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The Role of Using Green Products in Achieving Sustainable Development - A Case Study of Female Students of the Applied College, Khamis Mushait Branch

[1]Rogaia Mohammed Ahmed Kratat, [2]Amna Babiker Hussein Mohamed, [3]Hala Elrashied Osman Basheer, [4]Afaf Management Ali Ahmad, [5]Randa Mohamed Abd Elhalim Mukhtar, [6]Elsit Abdalla Elfadul Mukhtar

[1]Assistant Profess of Business Administration in King Khalid University- Khamis Mushayt Applied College-https://orcid.org/0009-0002-5339-2303- Email: kratat@kku.edu.sa

[2]Assistant Profess of Business Administration in King Khalid University-ambamohamed@kku.edu.sa

[3]Lecturer professor of Business Administration Sciences in King Khalid University ، hbasher@kku.edu.sa .

[4]Administration in King khalid University _srat Abidah College afahmed@kku.edu.sa

[5]Lecturer in Computer Science in King Khalid University Applied College

randa@kku.edu.sa

[6]Assistant Profess of Business Administration in University- Khamis Mushayt Applied College - aaalfadl@kku.edu.sa.

Abstract: The study addressed the role of using green products in achieving social development, a case study of students at the Applied College, Khamis Mushait branch. The study aimed to introduce the concept of green products and their applications, introduce the importance of green products and clarify their role in consolidating the development of social development. The (859) questionnaires were distributed. Statistical methods were used to analyze the data. The study reached a set of results, the most important of which is the existence of a strong positive relationship between the use of green products and environmental protection in the college. The study recommended the need to organize specific campaigns in the college to increase awareness of the importance of green products and their benefits in achieving environmental sustainability.

Keywords: sustainability, environmental**,** protection

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Introduction:

The term "green products" is commonly used to describe products that aim to protect or improve the environment during production, use, or disposal by conserving resources and reducing the use of toxic substances, pollution, and waste. Green products are considered the first key element of environmental marketing and are among the essential components that contribute to creating a sustainable future. While nothing is perfect, some products come close to having a "zero" environmental impact. Therefore, green products can be seen as a small step toward addressing environmental challenges.

There are specific criteria that, if met by a product, allow it to be described as a green product. These include:

- Being less harmful to the environment compared to other products that serve the same purpose

- Having a production process, disposal method, and life cycle stages that are less damaging to the environment
- Encouraging more environmentally responsible behavior among its users, manufacturers, and distributors
- Serving as an incentive for achieving environmentally conscious standards.

In addition, green products should take into account the element of necessity—meaning they should meet essential human needs and should not contain persistent toxic chemicals or other components that negatively impact environmental and human health.

As for sustainable development, it is a global socioeconomic term defined by the United Nations to map out a plan for environmental, social, and economic progress worldwide. Its primary goal is to improve living conditions for every individual in society, develop production methods and tools, and manage them in ways that do not deplete the Earth's natural resources, so as not to overburden the planet.

In the Kingdom of Saudi Arabia, sustainable development is aligned with the global goals of Vision 2030 and the nation's efforts to achieve them. These efforts include: eradicating poverty, eliminating hunger, ensuring a decent life and good health, providing quality education, achieving gender equality, ensuring clean water and sanitation, providing affordable and clean energy, creating decent work opportunities, promoting economic growth, and advancing industry, innovation, and infrastructure.

Theoretical Framework:

The evolution of the green marketing concept has led marketers to reconsider the notion of the product by taking environmental responsibility into account in production activities. This responsibility is based on reducing waste, limiting pollution, and rationally using raw materials in the production process, which has given rise to green products.

Several definitions of green products have been proposed, and the most important ones are as follows:

A green product is defined as a product that utilizes environmentally friendly materials that can decompose naturally, and it must be monitored throughout its life cycle to ensure it remains within environmental compliance. This includes avoiding harmful preservatives, using minimal energy and raw materials, and employing recyclable packaging.

It is also defined as a sustainable product that causes the least harm to the environment throughout its entire life cycle, while adhering to environmental protection standards and conserving natural resources during the production process.

Additionally, a green product is one that can be managed in terms of repair, refurbishment, reuse, recycling, or remanufacturing.

