

Measuring Recycling Practice to Promote Sustainable Lifestyle in the Context of Environmental Education

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Keywords - Recycling Practice, Residential Status, Gender, Stream, Sustainable Lifestyle and Environmental Education etc.

Abstract

Sustainability is the ability to meet society's present need without compromising the ability of future generations to meet their own needs. One of the important strategies of sustainability is the practice of recycling. The present study is a small scale empirical research to recycling practices to promote sustainable lifestyle in the context of environmental education of the college students. This Cross-sectional empirical study was based on survey type research design (2 X 2 X 3 factorial). This study will make use of random sampling (N=4908) was drawn from undergraduate colleges. A 15-item close-ended questionnaire was developed by the researcher for the purpose of collecting the main data for the study. This study reported to recycling practice to promote sustainable lifestyle of the college students more often as depicted. The result also indicated that, gender and stream of the students had a significant effect on level of recycling practice to promote sustainable lifestyle in the context of environmental education of the college students.

Introduction

Without going in to debate it is to be admitted that environmental education in college must introduce such activities or practices which will minimize waste and thereby ensure sustainability. Global challenges occur when environment and its population destabilizes their ecological balances. Increasing pollution, global population explosion, climate change, tropical deforestation, loss of biodiversity and so on results in creating imbalances and disturbing our natural ecosystem. As environment continues to deteriorates, India in this context seems to be worst effectors degrading at a very fast space due to poor land management, soil pollution, and rapid industrialization and unscientific method of irrigation and consuming more natural resources than the Earth can replenish. Recognizing the need to minimize these negative environmental effects, the challenge is to achieve sustainable lifestyles, which involve improving behavioural changes. Environmental Education is the key that can help India achieve this goal. Our current lifestyles and consumption patterns have an unsustainable impact on the environment (SPREAD Baseline Report, 2011). Thus fostering environmentally educated individuals is an imperative need for reducing global crisis. However promoting responsible eco-tourism can also act as an active measure favoring sustainability. DEFRA highlighted some key behavior for sustainable lifestyles i.e. cooking and managing sustainable and healthier diet, using energy and water wisely, choosing eco products and services, eco-improving your home, extending the life of things to minimize waste and so on. In addition some creative measures should also be adopted like tree planting, consuming eco-friendly products, green products, use of CNG in vehicles, conserving energy, practicing the recycle and can also act as an active measure favouring sustainability. This paper reflects the existing knowledge on environmental awareness and strategies for promoting sustainable lifestyles, including environmental education, as a holistic approach to identify societal issues and highlights future opportunities.

As lifestyles may be defined as '...patterns of action that differentiate people ... people use lifestyles in everyday life to identify and explain wider complexes of identity and affiliation' (*Chaney*, 1996). On the other hand sustainability in lifestyles is a broader and comprehensive term and include the patterns of action and consumption, used by people to affiliate and differentiate themselves from others, which: meet basic needs, provide a better quality of life, minimize the use of natural resources and emissions of waste and pollutants over the lifecycle, and do not jeopardize the needs of future generations" (*CSD*, 2004). Sustainability according to *Hall* (2000:203) stimulates thinking about durability. For attaining the holistic vision of sustainable lifestyles includes a better understanding of consumption patterns and behavioural changes in every day's choices and practices.

Some strategies for promoting sustainable lifestyles includes efficient energy consumption, increased awareness of sustainable issues, growing demand of ecoproducts, green products, consuming environmentally friendly appliances, forecasting public health programs, raising public awareness regarding health and diet issues, and so on.

Encouraging young people's perception to protect our environment is an important goal of Environmental Education. From the beginning Environmental Education has sought to influence individuals and communities to recognize their civic responsibility (*UNESCO/UNEP, 1978*). To overcome the problem of un-sustainability and to make the habitat, a better place to live Environmental education act as an effective tool to change the lifestyles of the members of the society. The mission of environmental education should be to foster environmental sustainability among the entire cross-section of the population, who should make sound judgment and decisions and have ethical responsibilities about the environment and its related issues.

Recycling, the final step in the traditional hierarchy emphasizes on properly separating and distributing those items that cannot be reduced or reused, to the appropriate facilities so the items can be applied to the creation or production of new products and goods. According to Awang et al., (2001) also recycling is not just a waste management strategy alone, but also an important strategy for reducing the environmental impact of industrial processes. Different approaches have been used to study recycling practices. They are mostly quantitative studies and often focusing on socio-economic factors (Berger, 1997; Tucker et al., 1997). The development of recycle practices for sustainable lifestyle is strongly related to philosophical factors and essential psychological factors rather than mere accumulation knowledge. This study will seek to high light the perceptions of the students regarding their knowledge of recycle and it will also endeavour to find out the barriers and impediments to the practice of recycle. This has been proved time and again by previous researches. The title of the study is "Measuring recycling practices to promote sustainable lifestyle in the context of environmental education of the college students".

