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Consumer Trends towards Green and Environmentally Friendly Products: A Study of a Sample of Consumers in the Wilaya of Tissemsilt

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Abstract

This research paper aims to highlight consumer attitudes—comprising cognitive, emotional, and behavioral components—towards green products that align with environmental sustainability. These products are produced with a focus on reducing costs, waste, and emissions, resulting in environmentally and health-safe outputs. In the field study conducted on a sample of consumers in the Wilaya of Tissemsilt, 145 questionnaires were distributed, of which 120 were deemed valid for study and analysis using a purposive, non-random sampling method. Data analysis was carried out using SPSS 25 software. The results indicated that Algerian consumers are willing to purchase and prefer green products over other alternatives, and are also ready to pay a premium for them. The study concluded by recommending the need to raise consumer awareness about the importance of green products by informing them of their environmental characteristics and multiple environmental and health benefits. It also emphasized the necessity for all economic institutions to adopt green marketing philosophies as an essential and inevitable part of their marketing strategies.

Keywords: Green products, green behavior, consumer attitudes

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Introduction

Amid growing environmental challenges, it has become essential to seek sustainable solutions that protect the environment and preserve natural resources. Green manufacturing is considered one of the most effective solutions in this regard. Many consumers have become increasingly aware of environmental risks and more conscious of their health, leading to a growing demand for environmentally friendly green products. These products are sought after not only for their reduced environmental impact but also for their safety to human health, as they do not contain harmful chemicals.

Through our analysis of consumer trends in the Wilaya of Tissemsilt, based on our research sample, we aimed to assess their environmental awareness and readiness to purchase these dual-benefit products—those that safeguard both consumers' health and the environment. Despite economic considerations, as green products often come with additional environmental costs, we found that many consumers are willing to pay premium prices for such products. In this context, many institutions are adopting green marketing as part of their marketing strategies, alongside intensified awareness campaigns and collaborative efforts among the government, businesses, and consumers to overcome challenges hindering the widespread adoption of green products and to promote sustainable consumption.

This introduction leads us to the following research problem:

Research Problem:

What are the consumer trends in the Wilaya of Tissemsilt towards environmentally friendly green products?

Sub-questions:

This research problem is further divided into the following sub-questions:

- What are environmentally friendly green products?
- What is green consumer behavior?
- What are the consumer trends in the Wilaya of Tissemsilt towards green products?

Research Hypotheses:

Main Hypothesis 1:

- **H0:** There is no statistically significant relationship between the cognitive component and consumer attitudes towards green products in the Wilaya of Tissemsilt.
- **H1:** There is a statistically significant relationship between the cognitive component and consumer attitudes towards green products in the Wilaya of Tissemsilt.

Main Hypothesis 2:

- **H0:** There is no statistically significant relationship between the emotional component and consumer attitudes towards green products in the Wilaya of Tissemsilt.

- **H1:** There is a statistically significant relationship between the emotional component and consumer attitudes towards green products in the Wilaya of Tissemsilt.

Main Hypothesis 3:

- **H0:** There is no statistically significant relationship between the behavioral component and consumer attitudes towards green products in the Wilaya of Tissemsilt.

- **H1:** There is a statistically significant relationship between the behavioral component and consumer attitudes towards green products in the Wilaya of Tissemsilt.

Significance of the Study:

The significance of this research paper lies in analyzing the attitudes of a sample of consumers in the Wilaya of Tissemsilt towards green products. The cognitive component focuses on consumers' environmental awareness, which is a crucial factor influencing their purchasing behavior towards green products. The emotional component is reflected in consumers' concern for environmental issues, their preference for products with eco-labels, and their trust in organizations with ISO 14001 environmental quality certification and environmentally friendly promotional logos. These factors significantly influence sustainable purchasing behavior. The behavioral component highlights consumers' willingness to pay a premium price for green products, emphasizing the need for businesses to adopt green marketing strategies and stimulate demand by ensuring the availability of these products in major retail outlets within the region.

