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## Effectiveness of E-Content on Developing Green Marketing Awareness Among Higher Secondary Students

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**Abstract:** E-content as “digitally prepared learning materials designed to facilitate teaching and learning through the integration of text, audio, video, animation, and interactive elements Sharma and Sharma (2012).” Environmental issues such as global warming, deforestation, and resource depletion demand responsible consumer behavior and informed decision-making. In this context, integrating Information and Communication Technology (ICT) into classroom instruction provides innovative opportunities to enhance conceptual understanding.

The study adopted an experimental method using a one-group Pre-test and Post-test design. The sample consisted of 42 commerce stream students from Government Girl’s Higher Secondary School, Mavelikara, Alappuzha District, Kerala State. An E-content-based Lesson Transcript on Green Marketing was developed and implemented as the instructional intervention. A standardized test measuring Green Marketing awareness was administered before and after the intervention. The collected data were analyzed using Arithmetic Mean, Standard Deviation, and t-test. The findings revealed a significant improvement in students’ awareness levels, with the mean score increasing from 10.85 in the Pre-test to 18.90 in the Post-test. The calculated t-value (13.82) was significant at the 0.01 level, indicating that the E-content intervention had a statistically significant effect on enhancing Green Marketing Awareness among Higher Secondary Students.

**Index Terms** - E-content, Green Marketing Awareness, ICT in Education.

### I. INTRODUCTION

Education is the foundation for developing awareness and responsible citizenship among students. In the modern world, environmental issues such as pollution, climate change, and resource depletion have become serious global concerns. Therefore, promoting environmental awareness through education has become essential. Green Marketing is an important concept that encourages the production and consumption of eco-friendly products and sustainable business practices. Developing Green Marketing Awareness among Higher Secondary School students is crucial because they are the future consumers and entrepreneurs. Awareness at this stage helps students understand the relationship between business activities and environmental protection. Traditional teaching methods may not always create deep understanding or lasting interest in such contemporary topics. In this digital era, E-content has emerged as an innovative and effective teaching tool. E-content includes videos, animations, presentations, online quizzes, and digital case studies that make learning more interactive. It helps students visualize concepts clearly and connect theory with real-life examples. Through E-content, students can explore practical examples of companies adopting Green Marketing strategies. This method enhances critical thinking, engagement, and retention of knowledge. The use of multimedia elements makes complex ideas simple and interesting for learners. Studying the effectiveness of E-content in developing Green Marketing Awareness among Higher Secondary students is therefore highly significant. It helps determine whether digital learning approaches can improve students’ awareness and contribute to building a sustainable and environmentally responsible society.

## 1.1 NEED AND SIGNIFICANCE OF THE STUDY

The present world is facing serious environmental challenges such as pollution, climate change, and depletion of natural resources. In this situation, education plays a vital role in creating environmental awareness among students. Green Marketing promotes eco-friendly products, sustainable production practices, and responsible consumer behavior. Higher Secondary School students need to develop awareness of green marketing as they are future consumers and entrepreneurs. However, the current education system often focuses more on examination scores than on developing real understanding and awareness. Therefore, there is a strong need to adopt innovative teaching methods to enhance Green Marketing Awareness among students.

E-content has emerged as an effective digital teaching tool in modern classrooms. It includes videos, animations, presentations, and online case studies that make learning more interactive and engaging. E-content helps students understand concepts clearly by connecting theory with real-life examples. Hence, it is necessary to study the effectiveness of E-content on developing Green Marketing Awareness among Higher Secondary students.

The study is significant as it promotes the integration of technology in commerce education. It also helps in developing environmentally responsible attitudes among students. Thus, the study contributes to sustainable development and quality education.

## 1.2 OBJECTIVES OF THE STUDY

1. To prepare and develop an E-content based Lesson Transcript on Green Marketing Awareness among Higher Secondary School Students.
2. To compare the Pre-test and Post -test mean scores of Green Marketing Awareness of the total sample after learning through E-content.
3. To find out the percentage of Higher Secondary Students belonging to different levels of Green Marketing Awareness after through E-content.

## 1.3 HYPOTHESIS OF THE STUDY

There will be no significant difference between the Pre-test and Post-test mean scores on Green Marketing Awareness of the total sample after learning through E-content.

## 1.4 METHODOLOGY IN BRIEF

Methodology involves the procedure adopted for realization of the objectives of the study. It is briefly described below.

The present study adopted an experimental method, design to examine the effectiveness of an E-content on developing Green Marketing awareness among Higher Secondary Students. The researcher has used a one-group Pre-test and Post-test design, where the students' awareness was measured before and after exposure to the E-content.

The experimental method is a systematic research approach in which the researcher manipulates one or more independent variables to observe their effect on a dependent variable, while controlling other influencing factors. According to Kerlinger (1986), the experimental method is "a research procedure in which the researcher deliberately controls and manipulates the independent variable and observes its effects on the dependent variable." Similarly, Best and Kahn (2006) describe it as "a scientific method that involves the controlled testing of hypotheses through the application of treatments and the observation of outcomes."

