESULTS

Path Analysis was done to test the theoretical model as shown in Fig. using AMOS and used ML (Maximum Likelihood) method of parameter estimation and were performed on the variance-covariance matrix.

The fitness of good indices for various models are shown in the table below.

**TABLE 8: FITNESS OF GOOD INDICES**

Chi-square	TLI	CFI	NFI	RMSEA
850.109(p-.000)	0.594	0.686	0.655	0.071

The chi-square value is significant (<0.05) indicating the model is bad fit. However, chi-square is sensitive test and is not grounds to reject a model by itself. One should look at other statistics TLI, CFI and NFI should be closer to 0.9 and RMSEA should be lower than 0.08. From table we can see that RMSEA is less than 0.08 and TLI, CFI and NFI are above 0.6, which is quite good and we can accept the model.

DISCUSSION

The path diagram shows that there are three dimensions obtained from confirmatory factor analysis - "Awareness", "Attitude" and "Behaviour". The estimated path coefficients tell us the causal relationships. The path coefficients are standardized regression coefficients. These values represent shift in dependent variable given a standard deviation unit change in independent variable. In the SEM diagram the dependent latent variable is behaviour and latent independent variables are awareness and attitudes. A path coefficient of 0.32 between awareness and behaviour indicates that for a standard deviation unit change in awareness there is 0.32 change in behaviour. Similarly, for Attitude latent variable a standard deviation unit change in attitudes will result in 0.49 change in behaviour.

FIG. 2: STRUCTURAL EQUATION MODEL BETWEEN AWARENESS, ATTITUDE & BEHAVIOUR OF CONSUMERS (CAR OWNERS)
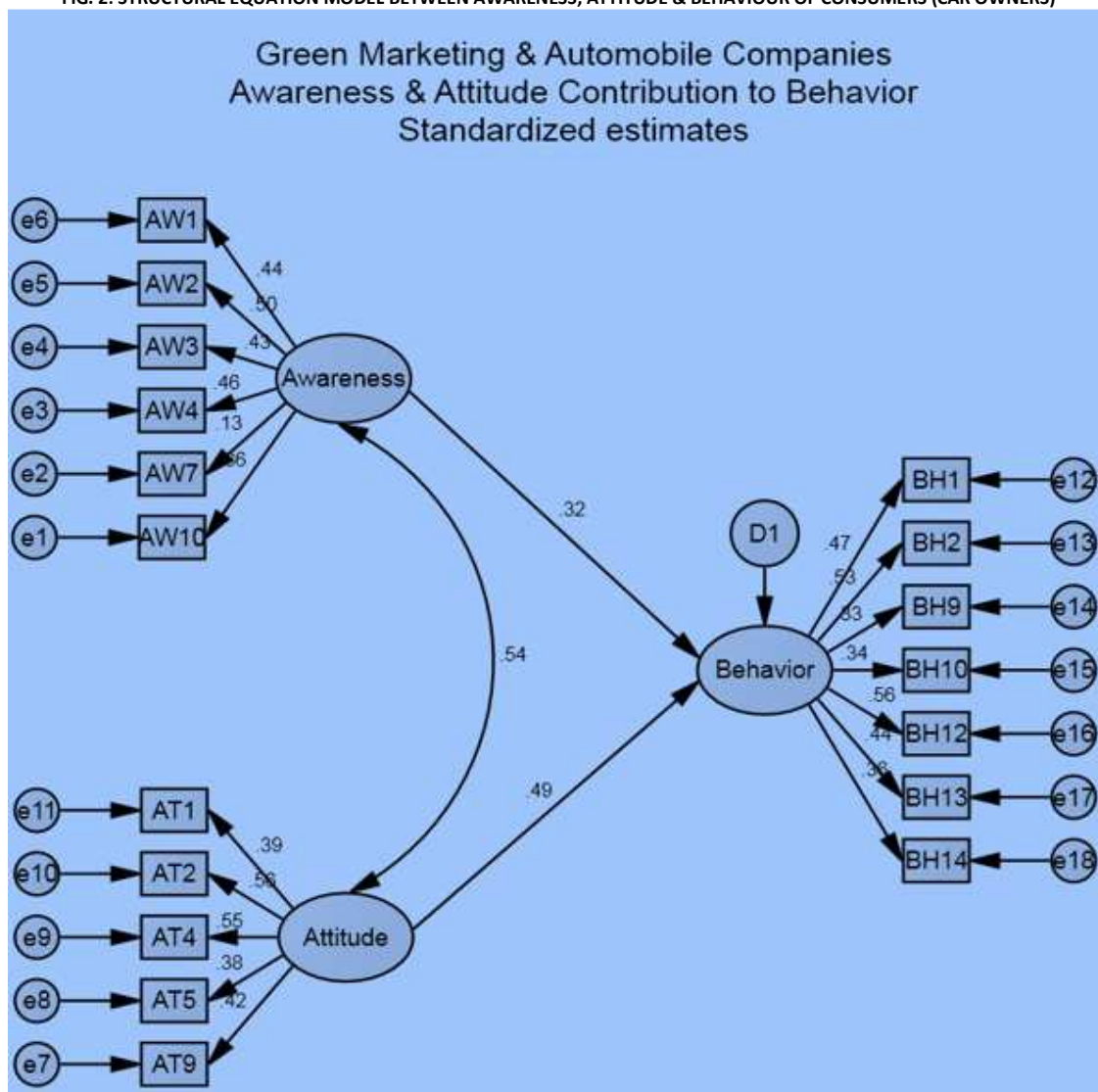
When the variable awareness is related to environment attitude the results are significant (0.54, p=.000) and quite strong. That means people more aware of pollution problems will have a positive attitude towards environment problems and will become more concerned. Awareness also affects the behaviour and is significant (0.32, p=0.00) but the relationship is relatively weaker. That means though awareness brings less changes in behaviour. However attitude as a strong and significant relationship (0.49, p=.000) with behaviour. The model tells us that it is not sufficient to have awareness of environment problems to change the behaviour of people. First the awareness of environment problems creates a positive attitude and that results in positive change in behaviour towards the environment issues.

