

## EFFECTIVENESS OF VISUAL INPUTS IN AWARENESS ON E-WASTE MANAGEMENT AMONG B.ED STUDENTS

By

**Blessy, T.**

*Associate Professor, Bethlahem College of Education, Karungal, Kanyakumari District, Tamilnadu, India.*

### Abstract

*All over the planet, demands of the communities and the improvement of people's life quality are changing fast. While this advance has helped the human race, mismanagement has led to new problems of contamination and pollution. Waste management is becoming more convoluted with the raid of electronic waste. For avoiding such kind issues of e-waste it is necessary to be aware of e-waste and should have the knowledge on e-waste management. Considering this in mind, this study has been undertaken to give awareness about e-waste through visual inputs for student teachers so that it will help them and also the students they are going to teach to be aware of e-waste. For the present study, experimental method was employed and a sample of 36 B.Ed students was selected. The findings revealed that there is significant difference in the post-test scores, delayed post-test scores and gain scores of B.Ed students in Awareness on E-waste Management Test (ATEWM) with regard to background variables.*

**Keywords:** *e-waste management, visual inputs, B.Ed. students*

### Introduction

Demands of the communities and the enhancement of people's life quality are shifting fast all over the planet. In this process, we fulfill our indispensable needs via technology-based products (Ozturk, 2014). Electronic commodities and gadgets have become indispensable components of metropolitan households and also in rural areas as well. These electronic goods turn into a neglected obsolete heap of hazardous elements (Tyagi, 2013). Although this development has helped the human race, mismanagement has led to new problems of contamination and pollution. The technical prowess acquired during the last century has posed a new challenge in the management of wastes (Ramachandra & Vargheese, 2004). The risk of exposure to lead, cadmium, chromium, and other

hazardous materials that can be toxic to human health and the environment. The accumulation of toxins from electronic waste into land and air poses significant health risks to recycling workers and to people living in neighbouring areas (Koka, 2015).

### Significance of the study

Nowadays, the whole world is advancing in the field of technology. People wish to buy new advanced electronic equipment. This has resulted in dumping the old electronic products as e-waste products are hazardous to human living. E-waste is a popular informal name for electronic products nearing the end of their useful life.

The industrial revolution followed by the advances in information technology during

the last century has radically changed people's lifestyle and people move towards luxurious life. They wish to buy new advanced electronic equipments whenever it is introduced in the market. It harms the environment in which we live. The radiations emitted by the electronic waste affect our as well as forthcoming generations.

Thus appropriate management is needed while disposing or recycling e-wastes. The teachers should know the appropriate management of e-waste which is a burning issue nowadays. They have to guide their students in the proper way to mould them as responsible citizens. Through visual models such as youtube videos, pictures, and animations we can make students teachers to be well-knowledged on E-waste management. So the research focuses on *"Effectiveness of Visual Inputs in E-waste management among B.Ed Students"*

### Objectives of the study

The study was conducted on the basis of the following objectives:

- To construct and validate an awareness test on E-waste management (ATEWM).
- To find out significant difference if any, in the post-test scores of B.Ed students in awareness test on E-waste management (ATEWM) with regard to background variables.
- To find out significant difference if any, in the delayed post-test scores of B.Ed students in awareness test on E-waste management (ATEWM) with regard to background variables.
- To find out significant difference if any, in the gain scores of B.Ed students in

awareness test on E-waste management (ATEWM) with regard to background variables.

The background variables are locality of residence, discipline, attitude towards multimedia, and qualification.

### Hypotheses of the study

**H<sub>01</sub>:** There is no significant difference in the post-test scores of B.Ed students in ATEWM with regard to background variables.

**H<sub>02</sub>:** There is no significant difference in the delayed post-test scores of B.Ed students in ATEWM with regard to background variables.

**H<sub>03</sub>:** There is no significant difference in the gain scores of B.Ed students in ATEWM with regard to background variables.

### Methodology

In the present study, experimental method was employed. The investigator has chosen the one group design for conducting the experiment.

### Sample

A sample of 36 B.Ed. students studying in a college of education were selected for conducting experiment.

### Sampling technique

Random sampling technique was used in the used.

### Tools Used

The major tools used for the present study are

- Awareness test on E-Waste Management (ATEWM)

- Visual Inputs- Images, YouTube Videos, Powerpoint presentations related to E-Waste management.

In order to establish content validity, the tool was given to two experts of Bethlahem College of Education, Karungal. According to their opinion, some questions were changed. Thus the content validity of the test was established. The co-efficient of reliability calculated for the Awareness test on E-waste Management was found to be 0.62.

