Education is a process of shaping the characteristic of individual and ultimately shaping the destiny of a society, because students are the future expectations and aspirations of a society. It embraces the diverse activities of life so that, pupil emerge out of the school as practical men of society. Planned educational Education is a process of shaping the character of individual and ultimately shaping the destiny of a programs aimed at the all round development of the individual. Such type of education help the learner to develop the basic skills of life, knowledge, attitude, interest, values etc in an integrated manner.

The ultimate aim of education is to make a perfect man in social, political, economical and cultural aspects. The basis of the development and growth of these aspects is the process of human interaction with environment. Education is critical for promoting sustainable concern about environmental problems and improving the capacity of the people to address environment and developmental issues.

Today man is living in world of crisis. The social, economical, political and value crisis are some of the threats which the humans face now and these threats are quite alarming. Added to this in the recent decades, the environmental crisis has become another important factor which made everyone in the world to think of its gravity. Mans' relation to his environment has become a more complex question to the modern society. The magnitude of water, air pollution, garbage and landscapes, waste management problem, disappearance of wild life etc are major problems. The problems are not inherent in the environment but had been created by the neglects of man, abuse and exploitation of biosphere that he had inherited from his forefathers'.

Environment Pollution is defined as the excess discharge of any substance into the environment which affects the quality of environment and causing damage to humans, plants and animals. Pollution can be in the form of solid, liquid or gaseous substance. The nature and concentration of pollutant determine the severity of effect of pollution. Pollutants can be divided into three types; those are Degradable or non-persistent pollutants, slowly degradable or persistent pollutants, Non-degradable pollutants. Degradable or non-persistent pollutants, the pollutants that can be rapidly decomposed by natural processes are called degradable or non-persistent pollutants. Slowly degradable pollutants remain in environment for longer time because they decompose very slowly by the natural processes. Example: plastics, pesticides, etc. Non-degradable pollutants some pollutants cannot be decomposed by natural processes are called non degradable pollutants. Example – Lead, mercury, nuclear wastes etc.

The pollutants that pollute the environment are divided into following types. Those are Air pollution, Water pollution, Soil Pollution, Marine pollution, Noise pollution, Thermal pollution and nuclear hazards. Air pollution is defined as the undesirable contamination of gas, smoke, dust, fume, mist, odor, or chemical particulates in the atmosphere which are injurious to human beings, plants and animals. Causes of air pollution-Industrialization, Urbanization, Vehicles emission, Deforestation, Population. Types of air pollutants Air pollutants can broadly classify into two types. Primary and Secondary pollutants. Primary pollutants are emitted directly from either natural events or from human activities. The natural events are

dust storms; volcano etc and human activities can be emission from vehicles, industrial wastes are examples.

The Prime Minister of India launched the Swatch Bharat Mission on 2nd October, 2014. Swachh Bharat Abhiyan or Swachh Bharat Mission is the most significant cleanliness nation-wide campaign in India for the period 2013 to 2019 that aims to clean up the streets, roads and infrastructure of India's cities, towns, and rural areas. The campaign's official name is in Hindi and translates to "Clean India Mission" in English. The Strategy is to move towards a ‘Swachh Bharat’ by making it a massive mass movement that seeks to engage everyone in the task of cleaning homes, work places, villages, cities and surroundings, in a collective quest.. The focus is to provide flexibility to State governments, as sanitation is a State subject, to decide on their implementation policy, use of funds and mechanisms, taking into account State specific requirements. This is to enable States to develop an Implementation Framework that can utilize the provisions under the Mission effectively and maximize the impact of the interventions.

The Government of India’s role would be to complement the efforts of the State governments through the focused programme being given the status of a Mission, recognizing its dire need for the country. which aims to achieve Swachh Bharat by 2019, as a fitting tribute to the 150th Birth Anniversary of Mahatma Gandhi, which in rural areas shall mean improving the levels of cleanliness in rural areas through Solid and Liquid Waste Management activities and making Gram Panchayats Open Defecation Free (ODF), clean and sanitized.. The Mission shall strive for this by removing the bottlenecks that were hindering the progress,

including partial funding for Individual Household Latrines from MGNREGS, and focusing on critical issues. Safe sanitation means promotion of safe disposal of human excreta, right use of toilet and avoiding open defecation as well as management of solid and liquid waste.

Waste management is all the activities and actions required to manage waste from its inception to its final disposal. Wastes are widely divided into five categories that are Solid, Liquid, Organic, Recyclable Rubbish, Hazardous waste and Biomedical waste. Solid waste contains plastics, paper/card, Tins and metals, ceramics and glass. Liquid waste is any form of liquid residue that is hazardous for people or the environment. It includes waste water, fats, oils or grease (fog), used oil, liquids, solids, gases or sludge's and hazardous household liquids. Organic waste or green waste is organic material such as food, garden and lawn clippings. It can also include animal and plant based material and degradable carbon such as paper, cardboard and timber. Recyclable rubbish means the composting or other reuse of biodegradable waste such as food or garden waste is also considered recycling. Hazardous of waste is waste that has substantial or potential threats to public health or the environment. Waste management awareness defined as the degree of information about waste manages an individual recall based on his experience.