Objectives of the Study

The following are the objectives of the proposed project-

- The degrees of recycling practice to promote sustainable lifestyle in the context of environmental education of the under graduate college students.
- Whether there is any significant effect of residential status, gender and stream on recycling practice to promote sustainable lifestyle in the context of environmental education of the college students.

Operational Definition of Used Important Terms

The following terms are used in this study and brief explanations of the terms are given below-

Recycling: Recycling, the final step in the traditional hierarchy emphasizes on properly separating and distributing those items that cannot be reduced or reused, to the appropriate facilities so the items can be applied to the creation or production of new products and goods. The largest obstacle to increased use of recycling has been the recent recession; government costs, and consumer motivation. Complications are immense to recycling programs because attention is focused elsewhere in the current economic downturn. There are many economic benefits to recycling that can raise motivation including "pay-as-you-throw" programs, discounts on waste disposal bills, as well as money saved on lowered energy consumption and resource conservation (Gerlat, 2009).

Sustainable lifestyle: The concept of sustainable lifestyle is a debatable issue and difficult to define. Westminster Centre for Sustainable Development that defines sustainable lifestyles as: "patterns of action and consumption used by people to affiliate and differentiate themselves from others, which: meet basic needs, provide a better quality of life, minimize the use of natural resources and emissions of waste and pollutants over the lifecycle, and do not jeopardize the needs of future generations" (CSD, 2004). Sustainable lifestyles is a community learning and sharing together to reshape our values, behaviours and lifestyles to live more sustainably. It is a lifestyle carried out with a view to help others or save environment at your own personal cost, including altering methods of transportation, energy consumption and diet.

Environmental Education: Environmental education means depends on one's perspective. Some see it as a teaching method or philosophy to be applied to all subjects in to the teaching of political science, history, economics, and so forth, others see it as a distinct discipline. As defined by federal statute, it is the education process dealing with

people and the concept environment continuous to be the definitive statement on the use of the word environment in environmental ecology.

Methodology of the Study

A methodology defines how the researcher will go about studying any phenomenon. This study based on a mixed methods approach and was carried out as a case study, which implies the detailed analysis of several cases. By integrating both qualitative and quantitative procedures this study emphasises on triangulation strategy. Thus the two approaches to the research design cross validate the findings the outcome of the research becomes more comprehensive.

Design of the Study

This study is a cross-sectional empirical study based on descriptive survey research design. This is a *2x2x3 factorial research design* in which case the researcher seeks to understand the relationship between dependent and independent variables. Thus it is a case study method done along with quantitative of the data collected by mean of close-ended questionnaires.

Hypothesis of the Study

From experimental hypotheses stated above, the investigator made the following null hypotheses-

H₀1- There is no significant differences in recycle scores between students in respect to -

- a- gender (boy and girl)
- b- residence (semi-urban and urban)
- c- stream (arts, commerce and science)

H₀2- There is no significant interaction effect in recycle scores of students between-

- a -gender and residence
- b- residence and stream
- c- gender and stream
- d- gender, residence and stream

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Variables of the Study

The Variables have been discussed in detail as important terms of the present of the study. In the section a brief discussion of the variables are given below:

Table No. - 1: Summary of the Variables

Name of the	Nature of	Types	Subscales/Categori	Mode of
Variables	the		es	Assessment
	variables			
1. Recycling	Continuous	Independent		Questionnaire
		/		
		Dependent		
2.Residential	Sampling	Independent	Semi-urban and	Information from
status	category		Urban categories	the respondents
3.Gender	Sampling	Independent	Boy and Girl	Information from
	category		categories	the respondents
4. Stream	Sampling	Independent	Arts, Commerce	Information from
	category		and Science	the respondents

Population and Sample of the Study

The population was drawn from the under graduate colleges under various universities, situated in the West Bengal. The sample was drawn from total number of 75 undergraduate colleges. This study will make use of random sampling. Sampling decisions are therefore made for the explicit purpose of obtaining the richest possible source of information to answer the research questions (N=4908).

Category		Science	Arts	Commerce	Total		
Boys	Semi-Urban	148	350	345	843	1969	

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	Urban	242	307	577	1126	
	Semi-Urban	214	1103	135	1452	
Girls	Urban	308	934	245	1487	2939
Total		912	2694	1302	4908	

Instruments of the Study

Maji and Sengupta's Recycle Scale: The one structured close-ended questionnaires for quantitative data collection. By Recycle it is meant the observable and reported behaviour of the individuals, either done or willingness to do in future, regarding the sustainable lifestyle. The factors included were behaviour related to civic responsibility, personal change, individual civic action and cooperative civic action etc. The researchers developed the 5-point Likert type scale (15 items) having a reliability (KR-21) value of 0.83. The item validity was tested by tetra-choric correlation and the values varied from 0.2-0.7. No negative correlation was found. Face and Content validity was ascertained by experts.

