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E-WASTE AWARENESS AMONG HIGHER SECONDARY STUDENTS

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Abstract

E-waste as a broad and growing range of electronic devices ranging from large house hold devices such as refrigerators, air-conditions, cell phones, personal stereos, and consumer electronics to computers which have been discarded by their uses. The study aims to investigate electronic waste awareness of higher secondary students. Objective of the study was to find out the level of e-waste awareness among higher secondary students and also to find out whether there exists any significant difference in e-waste awareness among higher secondary students with respect to gender, locale, religion, community and type of school. Result reveals that 18.5% of higher secondary students have low level of e-waste awareness and 64% of students have moderate level and 17.5% of them have high level of e-waste awareness. Most of the higher secondary students possess moderate level of e-waste awareness. There is no significant difference between gender, locality and type of school. But there is significant difference between religion and community higher secondary students in their e-waste awareness.

Key words: *E-waste awareness, Higher secondary students*

Introduction

Electronic waste or e-waste is one of the rapidly growing problems of the world. Electronic waste, popularly known as 'E-waste' can be defined as electronic equipments products connects with power plug, batteries which have become obsolete due to advancement in technology, changes in fashion, style and status, nearing the end of their useful life. The old electronic appliances such as computers, laptops, TVs, DVD players, mobile phones and mp3 players etc which have disposed by their original users come in the category of E-waste. The electronic goods are classified under three major heads: White goods: Household appliance; Brown goods: TVs, camcorders, cameras; Grey goods: Computers, printers, fax machines, scanners etc. All above electronic appliances when become useless, come in the category of E-waste. Waste from the white and brown goods is less toxic as compared with grey goods. This new kind of waste is posing a serious challenge in disposal and recycling in both developed and developing countries. E-wastes are considered dangerous, as certain components of some electronic products contain materials that are hazardous, depending on their condition and density. The hazardous content of these materials pose a threat to human health and environment.

Need and Significance of the Study

The peoples are not aware of the potential negative impact of the rapidly increasing use of computers, monitors and televisions. When these products are placed in landfills or incinerated, they posses health risk and hazardous materials they contain. The study aims to investigate electronic waste awareness of higher secondary students. So the reason for selecting higher secondary students as the target group to give the awareness about the environment and electronic waste management problems.

Statement of the Problem

The proposed study is entitled as: "E-Waste Awareness among Higher Secondary Students"

Objectives of the Study

1. To find out the level of e-waste awareness among higher secondary students.
2. To find out whether there exists any significant difference in e-waste awareness among higher secondary students with respect to gender, locale, religion, community and type of school.

Hypotheses

There is no significant difference in e-waste awareness among higher secondary students with respect to (a) gender (b) locale (c) religion (d) community and (e) type of school.

Methodology of the Study

In the proposed study the normative survey method was used. The study was conducted in 400 higher secondary students of Kuzhithurai educational district by simple random sampling technique. Tool used for this study was E-waste awareness test prepared by Sonia, K and Sahitha Mol, S (2014-15). Statistical techniques used for the study was arithmetic mean, standard deviation, t-test, ANOVA and Scheffe's Post Hoc test.

Review of Literature

Sakshi & Gupta (2014) conducted a study shows that there is no significant difference in the awareness towards electronic waste between high and low socio-economic statuses of college students. **Sikdar & Vaniya (2014)** find out that the education system alone is powerful medium to ensure Environmental protection. It should reach most parts of the population at a young age, and more e- waste friendly behaviour should be practiced on daily basis. **Ashok & Yakkaldevi (2014)** study reveals that there is no significance difference in the awareness towards waste between male and female students and also male students more aware about e- waste than female students. **Ercan & Bilen (2014)** conducted a research on Electronic waste awareness and environmental attitudes of

primary school students. The result of the electronic waste survey implemented in the frame work of the study show that primary school second level students do not have detailed information about Electronic waste.

Results and Discussion

Objective 1

To find out the level of e-waste awareness among higher secondary students.

Table 1: Level of E-waste Awareness among Higher Secondary Students

Variable	Low		Moderate		High	
	N	%	N	%	N	%
E-waste awareness	74	18.5	256	64.0	70	17.5

It is inferred from the Table that 18.5% of higher secondary students have low level of e-waste awareness and 64% of students have moderate level and 17.5% of them have high level of e-waste awareness. It is clear that most of the higher secondary students possess moderate level of e-waste awareness.

Null hypothesis 1

There is no significant difference in e-waste awareness among higher secondary students with respect to gender.