Waste disposal means removing and destroying or storing damaged, used or other unwanted domestic, agricultural or industrial products and substances. It is essential for the sanitation of a city and health of the citizens. Waste disposal behavior is that the way of a person behaves in the case of waste disposal. Garbage

disposal methods that used today are Landfill, Incineration, Recycling and Composting. Land filling is an easy method of waste disposal. A low-lying open area out of the city where garbage is collected and dumped is known as a landfill. The garbage is loaded into the truck and dumped in the landfill. When that area is fully covered with the garbage, it is covered with layers of soil. Now it can be converted into a park or a playground. It is a protective lining beneath the waste helps to prevent harmful chemicals from leaking in to the ground water and polluting drinking water. Incineration method is mainly used to dispose of the medical waste. It is a fancy way to describe burning waste as a disposal method. In this method, garbage is burnt at a high temperature in a special furnace called Incinerator. This reduces large amounts of garbage into a small amount of ash which can be disposed of in the landfill site. This method is mainly used to dispose of the medical waste**.** Recycling serves to transform the wastes into products of their own genre through industrial processing. Paper, glass, aluminum, and plastics are commonly recycled. It is environmentally friendly to reuse the wastes instead of adding them to nature. However, processing technologies are pretty expensive. Composting and vermicomposting method is useful for the disposal of biodegradable waste. The part of the garbage which can rot in nature to form harmless substances is called biodegradable (plants and animal waste). Different biodegradable waste can be dumped in a pit. Here, it can be allowed to decompose after which the garbage will convert into useful manure. This is known as composting. The process of decomposition may take around 2 to 3 months. To make the process fast, red worms may be used for composting. This method is called vermicomposting. Vermicompost is the high-quality manure. Advantages of

composting are the useful component of the garbage can be converted into manures which can enrich the soil and Degradable waste is easily disposed of. E-waste is one of the rapidly growing problems of the world. Electronic waste is made up of all thrown away electronic items like mobiles, SIM cards, remote control etc. Special care has to be taken for disposal of these items because it may be harmful to the surroundings. Some initiative was taken by companies like Nokia. They encourage mobile phone users to dispose of their used accessories irrespective of the brands at any of the recycling units of Nokia priority dealers. 'Parisaraa', an eco-friendly recycling unit in Bangalore, collects e-waste and helps in recycling. Solving the E-waste problem starts with Education, and habit changes as a result of knowledge.

While the world is marveling at the developmental revolution countries like India are facing an imminent danger. It is imperative that developing India in particular wake up to the monopoly of the developed countries and set up appropriate waste management measures to prevent the hazardous of waste.

Need and Significance of the Study

According to some research reports, the most challenging problem in this revolutionized era is the waste management. Everyday each person produces at least 500 gm of waste. Every year, 62 million tons of waste is generating out of which only 28% of waste is recycled and 72% is left on the roads and the landfill areas for several years, which is fraught with hazardous consequences.In industrialized countries, the average output can be as high as 4 kilograms per person. Every year nearly 400 million tons of waste is thrown away the entire world over. We cannot

feel CFC and acid rain but can smell, touch and see the waste. Waste is threatening human health worldwide.

This is a throwaway society. We observe heaps of waste laying the roads while passing through a highway. Open dumping is the most common method of waste disposal in India. The trash heaps are usually open to the environment or seldom have sparse covering and sometimes have partial burning due to the heat generated inside. Sometimes waste are illegally dumped in to the canals, rivers and seas or used to fill land depressions without proper consultations. These practices cause a lot of problems in the long run, such as degrading the soil quality. Causing suffocation and death of animals inhabiting that area. To prevent these we must adopt proper waste disposal methods.

Now a day's commonly Ragpickers and scrap dealer collect waste from our locality. The rag pickers mainly collect the waste from the open dumping areas and supply to the recyclable units. In this way, they earn a living for themselves as well as help to clean the environment. Scrapdealers collect waste like plastic, glass waste and old newspapers and pass it on to the recycling units. This helps in reducing the quantity of waste generated. In the light of some experiences, we should beware of them with strangeness so we shall be live with alert. Local bodies have very important role in the field of Waste management. They have put forward many methods to dispose the wastes. That have door to door service, pipe composting, collection of non degradable waste etc, Door to door service is the collection the waste from houses. They assigned Kudumbashree units to collect the waste from

houses of needy peoples. But this service has some limitation because of its cost is very high and they don't collect all type of wastes.

According to the corporation officials Nirvau which was entrusted with the removal of plastic waste already transported 82 loads of waste to the recycling plants in Karnataka and Tamil Nadu. The civic body already removed plastic waste from around 75000 houses in the corporation limit. They collected plastic wastes from homes in monthly one time. City corporation authorities here have been considering many locations for the collection point for the generated electronic wastes in its limit. The civic body is actively considering two locations one at West hill industrial estate area and another one at Njeliyanparambu trenching ground for the segregation of collected e-wastes from the various locations before transporting it to the recycling areas. The e-waste will be transported to the recycling plant in Noida. The Government should be kept more concern about the matter of waste management.

Presently, most of the developing countries are facing almost similar situation. Therefore, segregating various kinds of wastes from the households, efficient waste collection systems, proper disposal, and sustainable recovery are very much needed processes in modern-day world. Nothing is waste until it cannot be used anymore in any way. We generally see wastes piled up but do not think deep enough on how to use them. Today there are many innovations available in waste management like recycling wastes into usable products, generating methane or fuels, manufacturing new products for home/commercial usage such as fence posts,

furniture and so on. Therefore, the importance of managing waste in a very effective way has enhanced many folds now-a-days.