Characteristics of Green Products:

The characteristics of green products emerge through the institution's relationship with the natural, social, and economic environment. These characteristics are reflected in the following:

1. **Combining Product Features with Environmental Contributions:**

   When offering green products, an organization must consider the original features of the product. There must be a balance between quality and performance characteristics on one hand, and environmental contributions on the other. A green product is distinguished by achieving the same performance as a conventional product while taking environmental considerations into account.

2. **Achieving Environmental Sustainability:**

   A green product plays a key role in achieving environmental sustainability, which represents the evolution of strategies aimed at preserving the environment while also meeting profit objectives.

Most efforts dedicated to environmental protection are centered around green products, as they serve as a driving force toward achieving environmental sustainability.

Concept and Definition of Sustainable Development:

The concept of Sustainable Development is a modern term that is frequently used by politicians and state leaders around the world. However, there is still no universally agreed-upon interpretation or single definition for it. This important term remains under formation and continuous review (Arab Open University, 2005).

Sustainable development is defined as: *"The rational and intentional use of renewable resources in a way that does not lead to their depletion or degradation, nor diminish the benefits they offer to future generations. It also involves the wise use of finite resources that gradually deplete and are at risk of extinction, so that future generations are not deprived of the remaining benefits of these resources."* (King Abdulaziz University, 1427 AH).

Another definition states that sustainable development is the type of development that achieves balance between the environmental, economic, and social systems, contributing to the maximum possible growth of each of these three systems.

Sustainable development should also be viewed as a conscious, complex, long-term process that encompasses all fields and dimensions. Its ultimate goal is the human being—ensuring the fulfillment of both current and future needs, in line with the principles of human development. (Heba Ali, 2024).

Characteristics of Sustainable Development:

The emergence of the concept of sustainable development was an inevitable result of previous failed policies and strategies (from a sustainability perspective) that persisted for decades. Consequently, those concerned with sustainable development focused on correcting the traditional development path by revaluing the various components of the economic (productive) process—that is, restoring value to the diverse elements of a society's wealth: natural, human, social, and manufactured. This was achieved by outlining precise goals for sustainable development, aiming to fulfill its primary purpose: achieving intergenerational equity in the use of the same resources within a clean environment, economic prosperity, and social peace and advancement (Kamal, 2015).

Unlike previous development approaches—which were mainly concerned with increasing the individual's share of the gross national income without giving attention to environmental aspects or the well-being of future generations—sustainable development seeks to achieve new goals. It aims to harmonize economic and social development while preserving the environment.

Based on an analysis of various definitions and what distinguishes sustainable development from traditional development approaches, the key characteristics—as outlined by Al-Rifai (2006)—are:

1. **Complexity and Interconnectedness:**

   Sustainable development differs from general development due to its greater complexity and interconnection, especially between natural and social aspects.

2. **Focus on Poverty Alleviation**

   It is fundamentally based on meeting the needs of the poorest segments of society and aims to reduce global poverty.

3. **Cultural and Spiritual Dimensions:**

   Sustainable development has a qualitative dimension related to the development of spiritual and cultural aspects while preserving the cultural identity of societies.

4. **Integration of Quantitative and Qualitative Aspects:**

It involves a blend of measurable and intangible elements, making its components inseparable and its indicators difficult to assess in isolation.

5. **International Dimension:**

   It requires the active involvement of wealthy nations in the development of poorer countries.

Fields of Sustainable Development

According to Abu Al-Nasr, Mohammed (2017), sustainable development can be categorized into three main fields:

1. **Economic Development**
2. **Social Development**
3. **Environmental Development**

1. Economic Development

Economic development refers to the sustainable and coordinated actions taken by policymakers and communities to enhance the standard of living and economic well-being of a specific region. It encompasses both quantitative and qualitative transformations within the economy.

These efforts may include various areas such as human capital development, basic infrastructure, regional competitiveness, environmental sustainability, inclusiveness, public health, safety, literacy, and other relevant domains.

2. Social Development

Balanced development does not solely focus on economic growth; it also involves social, cultural, and human dimensions. Social development refers to the enhancement of human relationships and the improvement of education, culture, awareness, politics, and health. It also aims to provide individuals with opportunities for freedom and participation.