Table 2: Results of the test of significance of difference between means of e-waste awareness scores of male and female higher secondary students

Gender	N	Mean	S.D	t	Remarks at 0.05 level
Male	207	19.21	4.38	0.29	NS
Female	193	19.33	3.91		

From the above table it is evident that the mean value of male was 19.21 and female was 19.33 and the corresponding standard deviation for male and female were 4.38 and 3.91 respectively. The calculated value (t=0.29, table value <1.96) is not significant at 0.05 level. Therefore the null hypothesis, "there is no significant difference in e-waste awareness among higher secondary students with respect to gender" is accepted. It can be said that there exist no significant difference in e-waste awareness between male and female higher secondary students.

Null hypothesis 2

There is no significant difference in e-waste awareness among higher secondary students with respect to locale.

Table 3: Results of the test of significance of difference between means of e-waste awareness scores of rural and urban higher secondary students

Locale	N	Mean	S.D	t	Remarks at 0.05 level
Rural	194	19.10	4.58	0.78	NS
Urban	206	19.43	3.72		

From the above table it is evident that the mean value of rural was 19.10 and urban was 19.43 and the corresponding standard deviation for rural and urban were 4.58 and 3.72 respectively. The calculated value (t=0.78, table value <1.96) is not significant at 0.05 level. Therefore the null hypothesis, "there is no significant difference in e-waste awareness among higher secondary students with respect to locale" is accepted. It can be said that there exists no significant difference in e-waste awareness between rural and urban higher secondary students.

Null hypothesis 3

There is no significant difference in e-waste awareness among higher secondary students with respect to religion.

Table 4: Mean, Standard Deviation and F value of e-waste awareness of higher secondary students with respect to religion

Religion	N	Mean	Standard Deviation	Groups	Sum of Squares	df	Mean Square	F	Remarks at 0.05 level
Hindu	205	19.15	4.06	Between Groups	57.369	2	28.685	1.67	NS
Christian	154	19.13	4.28	Within Groups	6833.471	397	17.213		
Muslim	41	20.39	4.09	Total	6890.840	399			

From the above table it is evident that the calculated value (F=1.67; df=2; and table value <3.02) is not significant at 0.05 level. Therefore, there exists no significant difference among Hindu to Christian and Christian to Muslim and Muslim to Hindu in their e-waste awareness of higher secondary students. Hence, the null hypothesis "there is no significant difference in e-waste awareness among higher secondary students with respect to religion'' is accepted.

Null hypothesis 4

There is no significant difference in e-waste awareness among higher secondary students with respect to community

Table 5: Mean, Standard Deviation and F value of e-waste awareness of higher secondary students with respect to community

Community	N	Mean	Standard Deviation	Groups	Sum of Squares	df	Mean Square	F	Remarks at 0.05 level
BC	272	19.00	4.18	Between Groups	71.653	3	23.884	1.39	NS
MBC	45	20.22	4.50	Within Groups	6819.187	396	17.220		
OC	39	19.74	3.75	Total	6890.840	399			
SC	44	19.52	3.91						

From the above table it is evident that the calculated value (F=1.39; df=3; and table value <3.02) is not significant at 0.05 level. Therefore, there exists no significant difference among BC to MBC, MBC to OC, OC to SC and OC to BC in their e-waste awareness of higher secondary students. Hence, the null hypothesis "there is no significant difference in E-waste awareness among higher secondary students with respect to community" is accepted.

Null hypothesis 5

There is no significant difference in e-waste awareness among higher secondary students with respect to type of school.

Table 6: Results of the test of significance of difference between means of e-waste awareness scores of government and aided higher secondary students

Type of school	N	Mean	S.D	t	Remarks at 0.05 level
Government	185	20.46	4.38	5.53	S
Aided	215	18.24	3.66		

From the above table it is evident that the mean value of government was 20.46 and aided was 18.24 and the corresponding standard deviation for government and aided were 4.38 and 3.66 respectively. The calculated value (t=5.53, table value >1.96) is significant at 0.05 level. Therefore the null hypothesis, "there is no significant difference in e-waste awareness among higher secondary students with respect to type of school" is rejected. It can be said that there exist significant difference in e-waste awareness between government and aided higher secondary students. It is clear that from the mean value of (20.46) government students have higher e-waste awareness than aided (18.24) higher secondary students.

Conclusion

From the study it is concluded that 18.5% of higher secondary students have low level of e-waste awareness and 64% of students have moderate level and 17.5% of them have high level of e-waste awareness. Most of the higher secondary students possess moderate level of e-waste awareness. There is no significant difference between gender, locality and type of school. But there is significant difference between religion and community higher secondary students in their e-waste awareness.

Educational implications

- Higher secondary students should be given orientation to the existing environmental ethics.
- Topics related with e-waste awareness should be included as a part of school curriculum.
- Special orientation classes to enhance e-waste awareness must be organized for higher secondary students.
- Content related must be included in syllabus.
- Higher secondary students should be encouraged to participating e-waste awareness programme.

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