Statement of the problem

The study is entitled as **AWARENESS ON WASTE MANAGEMENT AND WASTE DISPOSALBEHAVIOUR OF SECONDARY SCHOOL STUDENTS.**

Definition of Key terms

The key terms in the statement of the problem are explained below so as to get operational definition

Awareness:

GOOD (1973) defines awareness as the state of being aware, conscious of a situation or object, without direct attention to it definite knowledge of its nature.

Waste management:

"The process of collecting, recycling and disposing of waste materials produces by human activities. Waste management involves solid,liquid,and gaseous substances, some of which can be hazardous. As such, each requires a different method and procedure to process. Solid waste, such as wood, concrete, glass, drywall and asphalt shingles, is the primary type of waste produced by building" (Enclopedia)

Waste management operationally defined as all the activities and actions required to manage waste from its beginning to its final disposal.

Waste disposal

Waste disposal is the handling of discarded materials.Recycling and composting, which transform waste into useful products, are forms of waste management,the management of wate also includes disposal,such as landfilling(encyclopedia)

For the study Waste disposal concern as the way that removing and destroying or storing damaged, used or other unwanted domestic, agricultural or industrial products and substances.

Secondary School Students:

Those students are students who studying in eighth, ninth and tenth standard of school following Kerala state syllabus are taken as secondary school students

VARIABLES OF THE STUDY

The present study is designed with two types of variable. Those are Awareness on Waste management and Waste disposal behavior.

Objectives of the Study

1. To find out the extent of awareness on waste management among secondary school students.

2. To find out the extent of waste disposal behaviour among secondary school students.

3. To find out whether there exists any significant differences in the awareness of waste management among the following sub samples of secondary school students, based on

    a) Gender

    b) Locale

    c) Type of management

4. To find out whether there exists any significant differences in the waste disposal behaviour among the following sub samples of secondary school students, based on

    a) Gender

    b) Locale

    c) Type of management

5. To find out whether there is any significant relationship between awareness on waste management with waste disposal behaviour among secondary school students for the total sample and subsamples based on gender, locale and type of management.

Hypotheses

1. There will not be any significant difference between the mean scores of awareness on waste management between male and female secondary school students.

2. There will not be any significant difference between the mean scores of awareness on waste management between urban and rural secondary school students.

3. There will not be any significant difference between the mean scores of awareness on waste management between government, aided and unaided secondary school students.

4. There will be exists significant differences between waste disposal behavior of male and female secondary school students.

5. There will be exists significant differences between waste disposal behavior of urban and rural secondary school students.

6. There will be exists significant differences between waste disposal behavior of government, aided and unaided secondary school students.

7. There will be a significant relationship between awareness on waste management with waste disposal behaviour among secondary school students for the total sample and subsample based on gender, locale and type of management.

Methodology

Method

Survey method is applied for collecting the data and appropriate quantitative technique is used for analyzing the data.

Sample

The study is conducted on a sample of 720 Secondary School Students from different secondary schools located in Kozhikode and Malappuram districts of Kerala using stratified sampling technique by giving the representation to gender, locale and type of management of institutions.

Tools Used for the Study

1. Awareness Test on waste management (Manoj Praveen& Rukiyabi Juvairiyath 2019)
2. Waste disposal behavior Inventory (Manoj Praveen & Rukiyabi Juvairiyath 2019)

Statistical techniques

The statistical techniques used for the analysis of the data are the following.

1. Percentiles
2. Test of significance of difference between means for large independent samples.

3. One-way ANOVA

4. Correlation

Scope and Limitations of the Study

The present study intended to find out the extent of waste management awareness among secondary school students and whether there exists significant difference in Awareness of waste management and waste disposal behaviour of sub samples,The study was conducted on a stratified sample of 720 secondary students of Kozhikode and Malappuram districts. For the collection of data, the investigator developed an awareness test and behavioral Inventory with the help of supervising teacher. The test was standardized with satisfactory reliability and validity. The required data was collected from a proportion ale stratified sample of secondary students of Kozhikode district. Due representation was given for factors like locale, type of school and management of school. The investigator hopes that the findings of the present study will be helpful to others.

Organisation of the Study

Chapter 1: This chapter of report contains a brief introduction of the problem, need and significant of the study, statement of the problem, definition of keyterms, variable, objectives, methodology and scope and limitations of the study.

Chapter 2: This chapter gives theoretical overview of waste management and research method and studies related.

Chapter 3: This chapter gives an account of the methodology used in detail for the present study. It contains objectives, hypothesis, tools employed for the data collection, sample drawn, data collection procedure, scoring and statistical techniques.

Chapter 4: This chapter describes the analysis part of the study as per the objectives of the study**.**

Chapter 5: This chapter presents summary of the study, major findings, educational implications of the study and suggestions for further research in the area.

REVIEW OF RELATED LITERATURE

Review of related literature is an important aspect of any investigation. A proper study of related literature would enable the investigator to locate and go deep in to the problem. Review of the related literature helps the researcher to acquaint himself with current knowledge in the field or area in which he is going to conduct his research. It enables the researcher to delimit and define his problem and thus to state objectives clearly and concisely. The knowledge of related literature brings the researcher up to date on the work which others have done. Thus a thorough examination of the related literature will help a researcher to understand the significance of present study and to build a new approach to the same.

