



STUDY OF IMPLEMENTING 4R (REDUCE/REPLACE/RECYCLE/REUSE) CONCEPT IN THE LIFESTYLE OF STUDENTS FOR SUSTAINABLE PRACTICES THAT FOSTER ENVIRONMENTAL AWARENESS AND CONSERVATION

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ABSTRACT

The study appearances at how adopting new customs into daily life affects conserving the environment. Reducing our environmental effect and creating a more sustainable lifestyle require us to adopt sustainable practices. By protecting the environment, development can go place without endangering ecosystems or future generations permanently. Therefore, the primary objective of the research is to examine the use of the 4R concept—reduce, replace, reuse, and recycle—for environmental protection in the lives of middle-stage students. There were 259 male and 217 female candidates in the 476 samples that were collected. According to the study, among the four strategies, reuses had the most significant outcomes (2.89), followed by reduce (2.22), recycle (2.1), and replace (1.15). Only replacing activities reveals the gender differences' considerable high disparities. The results imply that regular student activities have a substantial impact on environmental awareness and conservation as well as sustainable practices.

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Keywords: Sustainable practices, reduce, recycle, reuse, replace, environment conservation, middle stage student, education.

INTRODUCTION

As the world faces unprecedented environmental challenges, there is a growing need to cultivate ecological consciousness and sustainable practices. Holistic education encourages an understanding of the interconnectedness of human beings with their environment, fostering a sense of responsibility and encouraging eco-friendly attitudes and behaviors (Chawla L., 2020). By incorporating environmental education into curricula, we can empower future generations to address pressing global issues.

In the ever-evolving landscape of environmental consciousness, it is imperative for students to play a pivotal role in fostering sustainable practices (Charles

et al., 2018). One of the most effective ways to contribute to environmental awareness and conservation is by adopting the principles of "Reduce, Replace, Reuse, and Recycle" – collectively known as the 4 Rs. This concept encourages individuals, particularly students, to make mindful choices that minimize their ecological footprint, leading to a more sustainable and eco-friendly lifestyle (Otto S., Pensini P., 2017). The first step towards sustainable living involves minimizing the consumption of resources. Students can actively participate in reducing waste by being mindful of their purchases, opting for products with minimal packaging, and avoiding single-use items (Ardoin NM, & Bowers AW., 2020). Adopting a

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minimalist approach in their lifestyle not only lessens the strain on the environment but also promotes a more conscious and intentional way of living. Embracing sustainable alternatives is a crucial aspect of the 4Rs. Students can contribute to environmental conservation by replacing conventional products with eco-friendly alternatives. This could include using reusable water bottles instead of single-use plastics, choosing energy-efficient appliances, or selecting products made from sustainable materials (Michelsen & Fischer, 2017, Gupta S, 2011; Nayak D., 2012). Making these small switches collectively creates a significant impact on the overall sustainability of our lifestyles. The concept of reusing emphasizes the importance of extending the lifespan of products. Students can actively engage in reusing items to reduce waste and conserve resources (Gupta S., 2011). This might involve repurposing old materials for art projects, utilizing cloth bags instead of disposable ones, or sharing and borrowing items with peers. Encouraging a culture of reuse not only reduces the demand for new resources but also promotes creativity and resourcefulness. Recycling is a cornerstone of sustainable living, as it allows for the conversion of waste materials into new products. Students can contribute by participating in recycling programs on their campuses, segregating waste into recyclables and non-recyclables, and supporting initiatives that promote responsible disposal. Recycling not only conserves resources but also reduces the environmental impact of waste, diverting materials from landfills (Ishak MH et al., 2016; Boca, G. D., & Saraçlı, S., 2019; Altassan, A. 2023).

Natural world is currently under stress, and students are the best source who can contribute more for betterment. This paper investigates the 4Rs – Reduce, Replace, Reuse, and Recycle – form a comprehensive framework for students to integrate sustainable practices into their lifestyles. By embracing these principles, students not only contribute to environmental conservation but also foster a mindset of responsibility and awareness that will undoubtedly

shape a more sustainable future. It is through the collective efforts of the student community that a significant and lasting impact on environmental well-being can be achieved.

Objective:

- To study level of awareness about reduce concept of middle stage students as per the gender.
- To investigate middle stage students awareness of the recycle idea according to gender.
- Assessing middle stage learners' awareness of the reuse notion based on their gender classification.
- To determine the gender-specific understanding of middle school pupils' replace concepts.