Research Objectives:

Our study aims to explore consumer attitudes towards environmentally friendly green products, their preference for such products compared to traditional ones, and their willingness to pay a premium price for them. It also seeks to understand their interaction with companies that adopt green marketing practices, display eco-friendly labels and logos on their product packaging, and promote green initiatives to raise environmental awareness.

Green Products

With the growing awareness among consumers about preserving the natural environment and their increasing preference for consuming natural and eco-friendly products to safeguard their health, coupled with the pressure from international, national organizations, economic institutions, and governments, economic enterprises are now faced with the responsibility of providing products that meet the needs and desires of these customers. This responsibility extends beyond production to include pricing, distribution, and promotion.

1. Concept of Green Products

Green products are defined as: "The activity of designing goods and services while minimizing environmental impact throughout the production cycle" (Allah, 2020). Green products are not only clean and safe but also aim to achieve several environmental objectives during production, such as reducing emissions, pollution, and waste, as well as using renewable or recycled energy sources to minimize costs. Green production refers to the design, development, and marketing of sustainable industrial processes that reduce chemical impacts on human health and the environment while lowering the product life cycle costs.²

A green product can also be defined as: "A sustainable product that causes minimal environmental harm throughout its life cycle, taking into account environmental protection and natural resource conservation during its production process³." Green products are typically durable, non-toxic, made from recycled materials, or minimally packaged. While no product is entirely green—since all products consume energy and resources and produce by-products and emissions during manufacturing, transportation, usage, and recycling—the term "green" is relative and refers to products with a lower environmental impact compared to their alternatives⁴. A green product is essentially one that has undergone substantial improvements⁵ to meet future consumer needs while minimizing waste and ensuring environmental sustainability. It is also a healthy product made from natural, eco-friendly materials, free from preservatives and harmful chemicals that could endanger both consumer health and the natural environment.⁶

Given the increasing environmental pollution rates that pose a threat to the natural environment, a study in the United States revealed that 42% of consumers are willing to pay higher

²Mazouz Zakia, Saoud Wassila, Green Entrepreneurship Incubators: Presenting the Experience of International Green Entrepreneurship Incubators with Reference to the Algerian Experience, *Revue d'études sur les institutions et le développement*, Vol. 7, No. 01, p. 84.

³ Chahad Elias, Defrour Abdelnaim, The Importance of Green Products in Industrial Institutions: Toyota as a Model, *Journal of Administrative and Economic Research*, Issue 20, December 2016, p. 290.

⁴ Fabien Durif, Caroline Boivin, Charles Julien, "In Search of a Green Product Definition," *Innovative Marketing*, Volume 6, Issue 1, Canada, 2010, p. 25.

⁵ Drouazi Yasmine, Semmar Nabila, Designing Green Products as a Modern Trend in the 21st Century: Presenting Global Companies' Experiences, *Journal of New Economy*, Issue 2, Vol. 10, 2019, p. 142.

⁶ Nasira Belhoussin, The Role of Green Marketing in Directing Algerian Consumer Behavior Towards Buying Green Products from the Perspective of University Professors in Algerian Public Universities: A Field Study on a Sample of Professors and Students, *International Journal of Human Studies*, Vol. 2, No. 1, 2023, p. 43.

prices for green products⁷. These products are predominantly produced using eco-friendly raw materials and minimal consumption, with an emphasis on recycling products once consumers are done using them—particularly durable products that can be returned to the manufacturer, disassembled, and reintegrated into production in a closed-loop system. Green packaging also relies on eco-friendly, recyclable raw materials.⁸

Green products share several common characteristics, including:⁹

- Energy efficiency (in both usage and production);
- Water efficiency (in both usage and production);
- Low emissions (reduced hazardous emissions);
- Safety and/or health benefits;
- Recyclability and/or recycled content;
- Durability (long-lasting);
- Biodegradability;
- Renewability and reusability.