The present study is an attempt to find out the Awareness on waste management and Waste disposal behaviour among higher secondary school students. To have an understanding of the nature of study in this area, the researcher has gone through the relevant literature.

The review is presented here under the following headings.

I. Theoretical overview

II. Review of related studies

Theoretical overview

Waste management Theory is a unified body of knowledge about waste and waste management, founded on the expectation that waste management is to prevent waste to cause harm to human health and the environment and promote resource use optimization. Waste

Management theory is to be constructed under the paradigm of Industrial Ecology as Industrial Ecology is equally adaptable to incorporate waste minimization and or resource use optimization goals and values.

Waste management is all the activities and actions required to manage waste from its inception to its final disposal. Waste disposal means removing and destroying or storing damaged, used or other unwanted domestic, agricultural or industrial products and substances. It is essential for the sanitation of a city and health of the citizens. Waste disposal behavior is that the way of a person behaves in the case of waste disposal. Garbage disposal methods that used today are Landfill, Incineration, Recycling and Composting. Land filling is an easy method of waste disposal.

The components have been selected on the basis of the in-depth analysis of Waste management. Based on the research papers and theoretical overview it is found that the Waste Management among secondary students influenced by different components such as Solid, Liquid, Organic, Recyclable Rubbish, Hazardous waste and Medical waste.

Solid Waste

It means any garbage, refuse sludge from a waste water plant, water supply treatment plant or air control facility and other discarded materials including solid, liquid, semi-solid or contained gaseous material resulting from industrial, commercial mining and agricultural operations and from community activities but does not include solid or dissolved materials in domestic sewage (Mantell, 1975).

On the other hand, Fifth et al, (1995) defined "solid waste as all waste arising from human and animal activities that are normally solid and are discarded as useless or un wanted"

It contains plastics, paper/card, Tins and metals, ceramics and glass. eg- waste tires, septage, scrap metal, latex paint etc.

There are many types of solid waste such as Domestic waste, factory waste, and waste from oil factory. E-waste, Construction waste, Bio medical waste, agricultural waste. Nuclear waste. Solid waste has four basic principles that are 4Rs; Refuse, Reduce, Reuse and Recycling. Refuse means do not buy unwanted things, reduce means the amount of garbage generated, reuse means reuse all the items its maximum after properly cleaning it and recycle indicates keep things which can be recycled to be given to ragpickers or scrap shopers.

Liquid waste

Is any form of liquid residue that is hazardous for people or the environment. It includes waste water, fats, oils or grease (fog), used oil, liquids, solids, gases or sludge's and hazardous household liquids.

Organic waste

It means waste come from either a plant or an animal. It also known as Biodegradable and green waste. It is organic material Waste such as food, garden and lawn clippings, degradable carbon such as paper, cardboard and timber.

Recyclable rubbish

It means the process of converting waste material in to new materials and objects. It is an alternative to conventional waste disposal that can save material and help lower green house gas emissions. Composting or other reuse of biodegradable waste such as food or garden waste is also considered recycling.

Hazardous of waste

It means waste with properties that make it potentially dangerous or harmful to public health or the environment.

Medical Waste

It is any kind of waste that contains infectious material (or material that's potentially infectious). This definition includes waste generated by healthcare facilities like physician's offices, hospitals, dental practices, laboratories, medical research facilities, and veterinary clinics.

"Biomedical waste' (BMW) means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule I appended to these rules.

Infectious waste includes all those medical wastes, which have the potential to transmit viral, bacterial, fungal or parasitic diseases" Singhal, Tuli and Gautam (2016).

Environmental and health risk caused by biomedical waste The improper management in bio-medical waste causes stern environmental problems that causes to air, water and land pollution. The pollutants that causes damage can be classified into biological chemical and radioactive. There are several legislation and guidelines Concerning environmental problems, which can be addressed. The classification of radioactive waste generated as part of Bio-medical waste is covered some of the effects of pollution on air, radio activities, land, health and risk are discussed, (Sadhu and singh, 2003)

"Pollution is the process of making land, water, air or other parts of the environment dirty and not safe or suitable to use Things as simple as light, sound and temperature can be considered pollutants when introduced artificially into an environment. Toxic pollution affects more than 200 million people worldwide, according to Pure Earth, a non-profit environmental organization. In some of the world's worst polluted places, babies are born with birth defects, children have lost 30 to 40 IQ points, and life expectancy may be as low as 45 years because of cancers and other diseases".Bradford (2018)

` Environment Pollution is defined as the excess discharge of any substance into the environment which affects the quality of environment and causing damage to humans, plants and animals. Pollution can be in the form of solid, liquid or gaseous substance. The nature and concentration of pollutant determine the severity

of effect of pollution., pollutants can be divided into three types, those are Degradable or non – persistent pollutants, slowly degradable or persistent pollutants, Non – degradable pollutants. Degradable or non – persistent pollutants, the pollutants that can be rapidly decomposed by natural processes is called degradable or non-persistent pollutants. Slowly degradable pollutants remain in environment for longer time because they decompose very slowly by the natural processes. Example: plastics, pesticides, etc. Non-degradable pollutants some pollutants cannot be decomposed by natural processes are called non degradable pollutants. Example – Lead, mercury, nuclear wastes etc.