### Conducting the experiment

The investigator had selected one group among the B.Ed students in Bethlahem College of Education, Karungal in kanyakumari district. Totally there were thirty six students in that group. The pre-test was administered to the group. The group completed the test within an hour. After conducting a pre-test to the group, the

investigator showed many visual models to the students related to E-Waste management. The Visual inputs includes YouTube videos, PowerPoint presentations, images and animations, and flashcards. The treatment was given for fifteen days by spending forty five minutes per day. After conducting the experiment, the group was given a post-test. Their responses were scored with the help of the scoring key prepared by the investigator. A score of one mark is given to the correct answer and zero is given to the wrong answer. After conducting the post-test a gap is given for fifteen days and the group was given a delayed post-test. Their responses were scored.

### Analysis of Data

**Hypothesis: 1.** There is no significant difference in the post-test scores of B.Ed students in ATEWM with regard to background variables.

**Table 1. Significance of difference in the post-test scores of B.Ed Students in Awareness on E-Waste Management Test (ATEWM) with regard to background variables**

Background Variables	Category	N	Mean	S.D	t-value	P-value	Remarks at 5% level
Locality of residence	Rural	30	20.40	3.64	3.854	0.005	Sig at 0.01 level
	Urban	6	16.17	2.14			
Discipline	Arts	17	17.88	4.34	2.944	0.006	Sig at 0.01 level
	Science	19	21.32	2.21			
Attitude towards Multimedia	Yes	29	20.38	3.70	2.883	0.007	Sig at 0.01 level
	No	7	16.86	2.67			
Qualification	UG	26	18.77	3.66	2.799	0.008	Sig at 0.01 level
	PG	10	22.10	3.00			

It is inferred from the above table, the post-test scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to background variables, the p-value is less than 0.05, at 0.01 level of significance. Hence the null hypothesis is rejected. It shows that there is significant difference in the post-test scores of B.Ed students in

Awareness on E-Waste Management Test (ATEWM) with regard to background variables.

**Hypothesis: 2.** There is no significant difference in the delayed post-test scores of B.Ed students in ATEWM with regard to background variables.

**Table 2. Significance of difference in the delayed post-test scores of B.Ed Students in Awareness on E-Waste Management Test (ATEWM) with regard to background variables**

Background Variables	Category	N	Mean	S.D	t- value	P-value	Remarks at 5% level
Locality of residence	Rural	30	20.03	3.49	3.099	0.004	Sig at 0.01 level
	Urban	6	15.83	2.93			
Discipline	Arts	17	17.29	4.15	3.489	0.001	Sig at 0.01 level
	Science	19	21.16	2.03			
Attitude towards Multimedia	Yes	29	20.00	3.55	2.426	0.021	Sig at 0.05level
	No	7	16.57	3.31			
Qualification	UG	26	18.5	3.74	2.631	0.013	Sig at 0.05 level
	PG	10	21.50	2.76			

It is inferred from the above table, the delayed post-test scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to locality of residence and discipline, the p-value is less than 0.05, at 0.01 level of significance. Hence the null hypothesis is rejected. It shows that there is significant difference in the delayed post-test scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to locality and discipline. With regard to the attitude towards multimedia and qualification, the p-

value is less than 0.05, at 0.05 level of significance. Hence the null hypothesis is rejected. It shows that there is significant difference in the delayed post-test scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to the attitude towards multimedia and qualification.

**Hypothesis: 3.** There is no significant difference in the gain scores of B.Ed students in ATEWM with regard to background variables.

**Table 3. Significance of difference in the gain scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to background variables**

Background Variables	Category	N	Mean	S.D	t- value	P-value	Remarks at 5% Level
Locality of residence	Rural	30	6.77	4.77	2.471	0.019	Sig at 0.05 level
	Urban	6	3.33	2.66			
Discipline	Arts	17	4.76	3.82	1.831	0.076	NS
	Science	19	7.47	5.03			
Attitude towards Multimedia	Yes	29	6.76	4.85	2.091	0.044	Sig at 0.05level
	No	7	3.86	2.79			
Qualification	UG	26	5.00	4.19	2.617	0.013	Sig at 0.05 level
	PG	10	9.30	4.50			

It is inferred from the above table, the gain scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to locality of residence and the attitude towards multimedia and qualification, the p-value is less than 0.05, at 0.01 level of significance. Hence the null hypothesis is rejected. It shows that there is significant difference in the gain scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to locality of residence and the attitude towards multimedia and qualification. With regard to the discipline, the p-value is greater than 0.05, at 0.05 level of significance. Hence the null hypothesis is accepted. It shows that there is no significant difference in the gain scores of B.Ed students in Awareness on E-Waste Management Test (ATEWM) with regard to discipline.