Procedure

For quantitative research data were collected by self-constructed as well as adapted standardized Likert-type questionnaires which were presented orally to recycling practice to promote sustainable lifestyle in the context of environmental education of the under graduate college students. Total number of institutions selected was 75. For the purpose of quantitative analysis of data, a few selected statistical methods were used. The questionnaires answers were typed into an Excel program. Data were analyzed by using SPSS v.17 . For measures of central tendencies were used widely. Standard was used for measuring dispersions. For testing the significant differences and effect on different sample groups, tests such as factorial ANOVA were used.

Results and Discussion

Table-3: Descriptive Statistics Concerning Distribution of Recycling Practice toPromote Sustainable Lifestyle in the Context of Environmental Education

Mean	58.61
Median	61.00
Mode	67
Std. Deviation	11.686
Variance	136.564
Skewness	-0.699
Kurtosis	-0.127
Range	57
Minimum	18
Maximum	75
Sum	287637

The descriptive statistics in Table -3 for Recycling scores of mean, median and mode show an average performance ranging 58.61. However the S.D. (11.686) showed that the distance with the scores was very minimal. The skewness is negative (-0.699) and high indicating more number of students has scored on the higher side of the scale. The negative value of Kurtosis (-0.127) indicated slightly flatness of the distribution.

Factorial ANOVA design was adopted to know whether there was any difference in the mean scores of gender, residential statues and stream. For this purpose, the sample was classified into six categories i.e. students studying in arts stream, commerce stream and science stream, students residence in semi-urban and urban, boys and girls. The mean and S.D. of each group had been presented in Table - 4 and the summary of ANOVA had also been presented in Table - 5.

H₀1- There is no significant differences in recycle scores between students in respect to-

- a- gender (boy and girl)
- b -residence (semi-urban and urban)
- c- stream (arts, commerce and science)

Category		Ν	Mean	S.D.
Gender	Boy	1969	57.03	11.799
	Girl	2939	59.66	11.491
Residence	Semi-urban	2295	58.81	11.761
	Urban	2613	58.42	11.619
	Science	912	59.59	11.807
Stream	Arts	2694	59.24	11.416
	Commerce	1302	58.61	11.686
Total		4908	57.61	11.087

Table No. - 4: Mean and S.D. of the Groups Considered for recycle Scores

Table No-4, shows that recycles scores of the girl students (M=59.66 and S.D. = 11.491), semi-urban students (M=58.81 and S.D. = 11.761), science (M=59.59 and S.D. = 11.807), and arts students (M= 59.24 and S.D. = 11.416) are higher than boy students (M = 57.03 and S.D. = 11.799), urban students (M=58.42 and S.D. = 11.619) and commerce students (M = 58.61 and S.D. = 11.686). On a bar chart (Figure- 1) the above mean scores are shown.



Figure No- 1: Mean of the Groups Considered for Recycle Scores



Figure No- 2: Error Bar of Recycle Scores in Relation to Gender





Figure No- 3: Error Bar of Recycle Scores in Relation to their Residential Status

Figure No- 4: Error Bar of recycle Scores in Relation to their Stream

Table 5:	Summary	of the	Factorial	Analysis	of	Variance	(ANOVA)	for	the	Scores	of
	Recycle										

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Main Influence					
Gender (A)	6237.437	1	6237.43 7	46.606	0.000
Residence (B)	19.726	1	19.726	0.147	0.701
Stream (C)	2670.525	2	1335.26 2	9.977	0.000

First order Interaction Influence					
Gender and Residence (A x B)	239.403	1	239.403	1.789	0.181
Gender and Stream (A x C)	2839.987	2	1419.99 3	10.610	0.000
Residence and Stream (B x C)	152.738	2	76.369	0.571	0.565
Second order Interaction Influence					
Gender, Residence and Stream (A x B x C)	2.030	2	1.015	0.008	0.992
Error	655245.72	489	133.833		
	1	6			
Total	1.753E7	490			
Total		8			
Corrected Total	670118.11	490			
	8	7			

a. R Squared = (Adjusted R Squared =0.020)

Main Influences

The main influences of the category variables namely gender (A), residential status (B) and stream (C) on reuse are reported below:

First Main Influence (A)

From the Table-5, it might be concluded that there was a significant effect (Figure- 2) of gender on recycle scores (the significant value less than 0.01). The F-ratio was found to be highly significant. It indicates that gender differed significantly on their recycle. This might be interpreted as: there was significant main effect of gender on their recycle [F (1/4896) = 46.606, P<0.01].