Hypotheses:

- There is no significant difference between male and female in level of awareness about reduce concept of middle stage students.
- There is no significant difference between male and female in level of awareness about recycle concept of middle stage students.
- There is no significant difference between male and female in level of awareness about reuse concept of middle stage students.
- There is no significant difference between male and female in level of awareness about replace concept of middle stage students.

Methodology

Sample selection was done by probability sampling technique and from that simple random sampling used for the selection of students. A total 10 school of Gandhinagr, India region were selected for the study. A total 476 out of 217 female and 259 male, of 6th, 7th, and 8th standards students participated. The data were collected through survey method using rating scale of sustainable practices in their routine lifestyle. This occurred under the supervision of the same researcher who give standardize oral instruction and explanations.

Table 3.1: Data analysis for reduce activity.

Group Statistics						
Category	Number	Mean	SD	SED	t-test value	Significance
Boys	259	31.06	8.20	0.78	2.22	0.02
Girls	217	29.31	8.85			

Interpretation

In Table 3.1, the mean score for the male category is 31.06 with standard deviation 8.20 and, the same score for the female category is 29.31 with standard deviation value is 8.85. For the both category standard error deviation is 0.78 obtained. The mean data conclude that the male mean score higher than female score at level of awareness about reduce concept

which indicate the male students are more aware about reduce concept than female students of middle stage students. However, in the t-test's p-value, which is higher than the 5% significance level and indicates that there is no significant difference between male and female in the mean score for fundamental abilities indicates that we reject the null hypothesis.

Table 3.2: Data analysis for recycle activity.

Group Statistics						
Category	Number	Mean	SD	SED	t-test value	Significance
Boys	259	23.25	7.06	0.584	-2.10	0.03
Girls	217	24.48	5.65			

As observed from the Table 3.2, the mean score for the male is 23.25, whereas, the same score for the female is 24.48. When it came to calculate standard deviation, the researcher found the same for the male and female respectively is 7.06 and 5.65. Standard Error of Deviation was found to be 0.584. The value of t came to -2.10, significant at 0.05 levels. After counting with the

excel statistical t-test unpaired tool the result shows that there is a significant difference between male and female. Thus, the hypothesis stands rejected. The female mean score higher than male score at level of awareness about recycle concept. So, the female students are more aware about recycle concept than male students of middle stage students.

Table 3.3: Data analysis for reuse activity.

Group Statistics						
Category	Number	Mean	SD	SED	t-test value	Significance
Boys	259	34.40	7.13	0.67	-2.89	0.003
Girls	217	36.33	7.33			

Data for reuse activity in young boys and girls shows mean value is 34.40 and 36.33 with standard deviation 7.13 and 7.33 in Table 3.3. For the data standard error deviation value is 0.67. With the p-value of the t-test being -2.89, we reject the null hypothesis since there is no significance difference between male and female in

level of awareness about reuse concept of middle stage students. But the mean value of female category is higher than male score at level of awareness about reuse concept. So we conclude that the female students are more aware about reuse concept than male students of middle stage students.

Table 3.4: Data analysis for replace activity.

Group Statistics						
Category	Number	Mean	SD	SED	t-test value	Significance
Boys	259	36.26	7.89	0.88	1.15	0.24
Girls	217	35.23	10.88			

The Table 3.4 indicates that the typical score for males is 36.26, while the score for females is 35.24. The researcher discovered that the standard deviations for the male and female subjects were 7.8946 and 10.88, respectively. The calculated standard error of deviation was 0.88. T came to 1.15 in value. The conclusion that there is no discernible difference between males and females is reached after counting the same using the proper procedure and calculations. As a result, the hypothesis is accepted.

Findings and Conclusion

- ❖ The present study focuses on the various sustainable practices application in the student's routine lifestyle in middle stage students from 6th, 7th and 8th standards. The findings indicate that there are substantial differences in mean value of boys and girls in all four practices. But for reducing and replace activity male mean score is higher than girls indicate that boys are more contribute for these two sustainable practices.
- ❖ For another two environmental practices recycle and reuse category, girl students mean value is higher than the boys and it reveals that female candidates are more involved in recycle and reuse practices in their routine lifestyle.

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