Related studies

Doggali (2002) conducted a study to assess the attitude of waste management among staff of dental hospitals in Bangalore city, by issuing a pre-tested structured questionnaire. Major Findings are 82. 6% of attenders said that it is necessary to segregate waste into different categories at the point of origin, 61. 5% of auxiliaries strongly disagreed that segregation of waste at source increases the risk of injury to waste handlers. As many as 33. 5% of dentists strongly disagreed that segregation of waste at source increases the risk of injury to waste handlers and 53. 6% agreed that segregation of waste at source does not increase the risk of injury to waste handlers. The findings of this study suggest that the staff had good attitude towards waste management among.

Hassan and Mohammad (2009) studied about Medical Waste which has not received enough attention in recent decades in Iran, as is the case in most economically developing countries. Medical Waste are still handled and disposed of

together with domestic Waste, creating great health risks to health-care stuff, municipal workers, the public, and the environment. The objectives of this study were to determine the quantity, generation rate, quality, and composition of medical Waste generated in the major city northwest of Iran in Tabriz. 25 active hospitals, 10hospitals of different size, specializations, and categories were selected to participate in the survey. Each hospital was analyzed for a week to capture the daily variations of quantity and quality. The results indicated that the average (weighted mean) of total medical waste, hazardous–infectious Waste, and general waste generation rates in the city are 3.48, 1.039 and 2.439 kg/bed-day, respectively.

Hoornweg and Tata (2012) made a global review of solid waste management, and three billion residents generate 1.2 kg per person per day (1.3 billion tonnes per year). By 2025 this will likely increase to 4.3 billion urban residents generating about 1.42 kg/capita/day ofmunicipal solid waste (2.2 billion tonnes per year).

Mol, and Kumar (2012) a sectoral study was carried out to understand the existing problems of liquid waste disposal and the management of wastewater. Three Panchayats, two municipalities and a corporation were selected for the study. A total number of 825 families were surveyed using a questionnaire in the form of social survey to understand the existing liquid waste management problems. From the study it was found that percapita consumption of water in the study area varied from 183 lpcd to 148lpcd. The study concluded that constructed wetland can be recommended as one of the cost effective and efficient methods for wastewater

treatment. The paper also discusses various steps involved for preparing an effective liquid waste management plan.

Ultra and Ultra (2013) explored on solid waste management practices of households in the University of Eastern Philippines (UEP) and identified the problems and solutions related to solid waste management. Study finds, kitchen wastes ranked first among the solid wastes generated by the sample households in UEP Zone 1 and II. This was followed by plastics, paper, bottles, and cans, mentioned in order of importance. It is evident that the type of waste generated by households differed by household size and income.

Mukui (2013) conducted a study on factors influencing household solid waste management in urban Nyeri Municipality, Kenya. The study finds that, households were not using correct methods of waste management. The percentage of households where separation of solid waste was practiced was 24.6 percent; the 75.4 percent incorrect practice was associated with carelessness, socialization style and long distances to the nearest garbage chamber. The common correct methods of solid waste management were: use of a self-provided bin for storage, use of garbage chamber, compost pit and Kerbside services for household disposal.

Çimen (2014) examined a Model of solid Waste Management Based Multilateral Co-operation in Semi-Urban Community This study aimed to examine teacher candidates' levels of concerns about the environment. The study was composed as a survey model. The participants were 271 teacher candidates who are attending Faculty of Education at Gazi University. The Environmental Concern Scale, which was developed by the researcher, was used to gather data. The results

of the study revealed that the concerns about the environment did not differentiate according to gender, age, geographical region, and department, whereas the variables of "knowledge about the environment" and "environmentally-sensitive behaviour" were significant in determining the teachers candidates' level of concerns about the environment.

Wuyep, Solomon, et al. (2014) Conducted a study in general review and a case study of women's involvement in environmental management in Plateau state. Primary data were generated from Questionnaire survey of women from six local government areas. Majority of the women (79. 2%) are involved in farming and contributed significantly to land/soil conservation. (78. 4%) of them have planted tree or flowers in the last five years while (79. 2%) indicated clearing their surroundings daily in terms of sweeping, clearing drainages and refuse disposal. Problems faced by the women include lack of waste disposal equipment, poor drainage systems and lack of awareness among the general public. Appropriate recommendations were proffered to enhance women involvement in environmental protection and management.

Kolbe and Karin Dorina (2015) conducted a study on Knowledge, Attitudes and Behaviour Regarding Waste Management in a Grammar and a Comprehensive School in England--Results from a School Questionnaire. This study examined similarities and differences in views regarding waste management exist between grammar school pupils and comprehensive school pupils in England.

Agarwal.,Mona Chaudary and JyveerSingh (2015)under score a study about the current practices related to the various waste management initiatives taken in

India. This paper is an attempt to understand the important role played by the formal sector engaged in waste management in our country. This study also reveals vast idea about the waste management.

