KNOWLEDGE AND BEHAVIOUR ON RECYCLING AMONG SECONDARY SCHOOL STUDENTS IN COIMBATORE CITY MUNICIPAL CORPORATION

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ABSTRACT

Determination of one's knowledge is essential in order to assess his/her preparedness in adopting the environmentally responsible behaviour. Recycling knowledge of students appears to be crucial as they play an important role in providing solution to future environmental problems. In order to increase recycling rate, they must be informed on the subject. In the present study the researchers made an attempt to study 'Knowledge and Behaviour on Recycling among Secondary School Students in Coimbatore City Municipal Corporation'. Findings reveal that male and female students differ in their recycling knowledge; they differ in their recycling knowledge with respect to type of school. Further it reveals that there is a significant relationship between recycling knowledge and recycling behaviour.

INTRODUCTION

In order to perform the behaviour associated with recycling (i.e., separating recyclables from other waste, taking recycled material to collection points, or placing this material at door-step collection) one must have an adequate knowledge to perform these actions. Without proper knowledge of recycling, recycling is a bad example which affects not only ecological environment but also human health. Hence, determination of one's knowledge is essential in order to assess his/her preparedness in adopting the environmentally responsible behaviour. Knowledge has been shown to enhance recall, improve comprehension, increase speed of judgements, improve cue utilization in decision tasks, enable appropriate inferences, and facilitate the objective processing of attitude relevant information (Visser, Ashton, & Vernon, 2006).

Recycling knowledge of young people (students) appears to be crucial as they play an important role in providing solution to future environmental problems. In order to increase recycling rate, they must be informed on the subject. Enhancing this, knowledge is thought to be one of the best methods of achieving long term or permanent conservation behaviour changes (De Young, 1986; Tasaday, 1991; Jablonowski, 1987).

STATEMENT OF THE PROBLEM

Disposal of waste is one of the major problems not only for developing countries like India but for the developed countries as well. Huge amount of waste is generated throughout the world and many municipalities, cities and towns continue to grapple with the problem of managing these wastes effectively and efficiently to save the environment and the continuous existence of mankind.

Impact of environmental pollution has become obvious in India and the vast majority of Indians unaware of it. In 2011, the estimated total population in India amounted to approximately 1.21 billion people. The growth rate in 2011 is 17.64% in comparison with 2001. More specifically, the population of Coimbatore city is 10.6 lakhs as per census 2011, shows higher average growth rates (19.06%) than Tamilnadu (One of the States of India) (15.60%) and, nation's growth rate (17.64). It's fast pace of urbanizing leads to vulnerable conditions and, creates sanitation issues. During rains, the trash deposited on either sides of road and landfills float from the sources into ditches.

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The researchers observed a number of people; particularly students leaving their snack wrappers and empty cool drink cartons wherever they finish them. This type of action demonstrates that they have no awareness about the social problem of littering and its negative impact on our environment. In addition, the researchers have observed a common practice of students eating their lunches outside and leaving their waste outside. These observations made the researchers to attempt a study of the level of recycling knowledge, attitude, and behavioural intention students have and measure how efficiently and effectively recycling process can be undertaken.

Being a teacher the researchers understand the importance of recycling and its environmental and economic impact, she wants to develop knowledge among students.Hence, the researchers have chosen the title forthe present study stated the problem statement of the study as "Knowledge and Behaviour on Recycling among Secondary School Students in Coimbatore City Municipal Corporation".

OPERATIONAL DEFINITION

Before proceeding, it will be useful to have a working definition of some key terms used for the purpose of the study. The following definitions of terms are used.

Recycling:- The term 'recycling' has been defined in various ways. Following are some definitions:

i. "Recycling involves using materials which are at the end of their useful lives as the feed stocks for the manufacture of new products" (Selke, 1990).
ii. "The recovery and conversion of waste materials into new products". (Young, 1991).
iii. The term recycling is defined as "the process through which materials previously used are collected, processed, remanufactured, and reused" (Schultz et al., 1995).

In the present study, recycling has the following three dimensions:

Reduce:- To use less of a resource (Harcourt School Publishers, 2009).

Reuse:- "To use a resource again and again" (Harcourt School Publishers, 2009).

Recycle:- To reuse a resource by breaking it down and making a new product (Harcourt School Publishers, 2009).

KNOWLEDGE

Understanding of or information about a subject which a person gets by experience or study, and which is either in a person's mind or known by people generally.

(Source: http://dictionary.cambridge.org/dictionary/british/knowledge)

The present study focuses on knowledge of recycling.