5. CONCLUSION

The proposed model has proven to be good at explaining the environmental behaviour. The path coefficient between attitude and behaviour deserves special attention. The strong attitudes will shape the behaviour. The strong correlation of attitudes with awareness shows that strong attitudes will be shaped by the higher awareness of environment issues. To influence consumer purchase towards green products the marker has to motivate the consumer to have right kind of positive attitude as the outcome of the study indicate that is a strong relationship between both these variables.

6. MANAGERIAL IMPLICATIONS

The finding of the study has provided sufficient knowledge on the relationship between environment knowledge and behaviour as well as sustainable attitude and behaviour of car owners on purchase of environment friendly automobiles. These findings can help the policy maker as well as automobile manufacturers and marketers to understand the factors effecting the purchase behaviour. It was found from the present study that the environment knowledge and sustainability attitudes towards environment had a significant and positive relationship with car owner's behaviour pertaining to environment friendly automobiles. In other words, car owners having more favourable attitudes towards environment will impact positively towards sustainable action and behaviour.

It is also found from the present study that environment knowledge has significant and positive correlation on the attitudes towards sustainable and environment friendly products. It gives an opportunity for the policy makers and automobile manufacturers to design their communication so that the knowledge level of the consumers will enhance which in turn will affect the attitude of the consumers leading to purchasing behaviour.

7. LIMITATION OF THE STUDY

The empirical results obtained in this study has few limitations. The study was undertaken in two Indian cities (Pune and Aurangabad of Maharashtra). Hence, the results may not be used to generalise all the customers of whole India. Besides this, this study only focussed on automobiles. Therefore, future studies involving multiple products should be conducted in order to enhance the generalizability of the study. Green Marketing concept is ever changing as per the consumer requirement. The period of the study will limit the finding.