Winnie, et. al. (2016) conducted a study about the types of plastic wastes ,effectiveness of inquiry learning strategies. This study aims to examine the impacts of the inquiry learning strategies employed in a "Plastic Education Project" on primary students' knowledge, beliefs and intended behaviour in Hong Kong. Student questionnaires and a test on plastic types were adopted for data collection. Results reveal that the inquiry learning strategies significantly improved students' knowledge of the types of plastic wastes and their corresponding beliefs. However, the strategies seemed not to change students' intended behaviour regarding plastic waste classification and management.

Tangwanichagapong, et al. (2017) conducted a study on the topic Greening of a Campus through Waste Management Initiatives;Experience from a Higher Education Institution in Thailand .This paper aims to describe the effects of 3R (reduce, reuse and recycle) waste management initiatives on a campus community. Practical implications for enhancing sustainable waste management are discussed in this paper. Method used for study demonstration projects on waste segregation and recycling, as well as a waste reduction campaign, were set up on the campus to ascertain people's attitudes and investigate their behavioral responses toward 3R practices. Data were collected through a questionnaire survey, observations, interviews and the project's document review. A waste audit and waste composition

analysis was carried out to assess waste flows and actual waste management behaviors and measure the change in the recycling rate. Findings of the study is 3R waste management initiatives had positive effects on people's attitudes about resources, Incentive measures showed a greater positive effect on waste reduction to landfills. Nevertheless, the demonstration projects helped to increase the overall campus recycling from 10 to 12 per cent. This paper addresses a literature gap about the 3R attitudes and resulting behavior as part of campus sustainability of higher education institutions in a developing country.

Ebrahimi, Kianoosh North, and Leslie. (2017) conducted a study on Effective Strategies for Enhancing Waste Management at University Campuses. The purpose of this study is to identify and assess the waste management strategies that should be priorities for higher education institutions. Digital surveys were distributed to sustainability coordinators at WKU benchmark and top-level universities and Semi-structured interviews were conducted. Practical implications was wiidely varying zero-waste strategies are readily implemented at universities.

Mohammed Dauda Dung, Mangut Mankilik, Bernadette Ebele Ozoji (2017) conducted a study on Assessment of College Students' Knowledge and Attitudes Toward Solid Waste Management in North Central Zone of Nigeria. This study focused on assessment of colleges of education students' knowledge and attitudes toward solid waste management in the North Central zone of Nigeria. A questionnaire were used to collect data from 1, 800 students. The findings indicated that the students had a low knowledge level of solid waste management but their

attitudes toward it were positive. A significant relationship was found between students' knowledge and their attitudes toward solid waste management. It was concluded that although students had low knowledge of solid waste management, their attitudes toward it were positive.

Aksan, Zeynep, Çelikler and Dilek (2019) conducted a research on Recycling Awareness Education. Its Impact on Knowledge Levels of Science Teacher Candidates The study was carried out to determine the impact of waste recycling education given to Science Teacher candidates for sustainable improvement of their knowledge levels about waste and recycling. The study was designed according to the single group pretest-posttest experimental design in line with the main purpose of the study. The sample of the study consists of 30 volunteer Science Teacher candidates studying in 3rd and 4th grade in Science Teaching Department of Faculty of Education. The major findings of the study, it has been seen that knowledge levels of Science Teacher candidates on recycling have increased and that teacher candidates' behaviors towards recycling changed positively.

Michael, Judd and Elser Nathaniel (2019) underscored a study on quadruple bottom line framework may impact decisions to adopt a sustainability practice in higher education.This paper aims to propose a quadruple bottom line approach for higher education leaders who must decide whether to accept sustainability initiatives that do have not have a business case. The researcher describe a personal waste management program at a major university to illustrate how a The authors also

demonstrate how opportunity costs can be applied to better understand the true costs of such waste management programs. The methodology exploratory research uses a case study approach with a unique accounting method to determine the costs of a personal waste management system. Findings of the study was University leaders chose to continue the new waste management program in light of evidence showing higher than anticipated costs. The authors illustrate how this decision was driven by consideration of a fourth bottom line, that of the educational value of the sustainability initiative. It is discussed whether proposed sustainability initiatives such as these should be evaluated using a traditional triple bottom line framework, or, in the case of higher education, if equal consideration should also be given to factors related to the educational mission of the institution. Originality/value: The authors develop a quadruple bottom line framework to explain the frequent implementation of economically costly sustainability programs in higher education contexts. This paper also reviews the rise of "personal waste management" programs at higher education institutions, demonstrates how the value of employee time can and should be considered as a cost of a comprehensive campus sustainability program (i.e. recycling and composting) and illustrates a novel means for using opportunity costs to determine those costs.

Conclusion

From the review of related studies, the investigator has found that the Awareness on Waste management is related to the waste disposal behavior. A number of studies have been conducted in relation with these variables both in and

outside India. At present secondary students are facing much problems because of many reasons. The main reasons are illiteracy of waste management and improper waste disposal behavior Investigator has also found that the From the review of related studies investigator found it interesting to study more about the relationship between Awareness on Waste Management and waste disposal behavior. Hence in the modern era the study is found to be relevant.

METHEDOLOGY

Methodology is the procedure or technique adopted in research study. The success of any research work largely depends upon the availability of the methods and tools, and techniques the researcher follows to gather data. Hence methodology is vital importance in any research work.

The present study is an attempt to find out in the extent of awareness on waste management and waste disposal behaviour among the secondary school students in Calicut city. This chapter contains the description of the methodology adopted and it describes the design of the study under the following heads viz...

