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# A STUDY ON FACTORS AFFECTING CONSUMER ADOPTION OF SOLAR ENERGY TECHNOLOGY IN DELHI NCR

***ADARSH KUMAR SINGH[1], ADESH TRIPATHI[2], ABHISHEK SHARMA[3]***

[1, 2, 3] Department of MBA, Noida Institute of Engineering and Technology, Greater, Noida 201306, India.

**ABSTRACT**

The use of solar energy technology as a sustainable and renewable energy source has gained great popularity in recent years. This content explores the various factors that influence the consumer's decision to adopt solar technology. Based on extensive research in the field, it divides important decisions into four categories: economic, environmental, social and technological. The work includes the installation of solar panels, financial support and investments in energy saving. Environmental factors highlight the importance of reducing carbon footprint, mitigating climate change and adopting environmentally friendly practices. Social factors include cultural, social, and cognitive factors, all of which can influence people's perception of solar technology. Technology Factors explores innovations and advances in solar technology, including efficiency, reliability and ease of use. Understanding the interaction of these factors to promote sustainable energy use is important for policy makers, businesses and researchers. More electricity. These concepts form the basis of future research and policy development, ultimately contributing to a more robust field.

Key Words: Solar energy technology, Renewable energy, Solar Panels

## INTRODUCTION

Solar energy is the most abundantly available and one of the cleanest energy resources that humankind has known for a long time. With the benefits of solar energy and the advantages that it brings in, many countries around the world today are on the path of attaining success with energy generation using solar systems. According to the Indian Renewable Energy Development Agency Limited (IREDA), India is endowed with abundant solar energy, which is capable of producing 5,000 trillion kilowatts of clean energy. India gets 300 sunny days a year in most parts of the country and solar isolation of 4-7kWh per Sq. m per day. This energy, if harnessed efficiently, can substantially reduce the dependence on fossil fuels and also reduce the carbon emissions involved in energy generation. It will also reduce the gap in the demand for energy across the country including in remote areas where energy supply is limited. In this article, we will understand the current scenario of solar energy usage in India, the challenges and how it is changing the energy sector for the future. Solar energy, a clean source of renewable energy which emits zero carbon, has got a remarkable potential of the energy which can be harnessed using several types of device. Solar power industry has gain a pace in the development and its system are now available for commercial as well as domestic use with use with enhanced advantages at minimal cost of maintenance.

## LITERATURE REVIEW

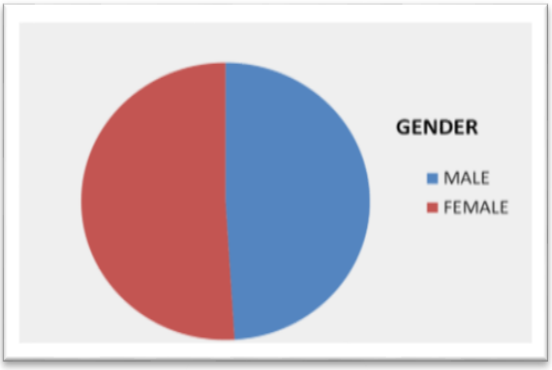
Review of literature on how the "benefit perspective" of technology affects solar energy use. The article discusses electricity use and its impact on economic development and human health, especially sanitary standards. However, there is no significant information in the context of the African continent. AmankwahAmoah, 2015). The Wall Street Journal examines Africa's incredible energy penetration. The potential of solar technology could help accelerate adoption. The article examines solar energy and its potential as a means of mitigating the effects of climate change and introducing renewable energy sources in India. The article discusses the relative cost of solar energy compared to other energy sources. Government policies support the importance of adopting and using renewable energy to create a clean environment. The article reviews the policies adopted by the government and stakeholders to support the development of the solar energy sector. The article states that lack of knowledge and information about the technology is also a barrier to its adoption the article acknowledges the situation in Kenya is similar to other parts of Africa. Personally, I like to use new technologies. The perceived usefulness and value of the technology is one of the desirables. This study combines the TAM model of IT technology adoption with PAD theory (the concept of pleasure, arousal, and mastery in technology use). Household Level Technology Adoption Study. This study reviewed data on various technology models. He talks about differences that limit

the value of technology. This study examined the direct effects of factors such as self-efficacy, enjoyment, computer stress, and "agreement" on electronic knowledge among boys and girls learning to use the behavior. This article examines consumer satisfaction with ecommerce through online shopping. This study investigated the adoption and use of electronic libraries among Malaysian students. The article examines how the "perceived ease of use" of the technology affects the use of solar energy. The research focused on the use of Web-based tools (WebCT) to support higher education institutions' adoption of e-learning. Technical support plays an important role in the ease of use and effectiveness of WebCT. This study examines the determinants of users' "use intentions" towards wireless technology. Self-efficacy of the TAM model. The results show that motivation has a direct impact on e-learning adoption and use. This study was designed to test information professionals' attitudes towards e-books. A study of 169 participants confirmed that perceived ease of use, perceived usefulness, and personal perceived attitudes influenced the intention to use e-books (Kim, 2012). The purpose of this study is to determine the adoption and use of software tools. Data were collected using an online survey and results were analyzed using regression analysis. Research results show that communication and information sharing have a positive impact on the perceived effectiveness of social software.