Social development primarily involves two sectors:

- Government institutions
- Civil society organizations, especially charitable or non-governmental associations

Three main approaches to social development can be identified:

- **First Approach:** Views development as synonymous with social welfare in its narrow sense.
- **Second Approach:** Regards development as a set of social services offered in various fields such as health and education.
- **Third Approach:** Considers social development a comprehensive process of social change that affects the structure and functions of society, aiming to meet the social needs of individuals and groups. This view treats social development as a transformative process that seeks to replace traditional systems with new social structures, relationships, and values that reflect the evolving desires and aspirations of individuals—achievable only through a strong push toward qualitative change and desired progress.

3. Environmental Development

Environmental Development refers to a type of development aimed at preserving the surrounding environment and its natural resources, protecting it from pollution, and working toward achieving balance, diversity, and sustainability. It seeks to meet the needs of current generations while also taking into account the rights and needs of future generations.

Key foundations of environmental development include:

- **Self-reliance** in managing environmental resources,
- **Mutual coexistence** between humans and the environment in a way that benefits both,
- **Harmonization** between social and economic progress and the wise management of environmental resources.

This form of development emphasizes a long-term, integrated approach to ensure environmental protection alongside sustainable growth.

Previous Studies (Connecting with Research Results)

1. **Al-Jasser (2024): "Green Transport and Its Impact on Reducing Emissions in Saudi Arabia"**
   The study discussed the role of electric vehicles and public transportation in reducing pollution and carbon emissions, as well as the importance of developing infrastructure to support this transition.
   Similarity with current research: Both studies share a common goal related to green initiatives, focusing on environmental preservation.
2. **Al-Harbi et al. (2022): "Green Financing as a Tool for Achieving Sustainable Development in the Saudi Banking Sector"**

   This study focused on green financial instruments, such as green bonds and loans for environmental projects. It examined their impact on increasing sustainable projects in renewable energy and recycling, and recommended enhancing awareness of green financing.
   Similarity with current research: Both studies address sustainable development, which is a central element in Saudi Arabia's Vision 2030, and green financing supports initiatives related to climate financing and environmental conservation.
3. **Al-Zahrani et al. (2023): "Environmental Management and Its Impact on Sustainable Development in Industrial Enterprises in Saudi Arabia"**

   The study explored environmental management practices, such as waste reduction and adopting clean production technologies in Saudi industrial plants. It concluded that these practices improve environmental performance and reduce negative environmental impact.
   Similarity with current research: Both studies explore sustainable development, a key focus of Saudi Vision 2030.
4. **Al-Subai'i (2024): "Green Marketing as an Approach to Achieving Economic and Social Sustainability in Saudi Arabia"**

   This study reviewed how Saudi companies adopted green marketing strategies, such as using biodegradable packaging. It confirmed that these practices enhance company image and drive the shift toward environmental sustainability.

   Similarity with current research: Both studies address green products, which are manufactured, used, and disposed of in a way that reduces environmental harm, and both focus on sustainability.
5. **Al-Saeed (2021): "Environmental Education and Its Impact on the Awareness of School Students in Saudi Arabia"**

   The study discussed environmental awareness programs for students, such as workshops on recycling and home gardening. The findings showed that integrating environmental concepts into curricula boosts students' environmental awareness.
   Similarity with current research: Both studies emphasize environmental education, aiming to raise awareness among students to foster future environmental consciousness.
6. **Al-Shahrani (2021): "The Impact of Green Products on Consumer Buying Behavior in Saudi Arabia"**
   This study analyzed consumer behavior toward eco-friendly products, such as organic and

recyclable items. It found that increased environmental awareness boosts demand for these products, supporting sustainability.
Similarity with current research: Both studies focus on green products and consumer behavior, highlighting how green products influence sustainability.

7. **Al-Shahri et al. (2022): "Environmental Sustainability in the Design of Housing Projects in Saudi Arabia"**

   The study examined the use of sustainable construction techniques in housing projects, such as solar energy reliance and recycled building materials. It emphasized the importance of these practices in reducing resource consumption and ensuring urban sustainability.
   Similarity with current research: Both studies focus on sustainability, particularly in relation to design and resource use.

8. **Al-Otaibi (2022): "Green Technologies in Solar Energy Projects and Their Impact on Sustainability in Saudi Arabia"**

   This study explored advanced solar energy technologies, such as recyclable solar panels. The results showed that these technologies reduce long-term costs and improve renewable energy efficiency.
   Similarity with current research: Both studies emphasize sustainable development, a core component of Saudi Vision 2030, and the close relationship between green products and green technologies.