In this context, green products are recognized for their minimal negative environmental impact, ensuring they do not pose risks to human health¹⁰. These characteristics are often indicated by eco-labels, which highlight the product's environmental quality and commitment to using clean technology¹¹. Green manufacturing is based on several principles, including making products recyclable, using recycled materials by collecting and processing production remnants, employing

⁷ Zakia Makri, The Relationship of Green Marketing Mix Policies with the Adoption of Green Marketing Strategies: A Field Study at the Cement Company in Batna, Journal of Economic Studies, Issue 01, 2014, p. 15

⁸ Mimoune Nabila, Kerouche Mohamed Elamin, Mairif Okba, Green Marketing: A Necessity to Support and Develop Ecotourism - Green Marketing Activities and Fields in Al-Ghout, Al-Wadi State, as a Touristic Destination of Ecotourism, Journal of Economic Papers, Volume 14, Issue 02 (2023), p. 86.

⁹ METALI Leila, Theoretical Framework of Green Marketing: Marketing Mix Strategies and Challenges, Revue d'ECONOMIE et de MANAGEMENT, Vol. 19, No. 2, December 2020, p. 242.

¹⁰ Yassine Cherad, Hamach Walid, The Reality of Adopting Green Products in Algerian Economic Enterprises: A Case Study of Eco-Friendly Household Appliances by Condor Electronics, Journal of Finance, Investment and Sustainable Development, Vol. 8, No. 2, December 2023, p. 109

¹¹ Randa Saadi, Qashi Khaled, Innovating Green Products as a Means to Achieve Sustainable Competitive Advantage for Enterprises Through Environmental Orientation: Presenting Global Companies' Experiences, Journal of New Economy, Vol. 10, No. 01, 2019, p. 204.

environmentally safe raw materials by analyzing and replacing harmful substances, reducing energy consumption during production, and optimizing costs.¹²

2. The Green Consumer

Green shopping activities necessarily target consumers who genuinely believe in the principles and values of green marketing, both in word and deed. These consumers, known as green consumers, are considered the key drivers for improving the environmental performance of companies that practice green marketing¹³.

Green consumers are those who have become more aware of and concerned about environmental issues. They can be described as individuals who respond positively to green marketing and adopt an eco-friendly lifestyle¹⁴.

Environmental behavior can be defined as an individual's or group's actions that contribute to the sustainable use of natural resources. It can be classified as green purchasing behavior, which refers to buying and consuming products with minimal environmental impact. This type of environmentally friendly behavior is exhibited by consumers to express their concern for the environment. Various terms are used interchangeably with green purchasing behavior, such as environmentally friendly purchasing behavior and environmentally responsible purchasing behavior¹⁵.

A green consumer can also be defined as someone who believes that environmental protection cannot be left solely to the government, businesses, environmental advocates, and scientists, but rather takes personal responsibility. Such a consumer doesn't just say, "Let's protect the environment, it is important, and we should leave a good future," but also demonstrates this commitment through their actions. They can be identified as individuals who avoid products that

¹² taher Moulay, The Role of Green Entrepreneurship in Achieving Local Sustainable Development: Reality and Challenges, Journal of Research in Law and Development, Vol. 3, No. 1, 2023, p. 72.

¹³ Ben Ahmed Assia, The Impact of Consumer Orientation Towards Green Products on Purchasing Behavior: A Field Study on Algerian University Students, Journal of Economics, Finance and Business, Vol. 2, No. 01, 2018, p. 87.

¹⁴ METALI Leila, Key Strategies for Green Marketing Success, International Journal of Economic Performance, Issue No. 05, June 2020, p. 102.