## RESEARCH METHODOLOGY

Research design is the plan strategy structure of investigation envisaged as to obtain answer to the research problem and to control the variance. The research design can be the following types: Exploratory: It is conducted to have a better understanding of a situation. It is not designed to come up with the final answer or decision. With the help of exploratory research, researchers expect to develop hypotheses about the situation. Descriptive: It is used to achieve a wide variety of research objectives. The descriptive data become more useful for solving problems when the process is guided by one or more specific research problems. It requires a clear specifications of what, who, where, when, why and how of the research problem. Our Sample Size was- 100. Source of data- Primary Data. Sampling Technique- Convenience Stastical Tool- Excel, SPSS. Area of study- Delhi NCR, Data Collection Method- Structural Questionnaire.

## DATA ANALYSIS

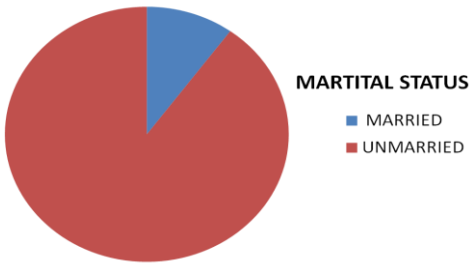


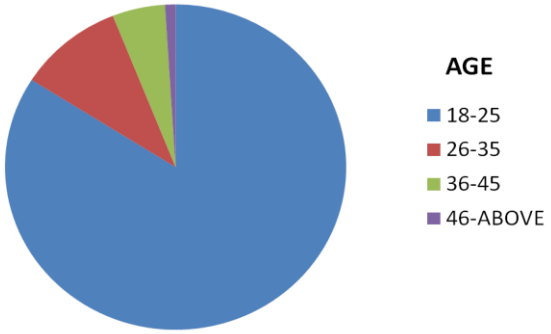

***4.1-GENDER***

In the pie-chart blue colour shows the rate of male and red colour shows the rate of female. Sample size was 100, so we got 51 responses from male and 49 from female. We have got the 51% responses from male and 49% from female**.**

**4.2-MARITAL STATUS**

In this pie chart we can understand the marital status of the individual from which we got the responses Red colour shows unmarried person and blue colour shows the married person. We collected more data from Unmarried.






***4.3-AGE:***

In this pie chart we can easily understand the age of the person from which we got the responses. We collected the most responses from the age group between 18-25**.**

## 5. RESPONDENTS PROFILE

***Table 1- Annova***

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 125.426 | 5 | 25.085 | 61.627 | .000[b] |
| | Residual | 37.856 | 93 | .407 | | |
| | Total | 163.282 | 98 | | | |

**a. Dependent Variable: AD**

**b. Predictors: (Constant), UF, EF, CON, PR, RE Table 3 shows that overall model is significant since the volume is (.000) which less than set criteria of( .05)**

***Table-2- Coefficients***

| Model | | Un standardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .320 | .208 | | 1.537 | .128 |
| | EF | .398 | .090 | .407 | 4.423 | .000 |
| | CON | .048 | .117 | .049 | .409 | .684 |
| | RE | -.020 | .146 | -.019 | -.134 | .893 |
| | PR | .089 | .117 | .093 | .763 | .447 |
| | UF | .441 | .111 | .416 | 3.977 | .000 |

Dependent Variable: AD In the table 4 it is exhibited that EF (.00) and VF (.00) import the consumer desire to adopt solar energy technology. Since significant value is (.0000 which is less than set criteria of (,05). On the other hand, CON, RE, PR do not impact consumer adoption significantly since value in more than (.05).

***Table-3 –Descriptive Statistics***

| | N | Minimum | Maximum | Sum | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| **EF** | **102** | **1.00** | **5.00** | **373.20** | **3.7697** | **1.31781** |
| **CON** | **102** | **1.00** | **5.00** | **346.67** | **3.5017** | **1.31309** |
| **RE** | **102** | **1.00** | **5.00** | **347.25** | **3.5076** | **1.22394** |
| **PR** | **102** | **1.00** | **5.00** | **360.00** | **3.6364** | **1.34273** |
| **UF** | **102** | **1.00** | **5.00** | **341.67** | **3.4512** | **1.21694** |
| **AD** | **102** | **1.00** | **5.00** | **373.00** | **3.7677** | **1.29079** |
| **Valid N (list wise)** | **102** | | | | | |

Among all the variables, EF& AD have highest mean (3.76, 3.76) which exhibits that these variable have higher weight age as component to other variables.

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .876[a] | .768 | .756 | .63801 |

a. Predictors: (Constant), UF, EF, CON, PR, RE In the table 2, it is exhibited that R represent to the correlation which has value of .076 that positive and high correlation. On the other hand, R square .768 which represent that study variable account for 76% of study.

## 5. SOCIAL IMPLICATION

Solar energy can provide an often more reliable and cheaper power source, allowing the people living in these communities more opportunities to develop and improve their circumstances. Solar energy sector provides jobs across industries – manufacturing, installation, engineering, sales, logistics, etc. These companies exist in large and small communities.

## 6. CONCLUSION

The consumers mainly focus on product attributes like economical, durable and high return on investments. Consumers are giving more importance to the performance of the product than the price. The company must establish R&D department. Most of the people are not aware of solar products, so the company must bring awareness in people through various promotional activities. The company must educate the people in rural areas about the solar products.

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