BEHAVIOUR

The term "behaviour" is mostly intuitively understood and most psychological and sociological research into behaviour has not suggested definitions of the term. However, in the context of the present study, we understand the term as any active responsiveness to recycling, believed to be pro-recycling by the person performing the response.

Secondary School Education:- Education offered to IX and X Standard from the age group of 14 to 15 at schools in Tamilnadu and Pondicherry states, India.

Secondary School Students:- The students those who are studying IX and X standard. The researchers selected only standard IX students for the present research.

RESEARCH HYPOTHESES OF THE STUDY

H0:1 There is no significant difference between male and female secondary school students in their (i) recycling knowledge, (ii) recycling behaviour.

H0:2 There is no significant difference in (i) recycling knowledge, (ii) recycling behaviour of secondary school students with respect to type of school

H0:3 There is no significant relationship between the recycling knowledge and recycling behaviour of secondary school students.

METHODOLOGY

The investigators used normative survey method to study about the recycling knowledge and recycling behaviour of secondary school students.

SAMPLE

A total sample of 1000students was taken up for the present study. Simple random sampling technique is used for the selection of sample. The stratification has been done on the basis of gender, and type of school. Accordingly 1000 questionnaires were distributed among students.

TOOL

The investigators developed the tools to measure the recycling knowledge of secondary school studentswhich contains 26 statements and to measure the recycling behaviour which contains 16 statements. They opted to follow 3-point scale for recycling knowledge tool and opted 5-point rating scale for recycling behaviour.

DATA COLLECTION

For the data collection, the investigators approached the secondary school students in various schools in Coimbatore. The data were collected with the help of the developed tool. The investigators assured that their responses would be kept confidential and used for research purpose only. The gathered responses were scored.

STATISTICAL TECHNIQUES

The data collected were analyzed by using descriptive and inferential analysis. The investigators employed t-test and One-Way Analysis of variance (ANOVA) for the analysis and interpretation of the data.

ANALYSIS OF DATA

Table: 1

Recycling Knowledge and Recycling Behaviour among Secondary School Students

N	Mean	
	Recycling Knowledge	Recycling Behaviour
1000	14.86	47.49

Recycling Knowledge- (Low= ≤ 10; Average= > 10 &< 16; High= ≥ 16)

Recycling Behaviour - (Low= ≤ 32; Average= > 32 &< 48; High= ≥ 48)

Table: 1(a)

Variables	Categories	N	Mean	
			Recycling Knowledge	Recycling Behaviour
Gender	Male	366	14.51	48.48
	Female	634	15.05	46.92
Type of School	Corporation	250	14.72	45.30
	Government	250	15.53	47.61
	Gov.. Aided	250	14.54	46.71
	Private	250	14.63	50.32

From the above table-1(a), it is clear that irrespective of gender and type of school all secondary school studentshavemoderate level (M=14.86) of recycling knowledge, and recycling behaviour (M=47.49). The table-1(b) also shows that female secondary school studentshave more recycling behaviour knowledge (M=15.05) than male students, however, in the case of recycling behaviour, male students (M=48.48) is better than female counterparts.

Hypotheses Testing

H0: 1 There is no significant difference between male and female secondary school students in their (i) recycling knowledge, (ii) recycling behaviour.

Table: 2

Difference in the Mean Score of Male and Female Students with respect to Recycling Knowledge and Recycling Behaviour

Variable	Category	N	Mean	S.D	t-Value	Result
Recycling Knowledge	Male	366	14.51	3.820	2.13	p < 0.05
	Female	634	15.05	3.876		
Recycling Behaviour	Male	366	48.48	12.77	1.96	p > 0.05
	Female	634	46.92	11.98		

*Significance level at 0.05 level

The Table 2 shows that there is a significant difference between male and female secondary school students in their recycling knowledge. The calculated t- value (2.13) is greater than the table value. Hence the H0-1(i) is rejected. However, they do not differ in their mean scores of recycling behaviour. The calculated t-value (1.94) is less than the table value. Hence the H0-1(ii) is accepted.

H0:2 There is no significant difference in (i) recycling knowledge, (ii) recycling behaviourof secondary school students with respect to type of school

Table: 3 (a)

Difference in the Mean score of Recycling Knowledge and Recycling Behaviour of Secondary School Students with respect to Type of School

Variable	N	Sum of Square		Mean Square Vale		df	T-Value	Result
		Between	Within	Between	Within			
Recycling Knowledge	1000	156.74	[illegible]	52.25	[illegible]	3 996	3.53	p<0.05
Recycling Behaviour	1000	3357.5[illegible]	146810.28	1119.19	147.40	3 996	7.59	p<0.05

*Significance level at 0.05 level

The Table 3(a) shows that there is a significant difference among the secondary school students in their mean scores of recycling knowledge and recycling behaviour. The calculated value of 'F' for recycling knowledge (3.53) and recycling behaviour (7.59) is greater than the table value. Hence the H0 2(i) & (ii) is rejected.