9. **Al-Olayan et al. (2023): "The Role of Green Economy in Achieving Sustainable Development in Saudi Arabia"**

   The study examined the role of the green economy in achieving sustainable development in Saudi Arabia, focusing on Vision 2030 initiatives. It reviewed clean energy projects and environmentally friendly production technologies, concluding that investment in the green economy supports the environmental and economic goals of the Kingdom.

   Similarity with current research: Both studies address sustainable development, a core focus of Saudi Vision 2030. A shared goal is to significantly reduce environmental risks through green economy and green products.

10. **Al-Anzi et al. (2023): "Renewable Energy Projects as a Tool for Achieving Sustainable Development Goals in Saudi Arabia"**

    This study reviewed renewable energy projects, such as solar and wind power plants, and showed that these projects help reduce dependence on fossil fuels and significantly decrease carbon emissions.
    Similarity with current research: Both studies focus on sustainable development, aligning with key efforts in Saudi Vision 2030.

11. **Al-Ghamdi (2020): "Urban Greening as a Tool to Enhance Sustainable Development: A Case Study of Riyadh"**

    The study focused on greening initiatives in Riyadh and their impact on improving air quality and reducing pollution. It concluded that increasing green spaces enhances residents' comfort and mitigates the effects of global warming.
    Similarity with current research: Both studies address sustainable development, a key goal of Saudi Vision 2030. Urban greening and green products aim to protect the environment.

12. **Al-Ghamdi and Al-Qhtani (2023): "The Impact of the Saudi Green Initiative on Environmental Quality and Sustainable Development"**

    The study examined the impact of the Saudi Green Initiative on reducing carbon emissions and promoting greening efforts. It showed that the initiative helped reduce temperatures and improve

air quality in major Saudi cities like Riyadh and Jeddah.
Similarity with current research: Both studies focus on sustainable development efforts outlined in Saudi Vision 2030, with a shared goal of environmental protection.

13. **Al-Qasim (2023): "Solid Waste Management and Its Role in Achieving Sustainable Development in Saudi Arabia"**

    This study examined solid waste recycling programs and their role in transforming waste into reusable resources. It stressed the importance of expanding recycling centers to meet Saudi Vision 2030's environmental objectives.
    Similarity with current research: Both studies focus on sustainable development, a priority in Saudi Vision 2030.

14. **Al-Qurani et al. (2023): "The Role of the Circular Economy in Achieving Environmental Sustainability in Saudi Arabia"**

    This study explored the concept of the circular economy, which focuses on recycling waste and converting it into usable resources. It highlighted Saudi recycling programs for materials like plastic and paper and their impact on reducing environmental footprints.
    Similarity with current research: Both studies emphasize sustainable development within Saudi Vision 2030. The circular economy and green products both aim to preserve the environment.

15. **Al-Maliki (2021): "The 'No Waste' Initiative and Its Impact on Food Sustainability in Saudi Arabia"**
    This study focused on the "No Waste" initiative aimed at reducing food waste. The findings showed that the initiative successfully improved food resource management and raised awareness about food preservation among citizens and residents.

    Similarity with current research: Both studies share a focus on sustainability efforts.

Study Methodology and Procedures:

This study primarily relies on the **descriptive-analytical approach**, which is based on the use of descriptive and analytical statistical methods. The descriptive method is defined as "a set of research procedures that integrate to describe the phenomenon or subject based on collecting facts and data, classifying them, processing them, and analyzing them thoroughly and accurately to extract their implications and reach conclusions," (Motawe' and Al-Khalifa, 2014, p. 111). In the same context, the descriptive-analytical approach aims to "describe the quantitative or qualitative aspects of a social, human, or administrative phenomenon, or a group of interrelated phenomena, through the use of different data collection tools such as interviews, observations, etc., which make the phenomenon or phenomena under study clear enough to easily define the problem realistically and prepare it for hypothesis testing," (Al-Ash'ari, 2007, p. 118). The researcher assumes that using this approach in the study will help achieve the objectives of the study, and its effectiveness in achieving good results has been proven.

Study Population: To determine the impact of using green products in achieving sustainable development, the case study was conducted on the female students of the Applied College, Khamis Mushait branch, with a total of 2996 students.

The researcher relied on the **UMA Sekaran** equation to determine the sample size, which is as follows:

$$\text{Sample size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Study Sample: A sample was drawn from 2996 female students from the Applied College, Khamis Mushait branch.