Population is any group of individuals who have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of a particular type or more restricted part of that group (Best & Kahn, 2004). Sample is the part of the population or a fragment of the whole object which has been taken under study. The main purpose of taking only a sample from the population is to make the research work done easily from this sample the investigator can generalise for the whole. The sample consisted of 42 higher secondary students from the commerce stream of Government Girl's Higher Secondary School, Mavelikara, Alappuzha.

The tool used in the study was a researcher-developed E-content containing multimedia presentations, pictures, videos, interactive quizzes, and real-life case studies on Green Marketing and an objective type Green Marketing Awareness test was prepared to assess students' awareness before and after the intervention. The procedure involved administering a Pre-test to measure baseline awareness followed by implementation of the E-content over a fixed period. After completing the lesson, a Post-test was conducted to evaluate learning outcomes. Data collected were analyzed using descriptive and inferential statistics, primarily Mean, Standard Deviation, Percentage Analysis and t-test, to determine whether the E-content significantly improved students' awareness.

This methodology ensured a systematic approach to evaluate the effectiveness of technology-enhanced learning in promoting comprehension of Green Marketing Awareness among Higher Secondary Students.

## II. RESULTS AND DISCUSSION OF THE STUDY

The present study was undertaken to assess the effectiveness of E-content in enhancing Green Marketing Awareness among Higher Secondary Students. Based on the stated objectives, data were collected through Pre-test and Post-test measures and statistically analyzed. The findings reveal significant improvement in students' awareness levels after exposure to the E-content. The major findings derived from each objective are presented below:

## SECTION – 1

Comparison of the Pre-test and Post -test Mean scores of Green Marketing Awareness of the total sample after learning through E-content.

A Pre-test consisting of 25 multiple-choice questions was conducted to assess students' initial awareness of Green Marketing concepts. The Pre-test scores were tabulated, and the Mean and Standard Deviation were calculated to identify the general awareness level before the intervention. After completing the intervention of E-content, a Post-test identical in format to the Pre-test was administered to the same group of 42 students. The results were compared using Mean, Standard Deviation, and t-test.

**Table 1:** Test of significance of difference between the Pre-test and Post-test mean scores on Green Marketing Awareness of the total sample

Test	Number of students	Mean	Standard Deviation	t-value	Level of Significance
Pre-test	42	10.85	2.75		
				13.82	p <0.01
Post-test	42	18.90	2.30		

The table shows a considerable improvement in students' scores from a mean of 10.85 (Pre-test) to 18.90 (Post-test). The calculated t-value (13.82) exceeds the table value at 0.01 level of significance, indicating a statistically significant difference between the two sets of scores. This demonstrates that the E-content was highly effective in improving students' awareness of Green Marketing.

## SECTION – 2

Comparison of the Percentage of students belonging to different awareness levels in the Post-test of Green Marketing Awareness Test.

After completing the E-content, a Post-test with a maximum score of 25 was conducted to measure the students' awareness of green marketing.

**Table 2:** Descriptive statistics of scores on Green Marketing Awareness

Sl.no	Statistical measures	Post-test values
1	Mean(M)	18.90
2	Standard deviation	2.30

The mean Post-test score (M = 18.90) represents the average level of green marketing awareness among higher secondary students after learning through E-content. The Standard Deviation (SD = 2.30) indicates a moderate spread of scores around the mean, showing consistency in students' performance. To find out the percentage of students belonging to different levels of green marketing awareness, the range of different levels are to be found out.

For that,  $M+SD$  and  $M - SD$  are to be calculated.

$M + SD = 18.90+2.30 = 21.20$  indicates students with a high level of green marketing awareness.

$M - SD = 18.90 - 2.30 = 16.60$  indicates students with a low level of green marketing awareness.

Scores between 16.60 and 21.20 represent an average level of awareness.

Thus, the Post-test results reveal that most students achieved average to high levels of Green Marketing Awareness, confirming the effectiveness of the E-content in enhancing awareness.

To find out the percentage of students the following table is referred.

**Table 3:** Percentage and Range indicating the level of Green Marketing Awareness

Awareness Level	Range	Percentage	Criteria Description
High Awareness	18 – 25	70% and above	Strong understanding of Green Marketing concepts
Moderate Awareness	13 – 17	50% – 69%	Partial or average understanding of Green Marketing concepts
Low Awareness	0 – 12	Below 50%	Limited or poor understanding of Green Marketing concepts

The level of awareness of green marketing among higher secondary students was classified into three categories—high, moderate, and low—based on their scores out of a maximum of 25 have been given. The percentage of score are within the range of the mean.the findings are given below:

**Table 4:** Distribution of Students by Awareness Level in Post-Test

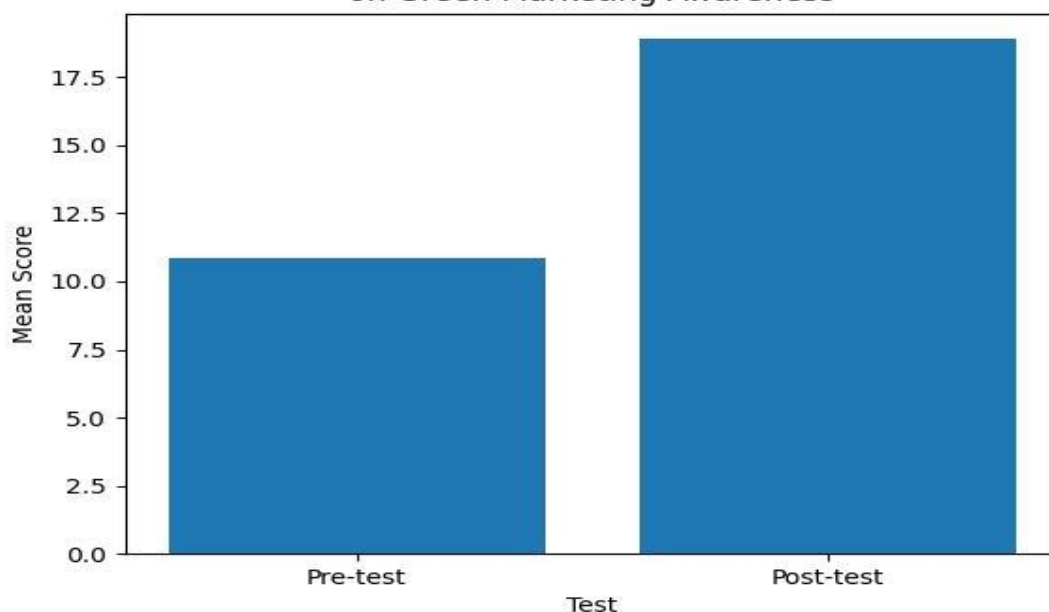
Awareness Level	Range	Number of Students	Percentage (%)
High Awareness	18 – 25	24	57.14
Moderate Awareness	13 – 17	14	33.33
Low Awareness	0 – 12	4	9.53
Total	—	42	100

The table shows that out of 42 commerce students, 24 students (57.14%) achieved high awareness, scoring between 18–25 marks, 14 students (33.33%) were in the moderate awareness range (13–17 marks) and only 4 students (9.53%) remained at a low awareness level (below 12 marks).

These results clearly indicate that a majority of students demonstrated a high level of awareness after participating in the E-content. The small percentage of students in the low category suggests minimal gaps in comprehension, possibly due to individual learning differences.

Hence, the findings prove that the E-content was effective in enhancing students’ awareness of Green Marketing.

**Comparison of Pre-test and Post-test Mean Scores on Green Marketing Awareness**



**Figure 1:** Percentage of students belonging to different awareness levels in the Post-test of Green Marketing Awareness Test.

### III. EDUCATIONAL IMPLICATIONS OF THE STUDY

The findings of the study have several implications for the field of education, particularly in promoting environmental awareness and sustainable business practices through modern teaching methods. The educational implications of the study are:

1. Integration of E-content in classrooms can make complex concepts like green marketing more accessible and engaging for students.
2. Commerce and business studies curricula should incorporate sustainability topics to create eco-conscious future entrepreneurs and consumers.
3. Teachers can use multimedia tools to complement traditional teaching and encourage active participation and visual learning.
4. The use of ICT-based instructional materials promotes digital literacy and self-paced learning among students.
5. The study demonstrates the need for curriculum developers and policymakers to include green marketing and environmental education as essential components in school syllabi.
6. The effective use of E-content in teaching green marketing highlights the importance of adopting learner-centered instructional strategies that promote critical thinking, problem-solving, and real-life application of sustainability concepts.
7. Exposure to environmental and green marketing concepts at the higher secondary level can help students develop positive attitudes and ethical values toward environmental protection and responsible consumption.
8. The findings suggest that teacher training programs should emphasize the development of ICT competencies and instructional design skills to enable teachers to create and use effective E-content in classrooms.
9. Schools should be encouraged to provide adequate digital infrastructure and technological support to facilitate the successful implementation of E-content-based learning and environmental education.
10. The study indicates that continuous assessment methods, such as online quizzes and Interactive activities, can be effectively used alongside e-content to monitor students' progress and reinforce green marketing awareness.

### IV. CONCLUSION

The study concludes that the E-content on Green Marketing was highly effective in improving the awareness of higher secondary commerce students. The analysis revealed a significant increase in students' Post-test scores compared to Pre-test results, proving the success of digital learning interventions in promoting sustainable business education.

Hence, the research emphasizes the importance of integrating ICT and green education to nurture environmentally responsible citizens and professionals who can contribute to a sustainable future.

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