¹⁵ Salah Khouildat, Prof. Mourad Zaid, Understanding Green Marketing: A Study to Determine the Tendencies of Hospital Doctors Towards Using Green Products, Journal of Economic and Financial Studies (University of El Oued), Vol. 1, No. 01, 2016, p. 279.

may harm any living being, degrade the environment during manufacturing or usage, consume large amounts of non-renewable energy, or involve unethical testing on animals or humans.¹⁶

The intention to purchase green products refers to the likelihood or willingness of an individual to prefer green products over traditional ones in their purchasing decisions.¹⁷

A green consumer is characterized by prioritizing environmental considerations when consuming products and avoiding products that threaten the natural environment and individual safety, such as those that consume large amounts of resources during manufacturing or generate harmful waste¹⁸. Green consumers represent a driving force for improving the environmental performance of companies adopting green marketing strategies, aiming to meet the growing needs and desires of environmentally conscious consumers¹⁹, who have become increasingly selective in their consumption choices.

Additionally, green consumers possess a high degree of environmental awareness, which reflects their understanding and perception of the environmental issues caused by human behavior, as well as their knowledge of the causes, consequences, and potential solutions to these issues²⁰.

3. Field Study

Description of the Research Sample

In this section, we present the characteristics of the sample based on personal variables (gender, age, educational level, occupation, and income). The following table illustrates this:

Table (1): Description of the Research Sample Based on Demographic Variables

¹⁶ PhD. Benahmed Assia, Dr. Ferradj Tayeb, Green Marketing: The Impact of University Students' Knowledge and Attitude Towards Green Products on Purchase Behavior in Algeria, Al Bashaer Economic Journal, Vol. 6, No. 1, April 2020, p. 1038.

¹⁷ Ben Siroud Nour El Houda, Manea Sabrina, Attitudes Towards Green Products and Their Impact on Algerian Consumers' Purchase Intentions, Journal of Dafater, Vol. 17, No. 2, 2021.

¹⁸ Abdelnaim Defrour, Elias Chahad, Determining Consumer Behavior Towards Green Products: An Analytical Study of Consumers' Opinions in El Oued Province, Journal of Business Administration and Economic Studies, Vol. 3, No. 2, 2017, p. 12.

¹⁹ Elias Chahad, Okba Abdellaoui, Abdelnaim Defrour, Green Pricing and Its Impact on Final Consumer Purchase Decision, Journal of Milaf for Research and Studies, Issue No. 5, 2017, p. 348.

²⁰ Elias Chahad, Okba Abdellaoui, Abdelnaim Defrour, Green Pricing and Its Impact on Final Consumer Purchase Decision, Journal of Milaf for Research and Studies, Issue No. 5, 2017, p. 348.

Demographic Variable	Frequency	Percentage
Gender		
Male	68	56.66%
Female	52	43.33%
Age		
Under 30 years	11	9.16%
30-50 years	94	78.33%
Over 50 years	15	12.5%
Educational Level		
Secondary Education	08	6.66%
University	96	80%
Postgraduate Studies	26	21.66%
Income		
20000-40000 DZD	13	10.83%
40000-60000 DZD	76	63.33%
More than 60000 DZD	31	25.83%

2. Validity and Reliability of the Measurement Tool

Table (2): Reliability of the Measurement Tool

Number of Items	Cronbach's Alpha
2523	0.885

Source: SPSS Output

From the table above, after entering all the items of the questionnaire, it is evident that the reliability coefficient is 0.885, indicating that the measurement tool has a high degree of reliability. This result shows a strong correlation and consistency between the questionnaire items, as the obtained value exceeds the statistically acceptable threshold of 0.6. Therefore, the questionnaire is suitable for study and analysis.

Main Hypothesis 1

• **H0:** There is no statistically significant relationship between the cognitive component and consumers' attitudes towards green products in the Wilaya of Tissemsilt.

• **H1:** There is a statistically significant relationship between the cognitive component and consumers' attitudes towards green products in the Wilaya of Tissemsilt.