Characteristics of the Study Participants: A number of main variables were identified to describe the study participants, which include: (age - academic degree), which have meaningful indicators on the study results. These are detailed as follows:

1. **Age:** Table (1) shows the distribution of the study participants based on the age variable.

Age	**Frequency**	**Percentage (%)**
17 to 20 years	577	67.2
21 to 25 years	257	29.9
More than 25 years	25	2.9
Total	**859**	**100.0**

Table (1) shows the distribution of study participants by age. The sample was divided into three age groups. The data indicates that the most represented group is the 17 to 20 years age range, which makes up 67.2% of the total sample with 577 participants. The second largest group is the 20 to 25 years category, comprising 29.9% with 257 participants. The smallest group is those over 25 years of age, representing only 2.9% of the sample, with 25 participants. This distribution reflects that the majority of the study's participants are from the younger age group, which could influence the results related to the characteristics of this age group.

Table (2) shows the distribution of the study participants according to the specialization variable.

Specialization	**Frequency**	**Percentage (%)**
Business Administration	227	26.4
Tourism and Leisure Project Management	17	2.0
Cybersecurity	3	0.3
Digital Marketing	403	46.9
Accounting	5	0.6
Legal Assistant	55	6.4
Web and Mobile	2	0.2
Business Law	138	16.1
Information Systems	9	1.0
Total	**859**	**100.0**

Table (2) shows the distribution of study participants according to their specialization. The specializations in Electronic Marketing and Business Administration dominate the representation. The Electronic Marketing specialization holds the largest share, with 46.9% of the sample, totaling 403 participants, followed by Business Administration with 26.4%, accounting for 227 participants. The third-largest specialization is Business Law, with 16.1% of the sample, or 138 participants. Other specializations, such as Legal Assistance and Information Systems, account for percentages ranging from 6.4% to 1.0%. The least represented specializations include Tourism and Leisure Project Management, Cybersecurity, and Web and Mobile, where none of them exceeded 2.0%. This distribution reflects a concentration in a few specific specializations, with limited representation of others.

Study Tool:

The questionnaire was used as a tool for data collection due to its suitability for the study's objectives, methodology, and population, as well as for answering its research questions.

1. **Construction of the Study Tool:**

After reviewing relevant literature and previous studies related to the current study's topic, and in light of the study's questions and objectives, the tool (questionnaire) was constructed. The final version of the questionnaire consisted of three sections. Below is an explanation of how it was built, along with the procedures followed to validate its reliability and validity:

1. **Introduction:** It contains an introductory statement about the study's objectives, the type of data and information to be collected from the participants, along with a guarantee of confidentiality of the provided information and a commitment to using it solely for scientific research purposes.
2. **Section 1:** This section contains the primary demographic data of the participants, specifically: (age – specialization).
3. **Section 2:** The questionnaire, which consists of the following parts:
    - **Part 1:** The role of using green products in protecting the environment at the Applied College, Khamis Mushait branch, with 11 items.
    - **Part 2:** The role of using green products in achieving sustainable development, with 11 items.

A five-point Likert scale was used to gather responses from the participants, based on the following levels of agreement: (Strongly agree – Agree – Neutral – Disagree – Strongly disagree). The scale was then quantified by assigning the following values to each response: Strongly agree (5 points), Agree (4 points), Neutral (3 points), Disagree (2 points), Strongly disagree (1 point).

To determine the range of the Likert scale categories, the range was calculated by subtracting the minimum value from the maximum value (5 – 1 = 4). This range was then divided by the highest value on the scale (4 ÷ 5 = 0.80), and this value was added to the lowest value on the scale (1), to determine the upper limit for each category. The category length was thus determined, as shown in the following table:

Table (3): Division of Likert Scale Categories (Response Mean Ranges)

Category	Range of Means	Degree of Agreement
Strongly Agree	4.21 - 5.00	Strongly Agree
Agree	3.41 - 4.20	Agree
Neutral	2.61 - 3.40	Neutral
Disagree	1.81 - 2.60	Disagree
Strongly Disagree	1.00 - 1.80	Strongly Disagree

This table divides the Likert scale into five categories, with specific ranges assigned to each level of agreement. Each range is based on the mean values of responses from participants.

The range length was used to obtain an objective judgment on the average responses of the study participants after statistically processing them.