Table: 3 (b)

Duncan Recycling Knowledge

Type of School	N	Subset for alpha = 0.05	
		1	2
Corporation	250	14.72	
Government	250		15.53
Govt. Aided	250	14.54	
Private	250	14.63	

The above table 3(b) reveals that students from government school differ in their recycling knowledge with students from other types of schools. Students from corporation schools, government aided schools and private schools do not differ in their recycling knowledge.

Table: 3 (c)

Duncan Recycling Behaviour

Type of School	N	Subset for alpha = 0.05		
		1	2	3
Corporation	250	15.30		
Government	250		47.61	
Govt. Aided	250	46.71	46.71	
Private	250			50.32

The above table 3(c) reveals that students from corporation and, government aided schools do not differ in their recycling behaviour. Further, it shows that students from government schools and, government aided schools do not differ in their recycling behaviour. It also discloses that students from private school differ in their recycling behaviour with students from other types of schools.

H0:3 There is no significant relationship between the recycling knowledge and recycling behaviour of secondary school students.

Table: 4

Relationship between Recycling Knowledge and Recycling Behaviour among Secondary School Students

Variables	N	r-value	Result
Recycling Knowledge X Recycling Behaviour	1000	0.22	p < 0.01

*Significance at 0.01level

The relationship between recycling knowledge and recycling behaviour among secondary school students is analyzed using correlation analysis. Table-4 reveals the obtained r-value (0.22) indicated that there is a positive relationship between recycling knowledge and

recycling behaviour. The calculated 'r' value is greater than the table value. Hence the H0-3 is rejected at 0.01 level.

FINDINGS

1. Secondary school students in Coimbatore City Municipal Corporation have moderate level of recycling knowledge and recycling behaviour.
2. Female secondary school students have more recycling knowledge than the male, whereas they do not differ in their recycling behaviour.
3. Government school students have more recycling knowledge than students belonging to other types of schools.
4. Students belonging to corporation schools, government aided schools and private schools do not differ in their recycling knowledge.
5. Students belonging to corporation schools, government schools and private schools differ in their recycling knowledge. However, students belonging to government schools do not differ with government aided schools.
6. Recycling knowledge of secondary school students has significant positive correlation with their recycling behaviour.

DISCUSSION

In the findings of the present study, there is a significance gender difference in the recycling knowledge of secondary school students. This is supported by Miller and Buys (2008) whose finding reveals that knowledge about water recycling, men reported more knowledgeable than women. This difference may possibly be due to the different socialization patterns of boys and girls (Schahn and Holzer, 1990). The study further revealed that there is no gender differences in recycling behaviour. The study conducted by Schultz. P.W., etal (1995) supported the findings of the present study. Their results indicated that gender is not a predictor of recycling behaviour.

The researchers tested if there is any significant difference in recycling knowledge of respondents with respect to type of school they belong (Corporation, Government, Government aided and Private Schools). Significant difference in recycling knowledge has been found according to school type which is also endorsed byFatihAydin (2014) whose study revealed that significant difference in knowledge of global warming has been found according to school type. Findings of the present study do also strengthen finding ofInez Harker-Schuch, Christian Bugge-Henriksen (2013) whose study shows that the type of school has an effect on climate change knowledge development. Millicent A. Ochieng& James Koske, (2013) were also supporting the findings of the present study.The research results of present study exposes that significant difference exists between different types of schools. The students from private schools and government schools have more recycling behaviour than the students from corporation and government aided schools. Similar results found in the research findings of Kolbe, K.D. (2015) which revealed that grammar school students outperformed their counterparts from comprehensive school.

The study reveals that the secondary school students in Coimbatore City Municipal Corporation have moderate knowledge of recycling and suggests that the moderate recycling rates may be due to individual's inability to correctly identify, sort and dispose of recyclable materials. This was not unexpected.

CONCLUSION

The study attempted to take a step forward toward a comprehensive understanding of the secondary school students' recycling knowledge and behaviour in Coimbatore City Municipal Corporation. The results reported in this study provide curriculum developers and science educators in general, environmental educators in specific, with valuable information concerning recycling behaviourof secondary school students as the future generations, and contribute to the improvement of the quality of environmental education.

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