To test this hypothesis, we use the One-Sample T Test for the first variable, which consists of six items. The test results are shown in the following table:

Table (): One-Sample T Test Results for Measuring the Cognitive Component of Attitudes Towards Green Products

1.Description of the Research Sample

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To test this hypothesis, we use the One-Sample T Test for the first variable, which consists of six items. The test results are shown in the following table:

Table (): One-Sample T Test Results for Measuring the Cognitive Component of Attitudes Towards Green Products

Measurement of the Cognitive Component of Attitudes Towards Green Products	p-value (sig)	f	T-value	Evaluation	Std. Deviation	Mean
I always strive to promote environmental culture in my surroundings. (01)	0.000	4	41.933	Agree	0.831	4.323
I engage in activities that benefit nature and the environment I live in. (02)	0.000	4	36.143	Agree	0.868	3.892
I have a desire to learn about environmental issues, understand problems, and seek solutions. (03)	0.000	4	37.783	Agree	0.857	4.015
I am fully aware of the existence of eco-	0.000		40.28	Agree	0.816	4.077

Measurement of the Cognitive Component of Attitudes Towards Green Products	p-value (sig)	f	T-value	Evaluation	Std. Deviation	Mean
friendly green products. (04)		4	1			
I pay attention to all media content about green products that protect human health and the environment. (05)	0.000	4	33.474	Agree	0.937	3.892
The characteristics of green products (being harmless to human health and the natural environment) make me prefer them over other products. (06)	0.000	4	37.956	Strongly Agree	0.902	4.246
Total	0.000	4	60.55	Agree	0.54	4.07

Source: Prepared by the researcher based on SPSS outputs

From the above test results, we observe that the arithmetic mean is 4.07, which falls within the agreement range, with a standard deviation of 0.54. The calculated T-value is greater than its tabulated value at a significance level of 0.000, which is lower than the significance level adopted for this study (0.05). Therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that there is a statistically significant relationship between the cognitive component and consumers' attitudes towards green products.

The Second Main Hypothesis

H0: There is no statistically significant relationship between the emotional component and consumers' attitudes toward green products in the Tissemsilt province.

H1: There is a statistically significant relationship between the emotional component and consumers' attitudes toward green products in the Tissemsilt province.

To test this hypothesis, we use the One-Sample T Test for the second variable, which contains 9 statements. The test results are shown in the following table:

Table (): Results of One-Sample T Test Measuring the Emotional Component of Attitudes Toward Green Products

No.	Sig. Value	f	T Value	Evaluation	Std. Deviation	Mean	Measuring the Emotional Component of Attitudes Toward Green Products
01	0.000	4	33.63 3	Agree	0.951	4.323	I feel that my participation in environmental issues is very important.
02	0.000	4	44.36 9	Agree	0.755	3.892	I always want to show the benefits of purchasing green products (which are not harmful to health or the environment) to my friends and family.
03	0.000	4	37.55 4	Agree	0.846	3.969	I always want to search for stores and markets where such green products are available.
04	0.000	4	40.71 9	Agree	0.777	4.154	I take enough time to inspect products in the market to choose natural (green) products.
05	0.000	4	43.13 3	Agree	0.765	3.938	I prefer to deal with products from companies that are environmentally friendly and care about consumer health.
06	0.000	4	38.62 2	Agree	0.829	3.923	I deal with brands that carry an environmental protection logo.
07		4	39.31 2	Agree	0.808	4.092	I buy products from companies that highlight environmental awareness in their advertising campaigns.
08		4	41.46 8	Agree	0.867	3.969	I complain about any company that disposes of its industrial waste in water, contributing to water and air pollution, which leads me to avoid dealing with them.
09		4	34.15 4	Agree	0.868	3.938	When shopping, I check brand labels and ensure that I deal with companies that have obtained ISO 14001 certification (Environmental Management System).
	0.000	4	59.97	Agree	0.53	4.02	Total

Source: Prepared by the researcher based on SPSS outputs.

From the above test results, we observe that the arithmetic mean is 4.02, which falls within the agreement range, with a standard deviation of 0.53. The calculated T value is greater than its table value, and the significance level is 0.000, which is less than the study's adopted significance level of 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that there is a statistically significant relationship between the emotional component and consumers' attitudes toward green products.