REFERENCES

1. Abdul Wahid, N., & Abustan, 1. (2009). Environmental concern: Between consumers' awareness and willingness for attitude change. MBA Thesis, Universiti Sains Malaysia.
2. Arslan, T., Yilmaz, V. & Aksoy, H.K. (2011), "Structural Equation Model for Environmentally Conscious Purchasing Behaviour", *Int. J. Environ. Res., 6(1) : 323-334, Winter 2012*, ISSN : 1735-6865
3. Bipul Kumar (2012), "Theory of Planned Behaviour Approach to Understand the Purchasing Behaviour for Environmentally Sustainable Products", *Indian Institute of Management, Ahmedabad, India, W.P No 2012-12-08*, December 2012
4. Chan Yew Lin (2013) Consumers' purchase intention of green products: an investigation of the drivers and moderating variable. Retrieved from http://www.elixirpublishers.com/articles/1367043926_57A%20(2013)%2014503-14509.pdf
5. Datta, S.K (2011), "Pro-environmental concern influencing green buying: A study of Indian consumers", *International Journal of Business and Management, 6 (6),* 124 – 133
6. Dono, J., Webb, J. and Richardson, B. (2010), "The Relationship between environmental activism, pro-environmental behaviour and social identity", *Journal of Environmental Psychology*, 30 (2), 178-186
7. Elvan Sachin, Hamide Ertepinal & Gaye Teksol (6 April 2012), "University students' behaviour pertaining to sustainability: A structural equation model with sustainability – related attributes", *International Journal of Environmental & Science Education*, Vol. 7, No. 3, Jul 2012, 459-478
8. Fraj, E. & Martinex, E. (2007), "Ecological consumer behaviour: An empirical analysis", *International Journal of Consumer Studies*, 31, 26-33
9. Kim,H.Y., & Chung, J.-E. (2011). Consumer purchase intention for organic personal care products. Journal of Consumer Marketing, 28(1), 40-47.
10. Mishra, P. & Sharma, P. (2010), "Green Marketing in India: Emerging opportunities and challenges", *Journal of Engineering, Science and Management Education*, 3, 9-14.
11. Mostafa, M.M. (2007), "A hierarchical analysis of the green consciousness of the Egyptian consumer", *Psychology & Marketing,* 24 (5), 445-473
12. Rojsek I. (2001), "From Red to Green: Towards the Environmental Management in the Country of Transition", *Journal of Business Ethics 33, 37-50.*
13. Saloni Pawan Diwan& B.S. Bodla (May 2011), Green Marketing: A New Paradigm of Marketing in Automobile Industry, Prabandhan: Indian Journal of Management, PIJM – May 11- Article 3 – Green Marketing by Associated Management Consultants (P) Ltd.
14. Sinnappan, P., & Abd Rahman, A. (2011). Antecedents of green purchasing behavior among Malaysian consumers. International Business Management, 5(3), 129-139.
15. Tahir Albayrak, Meltem Caber, Luiz Moutinho, Ram Herstein (Jul 2011), "The influence of scepticism on green purchase behaviour", *International Journal of Business & Social Science* Vol. 2 No. 13 (Special Issue – Jul 2011)
16. Tan, S.S. (2010). Factors influencing the green purchase behavior of environmental related volunteers in Penang, MBA Thesis, University Sains Malaysia.

REQUEST FOR FEEDBACK

Dear Readers

At the very outset, International Journal of Research in Computer Application & Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you to supply your critical comments and suggestions about the material published in this issue, as well as on the journal as a whole, on our e-mail **infoijrcm@gmail.com** for further improvements in the interest of research.

If you have any queries, please feel free to contact us on our e-mail **infoijrcm@gmail.com**.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward to an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

Sd/-
Co-ordinator

DISCLAIMER

The information and opinions presented in the Journal reflect the views of the authors and not of the Journal or its Editorial Board or the Publishers/Editors. Publication does not constitute endorsement by the journal. Neither the Journal nor its publishers/Editors/Editorial Board nor anyone else involved in creating, producing or delivering the journal or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the journal, nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of information/material contained in the journal. The journal, neither its publishers/Editors/ Editorial Board, nor any other party involved in the preparation of material contained in the journal represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources. The responsibility of the contents and the opinions expressed in this journal are exclusively of the author (s) concerned.

ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

Our Other
Journals

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

http://ijrcm.org.in/

II