- Variables
- Objectives
- Hypothesis
- Tools employed.
- Selection of sample
- Data collection procedure
- Scoring and consolidation
- Statistical techniques used for analysis.

The detailed description of each above are given below

Variables

The present study is designed with two types of variable. Those are Awareness on Waste management and Waste disposal behaviour. Gender, locale, type of management of school are used as categorical variables

Objectives

The objectives of the study are following:

1. To find out the extent of Awareness on Waste management among secondary school students.

2. To find out the extent of Waste disposal behaviour among secondary school students.

3. To find out whether there exists any significant differences in the Awareness of Waste management among the following sub samples of secondary school students, based on

    a. Gender

    b. Locale

    c. Type of management

6. To find out whether there exists any significant differences in the Waste disposal behaviour among the following sub samples of secondary school students, based on

    a. Gender

b. Locale

c. Type of management

7. To find out whether there is any significant relationship between awareness on Waste management with Waste disposal behaviour among secondary school students for the total sample and subsamples based on gender, locale and type of management.

Hypotheses

1. There will not be any significant difference between the mean scores of Awareness on Waste management between male and female secondary school students.

2. There will not be any significant difference between the mean scores of Awareness on Waste management between urban and rural secondary school students.

3. There will not be any significant difference between the mean scores of Awareness on Waste management between government, aided and unaided secondary school students.

4. There will be exists significant differences between Waste disposal behavior of male and female secondary school students.

5. There will be exists significant differences between Waste disposal behavior of urban and rural secondary school students.

6. There will be exists significant differences between Waste disposal behavior of government, aided and unaided secondary school students.

7. There will be a significant relationship between Awareness on waste management with Waste disposal behaviour among secondary school students for the total sample and subsample based on gender, locale and type of management.

Tools used for Data Collection

Collection of relevant data is an important aspect of any research work. The selection of suitable tool is of vital importance for a successful research. For the present study, the investigator used the following tools.

1. Awareness Test on Waste management (Manoj Praveen & Rukiyabi Juvairiyath, 2019).

2. Waste disposal behavior Inventory (Manoj Praveen & Rukiyabi Juvairiyath, 2019)

Detailed description of each of these tools is given below

Awareness Test on Waste management

The tool is prepared by the investigator with the assistance of her supervising teacher. The procedure followed in the construction of the tool is described below.

1. Planning of the Test

Based on the review of literature, consultation with experts in the field of waste management and the suggestions by supervising teacher, investigator identified 5 components which lead to Awareness of waste and waste disposal behaviour. Those are Solid waste, Liquid waste, Organic waste, Recyclable waste, Hazardous waste and bio medical waste.

Description of each of these components is given below.

- **Solid waste**

It means any garbage, refuse sludge from a waste water plant, water supply treatment plant or air control facility and other discarded materials including solid, liquid, semi-solid or contained gaseous material resulting from industrial, commercial mining and agricultural operations and from community activities but does not include solid or dissolved materials in domestic sewage.

- **Liquid waste**

Is any form of liquid residue that is hazardous for people or the environment. It includes waste water, fats, oils or grease (fog), used oil, liquids, solids, gases or sludge's and hazardous household liquids.

- **Organic waste**

It means waste come from either a plant or an animal. It also known as Biodegradable and green waste. It is organic material Waste such as food, garden and lawn clippings, degradable carbon such as paper, cardboard and timber.

- **Recyclable waste**

  It means the process of converting waste material in to new materials and objects. It is an alternative to conventional waste disposal that can save material and help lower green house gas emissions. Composting or other reuse of biodegradable waste such as food or garden waste is also considered recycling.

- **Hazardous waste**

  It means waste with properties that make it potentially dangerous or harmful to public health or the environment.

- **Medical waste**

  It is any kind of waste that contains infectious material (or material that's potentially infectious). This definition includes waste generated by healthcare facilities like physician's offices, hospitals, dental practices, laboratories, medical research facilities, and veterinary clinics.

2. Preparation of the Draft of Awareness test

On the different dimensions of the Waste management, the investigator developed the items of the Awareness test. The preliminary form of the test was prepared in consultation with the supervising teacher and after the proper review of related studies. This draft awareness test consists of 30 items from different dimensions. All items were multiple choice items with four alternative responses. A copy of the draft Awareness test on Waste management is given as Appendix I.

Details regarding items under each components of Test on Waste management are given in Table 1

Table 1

Items under each Components of Awareness Test on Waste management

Components	Item Number
Solid waste	1, 2, 3, 4, 5,, 35, 7, 16, 17, 19,
Liquid waste	24, 25,
Organic waste	8, 9, 10, 11,
Recyclable waste	18, 20, 21, 22, 23,
Hazardous waste	12, 13, 14, 15
Biomedical Waste	6, 26, 27, 28, 29, 30

3. Scoring Procedure

As the present awareness test, the score 1 is given for a right answer and 0 for incorrect one. Thus the maximum score obtainable on the test is 30 and minimum zero. The scores on all the items are added to get the total score on Waste management.

Reliability

Reliability is the degree of consistency that instrument or procedure demonstrates whatever it is measuring, it does so consistently (Best & Kahn, 2014). The investigator ensured the reliability of the tool by using test-retest method. The Test was administrated to sample of 50 secondary school students. After 3weeks the same Test was administrated to the same sample of 50 students. The reliability coefficient was 0. 74 (N=50) which ensured the reliability of the tool Test on Waste Management Awareness.