The Third Main Hypothesis

H0: There is no statistically significant relationship between the behavioral component and consumers' attitudes toward green products in the Tissemsilt province.

H1: There is a statistically significant relationship between the behavioral component and consumers' attitudes toward green products in the Tissemsilt province.

To test this hypothesis, we use the One-Sample T Test for the third variable, which contains 6 statements. The test results are shown in the following table:

Table (): Results of One-Sample T Test Measuring the Behavioral Component of Attitudes Toward Green Products

o.	Sig. Value	f	T Value	Evaluation	Std. Deviation	Mean	Measuring the Behavioral Component of Attitudes Toward Green Products
1	0.000	4	50.667	Agree	0.659	4.138	I make sure to purchase healthy products free from preservatives or chemicals.
2	0.000	4	46.527	Agree	0.696	4.015	I buy products from companies that ensure their packaging materials are recyclable or biodegradable.
3	0.000	4	57.500	Agree	0.600	4.277	I consider non-toxic packaging when making my purchases.
4	0.000	4	33.033	Agree	0.984	4.031	I am willing to pay an additional amount for a product that is safe for health and environmentally friendly.
5	0.000	4	55.903	Agree	0.601	4.169	I make sure to purchase energy-saving electrical and electronic products.
6	0.000	4	42.840	Agree	0.773	4.108	I make sure to select products that are biodegradable and leave no trace in nature.

o.	Sig. Value	f	T Value	Evaluation	Std. Deviation	Mean	Measuring the Behavioral Component of Attitudes Toward Green Products
	0.000	4	22.02	Agree	0.53	4.12	Total

Source: Prepared by the researcher based on SPSS outputs.

From the above test results, we observe that the arithmetic mean is 4.12, which falls within the agreement range, with a standard deviation of 0.53. The calculated T value is greater than its table value, and the significance level is 0.000, which is less than the study's adopted significance level of 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that there is a statistically significant relationship between the behavioral component and consumers' attitudes toward green products.

Conclusion

In conclusion, this research paper finds that green manufacturing and the shift toward sustainable consumption represent a vital step in preserving the environment and ensuring the health of individuals amidst increasing environmental challenges. By analyzing consumer attitudes in the Tissemsilt province toward green products, it was evident that consumers are sufficiently aware of the importance of choosing green products that do not harm their health and contribute to environmental protection. Although these products may be more expensive economically, a significant segment of consumers is willing to bear this additional cost for the sake of protecting the environment and their health. After testing the hypotheses, we reached the following results:

- There is a statistically significant relationship between the cognitive component and consumers' attitudes toward green products in the Tissemsilt province, with the highest mean score for the statement: *"I always strive to promote environmental awareness in the community where I live."*
- There is a statistically significant relationship between the emotional component and consumers' attitudes toward green products in the Tissemsilt province, with the highest mean score for the statement: *"I feel that participating in environmental causes is very important to me."*
- There is a statistically significant relationship between the behavioral component and consumers' attitudes toward green products in the Tissemsilt province, with the highest mean score for the statement: *"I consider non-toxic packaging when making my purchases."*

Recommendations

Given the study's findings that consumers in the Tissemsilt province are fully aware of the availability of eco-friendly green products in the Algerian market and are willing to purchase them to encourage sustainable consumption—aiming to protect both consumers' health and the natural environment—and considering that, from the behavioral component, they are also willing to pay additional prices to obtain these products, we recommend the following:

- The need to provide eco-friendly green products in major retail stores, which currently lack such products, along with the development of innovative green products and services that meet consumers' needs and desires. Institutions should be encouraged to invest within the province, adhering to sustainable production as a new marketing opportunity.
- Enhancing environmental awareness and encouraging sustainable green consumption by providing financial incentives or awareness campaigns, guiding consumers to engage with institutions that carry environmental promotional logos or even eco-labels, integrating green marketing philosophy into their marketing policies, and encouraging the government to promote green industries through legislation, laws, and financial support.



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