1. **Validity of the Study Tool:** The validity of the study tool was ensured through:
    1. **Content Validity:** Content validity refers to the extent to which the variable items and dimensions of the study represent the content of the phenomenon being studied. This can be determined using Pearson correlation coefficients at a significance level ($\alpha = 0.05$). The strength of the correlation coefficient is reflected in its value, which ranges from 0 to 1. The sign accompanying the correlation coefficient indicates the direction of the relationship: a positive sign indicates a direct relationship, a negative sign indicates an inverse relationship, while a correlation coefficient of 0 indicates no relationship at all (Abdul-Fattah, 2017). The researcher ensured the content validity of the tool by:
    2. **Internal Consistency Validity of the Tool:** To verify the internal consistency validity of the questionnaire, Pearson's correlation coefficient was calculated to assess the degree of correlation between each item of the questionnaire and the total score for each axis.

Table (4): Pearson Correlation Coefficients for Questionnaire Items with Total Score

Axis	Item Number	Pearson Correlation Coefficient with Total Score
Axis 1: Use of Green Products by Students of the Applied College, Khamis Mushait Branch	I prefer using green products because they contribute to environmental protection	**0.681**
	I prefer using products that naturally decompose in the environment	**0.676**
	I use green products because their packaging protects them from pollution	**0.659**
	When designing a new product, the company should use environmental labels	**0.677**
	I prefer using green products because they are environmentally friendly	**0.635**
	I am keen on using green products for their natural properties	**0.728**
	I prefer green products because they are of higher quality than regular products	**0.753**
	I am attracted to green products for purchase because of their natural ingredients	**0.727**
	I feel comfortable when there is an environmental label on the product	**0.680**
	I can identify the green product and distinguish it from others because of the label indicating it's green	**0.747**
	I accept green products even if their prices are higher than regular products to maintain my health	**0.707**

Axis 2: The Role of Using Green Products in Achieving Sustainable Development	The use of green products contributes to achieving sustainable development	**0.741**
	The green product is distinguished by its role in achieving environmental sustainability	**0.760**
	The green product leads to achieving environmental sustainability	**0.768**
	Green products work on preserving the natural environment and preventing harm	**0.818**
	Green products contribute to enhancing environmental sustainability	**0.808**
	Green products contribute to achieving sustainable development for both current and future generations	**0.815**
	Green products contribute to the preservation of natural resources and their rational use on a permanent and sustainable basis	**0.819**
	The production of green products contributes to protecting the environment	**0.784**
	The use of green products has a positive impact on future generations	**0.738**
	Using green products helps reduce the severity of environmental degradation	**0.777**
	Using green products reduces global warming	**0.698**

It is evident from Table (3-4) that the Pearson correlation coefficients for each statement with its dimension are positive and statistically significant at the 0.01 significance level. This indicates internal consistency validity among the survey items and confirms their suitability for measuring what they were designed to measure.

1. **Reliability of the Study Tool:**

The reliability of the study tool was verified by using Cronbach's Alpha coefficient (Cronbach's Alpha (α)). Table (3-5) shows the Cronbach's Alpha values for each axis of the survey.

Table (5) Cronbach's Alpha Coefficient for Measuring the Reliability of the Study Tool

Survey Dimensions	Number of Items	Cronbach's Alpha Coefficient
First Dimension	10	0.923
Second Dimension	10	0.950
Overall Reliability of the Tool	20	0.962

The table indicates that the Cronbach's Alpha values for both dimensions of the survey are high (0.923 for the first dimension and 0.950 for the second), and the overall reliability of the tool is 0.962. These values suggest that the study tool is highly reliable.

Study Implementation Procedures:

After ensuring the validity and reliability of the questionnaire, and confirming its suitability for application, it was fielded by following these steps:

1. **Distribution of the Questionnaire Electronically**: The questionnaires were distributed electronically, and a total of 2996 questionnaires were collected.

Statistical Data Processing Methods:

To achieve the study's objectives and analyze the collected data, several appropriate statistical methods were applied using the Statistical Package for Social Sciences (SPSS). The following statistical measures were calculated:

1. **Frequencies and Percentages**: These were used to understand the characteristics of the study participants and to determine their responses to the main statements in the study tool.
2. **Weighted Mean**: This measure was used to calculate the average responses of the study participants for each statement in the main dimensions. It also helped in ranking the statements based on the highest weighted mean.
3. **Mean**: This was used to understand how high or low the responses were for the main dimensions. It also helped in ranking the dimensions according to the highest mean.
4. **Standard Deviation**: This was used to measure how much the responses deviated for each statement of the study variables, as well as for each main dimension. A smaller value indicates that the responses are more concentrated around the mean.
5. **Pearson's Correlation Coefficient**: This was used to measure the validity of the study tool.
6. **Cronbach's Alpha (α)**: This was used to measure the reliability of the study tool.