Second Main Influence (B)

The second main effect of residence was not significant (Figure- 3). This finding could be reported as: there was a non-significant main effect of residence [F (1/4896) = 0.147, P=0.701].

Third Main Influence (C)

The third main effect of stream was also significant (4). This finding could be reported as: there was significant main effect of stream [F (1/4896) = 9.977, P<0.01].

This Result indicates that H_0 1-a and H_0 1c are rejected but H_0 1-b is accepted

Determination of the Significance of Interaction Effects (Gender, Residence and Stream) for Recycle Scores

The main influences of the category variables namely gender (A), residence (B) and stream (C) have already been reported. As the research design is 2X2X3 factorial design, so the interactional effects are shown by first order interactional effects [(A X B), (A X C) and (B X C)] and second order interactional (A X B X C) effect.

H₀2- There is no significant interaction effect in recycle scores of students between-

- a -gender and residence
- b- gender and stream
- c- residence and stream
- d- gender, residence and stream
- *i)* First order Interactional Influences (A X B)

Table- 5 indicated a non-significant interaction effect between gender (A) and residence (B) group. For this, the F-value was found to be 1.789, which was not significant [F (1/4896) = 1.789, P = 0.181]. The interaction graph (Figure- 5) indicated a not-significant interaction effect between the attribute variables.





ii) First order Interactional Influences (A X C)

Table- 5 indicated a significant interaction effect between gender (A) and stream (C). For this, the F-value was found to be 10.610, which was significant at 0.05 level [F (1/4896) = 10.610, P<0.01]. The interaction graph (Figure- 6) indicated a significant interaction effect between the attribute variables.



Figure No- 6: Graphical Representation of Interaction of Gender and Stream on the Scores of Recycle

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iii) First order Interactional Influences (B X C)

Table- 5 indicated a non-significant interaction effect between residence (B) and stream(C) group. For this, the F-value was found to be 0.571, which was not significant [F (1/4896) = 0.571, P=0 .565]. The interaction graph (Figure- 7) indicated a non-significant interaction effect between the attribute variables.



Figure No- 7 Graphical Representation of Interaction of Residence and Stream on the Scores of Recycle

iv) Second order Interactional Influences (A X B X C)

Table- 5 indicated a non-significant interaction effect between gender (A), residence (B) and stream (C). For this, the F-value was found to be 0.008, which was not significant [F (1/4896) = 0.008, P=0 .992].

This Result indicates that $H_0 2$ -a $H_0 2$ -c & $H_0 2$ -d are accepted but $H_0 2$ -b is rejected

Conclusions of the Study

The under graduate students' reported to recycling practice more often as depicted by the frequency distribution of scores. Mean, Median, Mode and the range of the scores have

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further shown that the recycling practice scores were mostly high. With regard to recycling practice to promote sustainable lifestyle, it was found that gender had significant influence on the recycling practice to promote sustainable lifestyle. It was revealed that, girl students had reported to practice more recycling practice to promote sustainable lifestyle than boys. They also reported that women recycle more materials than men but consumption, production and recycling practice, it was found that stream no significantly influenced their recycling practice scores. It was revealed that, science and arts students had more practices than commerce students. No residential difference was observed in the context of recycling practice to promote sustainable lifestyle in the context of environmental education of the college students. However, it is concluded from the findings that the semi-urban students said that they engaged themselves more often in recycling practice. This observation is consistent with the other research findings. However, these studies were based on the sample of typically developing group.

The present study concluded that the significant interaction effect between gender and stream on their recycling practice scores of under graduate students. It has already been concluded that students belonging to science students have scored higher in recycling practice. But at the same time it has to be concluded that the effect of stream on recycling practice is not so straight forward and gender is likely to influence the recycling practice scores. Although the girls showed recycling practice higher than the boys yet this difference among the science boys and girls students is more pronounced than difference among commerce boys and girls students. That is why a significant interaction effect has been observed.

The applied significance of the study lies in the fact that the institutions take special measures regarding sustainability. It implies that recycling practice help to develop Sustainable Lifestyle. So in classroom situation, the teachers should learn the psychological techniques of making students more internally controlled. The idea is to give holistic attitude towards environment by involving students in various types of activities. In the end it should also be mentioned that there is a scope for doing further research based on the theoretical model comprising recycling practice to promote sustainable lifestyle in the context of environmental education in relation to typically developed students (Sengupta, Banerjee and Maji, 2010). It is also suggested that fully

fledged qualitative research in the context of environment education will yield more in depth information and such researches should be undertaken.

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