### Findings and Discussion

There is significant difference in the post-test scores, delayed post-test scores and gain scores of B.Ed students in Awareness on E-waste Management Test (ATEWM) with

regard to Background Variables. With regard to locality, the mean values of the category rural are greater than the mean value of urban. This may be due to the fact the rural students more eagerly visualizing the models shown to them and understand about e-waste management. With regard to discipline, the mean values of the category Science are greater than the mean value of arts. This may be because science students easily understand the evil effects of science and technology. With regard to attitude towards multimedia, the mean values of category yes are greater than the mean value of category no. This may be because these students are having a positive attitude towards multimedia and they are very attentive to the multimedia visuals such as videos, PowerPoint presentations, etc. With regard to qualification, the mean values of category P.G are greater than the mean value of category U.G. This may be because these students have some more experience regarding the usage of electronic gadgets. So they eagerly listen.

**Educational Implications**

- Orientation programs may be arranged for teachers about the harmfulness of e-waste and explain the recycling process.
- Teachers may conduct e-waste awareness programmes to the parents and also to the society.
- Teacher may give projects to the students based on e-waste recycling to promote their awareness level.
- Every school should introduce a policy for Electric and Electronic disposal. As teachers, we can show them visual presentations regarding e-waste management.
- Make every individual understand their duty to observe proper waste dumping practices.
- From school days children should be made aware about e-waste and hazardous effect on health and the environment and also the e-waste management techniques.
- Students may use the e-goods whenever necessary and avoid it if possible.
- Through NSS, NCC camp programs students may create awareness to the society.
- Students may take their projects and field studies related to e-waste.
- Students are encouraged to publish their important findings related to e-waste harmfulness with fellowships.

**Conclusion**

In the 21st century, technology fanatics thrive on staying up-to-date with the latest electronics, but the fallout is an e-waste graveyard full of devices that were abandoned after the release of “the next best thing. The harmful content of these type of equipment creates a danger to human health and the environment. Reusing, refurbishing, or recycling in an environmentally sound method so that they are less hurtful to the ecology.

**References**

- Borthakur, A. & Singh, P. (2012). *Electronic waste in India: Problems and policies. International Journal for Environmental Sciences*, 3(1), 353-362.
- Chakrabathi. (2010). Managing hazardous waste. *Science reporter*, 47(6), 12-14.
- Chan, & Kit Yan. (2009). Dietary exposure, human body loadings, and health risk assessment of persistent organic pollutants at major electronic waste recycling sites in China. *Dissertation Abstracts International*, 70(2), 964-B.
- Kannampallil, K., T., T. (2010). Radiation alert. *Science reporter*, 47(6), 23-25.
- Kaur & Sing. (2008). *Environmental pollution: Repercussion of cellular phone*. *School science*, 46(2), 26-28.
- Khan, H., J. (2010). Perils of electronic waste. *Science reporter*, 47(6), 7.
- Koka, J. (2015). Meet the silent but dangerous pollutant on our block: E-waste Retrieved From <http://mg.co.za/article/201503-04-meet-the-silent-but-dangerous-pollutant-on-ourblock-e-waste>

Ozturk, T. (2014). Generation and management of electrical-electronic waste (e-waste) in Turkey. DOI:10.1007/s10163-014-0258-6

Ramachandra, T., V., & Varghese, S., K. (2004). Environmentally sound

options for e- wastes management. *Envis Journal of Human Settlements*, 34(1-2).

Tyagi, A. (2013). Cradle to grave circuit: The scourge of electronic waste. *Science reporter*, 50(5), 8-14.

### To cite this article

\*\*\*\*\*

Blessy, T. (2021). Effectiveness of Visual Inputs in Awareness on E-Waste Management among B.Ed Students. *Sparkling International Journal of Multidisciplinary Research Studies*, 4(1), 18-24.

\*\*\*\*\*

### ABOUT THE AUTHOR



**Dr Blessy T** is a teacher educator at Bethlahem College of Education, Karungal, Kanyakumari District, affiliated to Tamilnadu Teachers Education University, Chennai, Tamilnadu, India. She has more than 10 years of teaching experience. She holds Masters Degree in Computer Science and Education and has qualified UGC NET in Education with JRF in 2011. She has participated and presented papers in National and International Conferences and Seminars. She has published more than 10 papers in reputed national and international journals. Her area of specialization is ICT in Education. She has done doctoral research in the area mobile learning and awarded in March 2020. She is a recipient of Luminous Researcher Award and Academic Research Contribution Award.

\*\*\*\*\*