Chapter 4: Results and Analysis

This chapter presents a detailed overview of the results obtained from the current study by answering the study's questions using appropriate statistical treatments and interpreting these results as follows:

1. **Is there a relationship between the use of green products and environmental protection at the Applied College, Khamis Mushait Branch?**

Table (6) shows the mean and standard deviation for the statements regarding the relationship between the use of green products and environmental protection at the Applied College, Khamis Mushait Branch:

Statement	Mean	Standard Deviation	Rank	Interpretation
I feel comfortable when an environmental label is on the product.	4.61	0.587	1	Strongly Agree
I make sure to use green products because of their natural properties.	4.51	0.636	2	Strongly Agree
I prefer that a new product design uses environmental labels.	4.49	0.697	3	Strongly Agree
I prefer using green products because they are environmentally friendly.	4.48	0.650	4	Strongly Agree
Green products attract me to buy them because of their natural components.	4.47	0.686	5	Strongly Agree
I prefer using green products because they contribute to protecting the environment.	4.44	0.695	6	Strongly Agree
I prefer buying green products because they are of higher quality than regular products.	4.44	0.686	7	Strongly Agree

I prefer using green products because they decompose naturally in the environment.	4.43	0.711	8	Strongly Agree
I use green products because their packaging protects them from pollution.	4.42	0.701	9	Strongly Agree
I can recognize green products by differentiating them due to the label indicating they are eco-friendly.	4.35	0.759	10	Strongly Agree
I prefer buying green products, even though their prices are higher than regular products, to protect my health.	4.24	0.860	11	Strongly Agree
Mean of the Dimension	4.44	0.70		

It is clear from the table that there is strong agreement with all the statements, indicating awareness and a positive attitude towards the use of green products. The dimension's average score of 4.44 further confirms this positive trend, with a clear recognition of the importance of environmental labels and their impact on purchase decisions.

Top Three Statements:

1. **I feel comfortable when an environmental label is on the product (Mean = 4.61):** This statement indicates that the presence of an environmental label on products enhances consumer trust and comfort. It reflects the importance of environmental labels as a decisive factor in purchasing decisions.
2. **I make sure to use green products because of their natural properties (Mean = 4.51):** This statement highlights consumers' awareness of the natural characteristics of green products and their preference for these products due to their benefits, signaling a clear favoring of environmentally friendly products.
3. **I prefer that companies use environmental labels when designing new products (Mean = 4.49):** This emphasizes the importance of companies in demonstrating their environmental commitment by using environmental labels, which in turn enhances consumer confidence in the product.

Lowest Two Statements:

1. **I prefer buying green products, even though their prices are higher than regular products, to protect my health (Mean = 4.24):** While this statement still received strong agreement, it had the lowest average score, indicating consumer sensitivity to higher costs despite awareness of the health benefits.
2. **I can recognize a green product by differentiating it due to the label indicating that it is eco-friendly (Mean = 4.35):** This suggests that there may be some challenges in distinguishing green products, highlighting the need for clearer environmental labeling.

Discussion and Interpretation:

Based on these results, it can be concluded that there is a positive relationship between the use of green products and environmental protection. The high agreement with statements related to the natural properties of eco-friendly products and their natural decomposition underscores the importance of promoting green products. This suggests that enhancing the use of green products at the Applied College in Khamis Mushait could play a significant role in environmental protection. To further support this, efforts to reduce costs and increase consumer awareness of green products should be considered.

2- Is there a relationship between the use of green products and environmental protection at the Applied College, Khamis Mushait branch?

Table (7) shows the mean and standard deviation of the statements regarding the relationship between the use of green products and environmental protection at the Applied College, Khamis Mushait branch.

Statement	**Mean**	**Standard Deviation**	**Rank**	**Interpretation**
Using green products contributes to achieving sustainable development	4.48	0.646	1	Strongly Agree
Green products help preserve the natural environment and prevent harm to it	4.47	0.681	2	Strongly Agree
Green products are distinguished by their role in achieving environmental sustainability	4.44	0.686	3	Strongly Agree
Green products contribute to sustainable development for both current and future generations	4.44	0.707	4	Strongly Agree
The production and use of green products contribute to environmental preservation	4.43	0.708	5	Strongly Agree
Using green products has a positive impact on future generations	4.43	0.720	6	Strongly Agree
Green products contribute to enhancing environmental sustainability	4.42	0.703	7	Strongly Agree
Using green products helps reduce environmental degradation	4.41	0.738	8	Strongly Agree
Green products help conserve natural resources and use them sustainably	4.41	0.714	9	Strongly Agree
Using green products leads to achieving environmental sustainability	4.39	0.729	10	Strongly Agree
Using green products reduces global warming	4.31	0.790	11	Strongly Agree
Average of the axis	4.42	0.71		Strongly Agree

It is evident from the results that all statements received high mean scores, indicating strong agreement that the use of green products plays a crucial role in environmental protection and achieving sustainable development. The average score of the axis (4.42) reinforces this trend, with a relatively low standard deviation, reflecting the consistency of the participants' opinions.

Top Three Statements:

1. **Using green products contributes to achieving sustainable development** (Mean = 4.48): This emphasizes the pivotal role of green products in promoting sustainable development, indicating the participants' recognition of the direct relationship between sustainability and eco-friendly products.
2. **Green products help preserve the natural environment and prevent harm to it** (Mean = 4.47): This reflects the participants' awareness of the importance of green products in protecting the environment and minimizing its negative impacts.

3. **The green product is distinguished by its role in achieving environmental sustainability** (Mean = 4.44): This shows the participants' understanding of the effective role green products play in enhancing environmental sustainability.

Bottom Two Statements:

1. **Using green products reduces global warming** (Mean = 4.31): Despite strong agreement, this lower average may reflect a need for further clarification on the direct impact of using green products in reducing global warming.
2. **Using the green product leads to achieving environmental sustainability** (Mean = 4.39): While there is substantial agreement, this slightly lower mean compared to other statements could suggest challenges in perceiving the direct practical impact on sustainability.

Discussion and Interpretation:

The results confirm a positive and strong relationship between the use of green products and environmental protection at the Applied College in Khamis Mushait. The awareness of the importance of these products in achieving environmental sustainability and preserving natural resources reflects a deep understanding of their environmental impact. Therefore, this relationship can be further strengthened through awareness programs and initiatives that encourage the use of green products to improve environmental sustainability at the college and within the local community.

Summary of Results:

The study demonstrated a strong positive relationship between the use of green products and environmental protection at the Applied College in Khamis Mushait. Participants expressed a deep awareness of the importance of eco-friendly products and their role in achieving sustainable development. The results showed that environmental labels enhance consumer trust, and the use of green products contributes to the preservation of natural resources and the reduction of pollution and global warming. The findings also highlighted that the high cost of green products could pose a challenge, despite the recognition of their health and environmental benefits.

Recommendations:

1. **Organizing Awareness Campaigns**: Organize awareness campaigns at the college to increase knowledge about the importance of green products and their benefits in achieving environmental sustainability.
2. **Providing Incentives**: Offer incentives to students and faculty members for using eco-friendly products, such as discounts or rewards for sustainable purchasing.
3. **Encouraging Local Companies**: Encourage local companies to adopt environmental labels and promote transparency about the ingredients of green products.
4. **Supporting Green Product Initiatives**: Support initiatives aimed at reducing the cost of green products to make them more competitive compared to traditional products.
5. **Integrating Sustainability Concepts**: Integrate sustainability concepts and the use of green products into academic curricula to raise environmental awareness among students.

Proposed Future Studies:

1. **Study on the Impact of Cost on Green Product Usage**: An in-depth exploration of how higher prices affect consumer decisions and how this barrier can be overcome.
2. **Analyzing the Effectiveness of Awareness Campaigns**: A study to measure the impact of awareness campaigns in changing consumer behavior towards green products.
3. **Evaluating the Impact of Green Products on Health**: Investigate the relationship between using green products and improving overall health, especially in educational environments.

4. **Comparative Study**: Conduct comparative studies between different branches of the college to identify the factors influencing the use of green products.
5. **Examining the Role of Government and Institutions**: Study the impact of governmental and institutional policies in supporting and promoting the use of green products.

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