Validity

An index of validity shows the degree to which a test measures what it intends to measure when compared with accepted criterion. Validity as the quality of a data gathering instrument or procedure that ensures to measure what is supposed to measure (Best and Khan, 2012).

The validity of the present scale was ensured using face validity. A test is said to have face validity when it appears to measure whatever the author had in mind, namely what he thought he was measuring (Garret,2007). The items in the present test were phrased in the least ambiguous way and the meaning of all the terms were clearly defined, so that the subjects responded to the items without difficulty and misunderstanding. Hence the scale possesses face validity.

Table 2

Stratification of Sample

Serial No.	Name of the school	Type of management
1	Nallalam GVHSS	Government
2	Meenchanda GVHSS	Government
3	CIRHSS	Aided
4	CGVHSS	Aided
5	NSS Meenchanda	Unaided
6	Olive English School	Unaided
7	GVHS Velliyode	Government
8	Crescent Vilangadu	Aided
9	Sapphire Central school	Unaided
10	GBHS Tirur	Government
11	KHM HSS	Aided
12	MET Tirur Central school	Unaided
13	GHSS Peruvallur	Government
14	EMEA Qondoty	Aided
15	Irshadiya English Medium School	Unaided

Standardization of Waste disposal inventory

Waste disposal Inventory

The tool is prepared and standardized by the investigator with the assistance of her supervising teacher. The procedure followed in the construction of the tool is described below.

a) Planning of the Inventory

The first step in the construction and standardization of an Inventory is planning of the Inventory. It was decided to develop Likert type scale with three responses viz., always, sometimes and never. The scale is prepared to measure the extent waste disposal behaviour among secondary school students. The investigator reviewed the literature and identified 5 components. Those are Solid waste, Liquid waste, Organic waste, Recyclable waste, Hazardous waste and bio medical waste.

b) Preparation of the Scale

Based upon the above mentioned components the investigator developed the Waste disposal Inventory. The draft scale consists 24items. A copy of the draft tool "Waste disposal Inventory "(Malayalam version and English version) are given as Appendices I and II respectively.

Details regarding items under each components of waste disposal Inventory are given in Table 3

Table 3

Items under each Components of waste disposal Inventory

Components	Item Number
Solid waste	1, 2, 3, 4, 9, 10, 11, 14, 15
Liquid waste	26
Organic waste	5, 6, 7, 8, 17, 19, 23
Recyclable waste	12, 13,
Hazardous waste	16, 18, 20, 21, 22,, 27
Biomedical waste	24, 25,

c) Scoring Procedure

As the present Inventory is a Likert type scale, response can be made in a three point scale as always, sometimes and never. For a statement the score given is 3, 2 and 1 for the options always, sometimes and never. The scores on all the items are added to get the total score on waste disposal Inventory.

d) Try out of the Preliminary Scale

The purpose of the tryout of the Inventory is to select the items for the final scale by empirically testing the item characteristics. The procedure of the item analysis is described below.

The preliminary scale was administered to a sample of 370 secondary school students selected by stratified sampling techniques giving due representation to gender of the pupils, locality of school and type of management of institution.

The 370 response sheets obtained were scored and the total score for each sheet was calculated. Then these were arranged in ascending order of the total score

and the highest and lowest 27 percentages of the 370 sheets (100 sheets) were separated.

The mean and standard deviation of the score obtained for each item for the upper group and lower group were calculated separately. The critical ratio for each items were calculated using the formula.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$ (Best and Khan, 2012)

Where

$\bar{x}_1$ = mean of each item in the upper group

$\bar{x}_2$ = mean of each item in the lower group

s_1 = standard deviation of each item in upper group

s_2 = standard deviation of each item in lower group

n_1 = sample size of the upper group

n_2 = sample size of the lower group

The critical ratio obtained for each item is given in Table 4.

Table 4

Discrimination Index of items in the waste disposal behaviour

Item No	X_H	X_L	σ H	σ L	t
1	2. 22	1. 78	0. 58	0. 69	4. 885
2	2. 48	1. 87	0. 52	0. 61	7. 571
3	2. 53	2. 05	0. 63	0. 66	5. 285
4	1. 94	2. 11	0. 79	0. 72	-1. 588*
5	2. 50	2. 21	0. 70	0. 71	2. 891
6	1. 26	1. 03	0. 60	0. 17	3. 705
7	2. 35	1. 63	0. 82	0. 70	6. 650
8	2. 72	2. 25	0. 60	0. 81	4. 655
9	1. 72	1. 42	0. 71	0. 55	3. 326
10	1. 22	1. 12	0. 50	0. 41	1. 540*
11	2. 78	2. 22	0. 50	0. 72	6. 378
12	2. 49	1. 65	0. 75	0. 67	8. 369
13	2. 86	2. 44	0. 38	0. 61	5. 870
14	1. 37	1. 11	0. 65	0. 35	3. 550
15	2. 75	2. 25	0. 56	0. 69	5. 803
16	2. 34	1. 79	0. 73	0. 67	5. 556
17	2. 05	1. 31	0. 85	0. 61	7. 080
18	1. 74	1. 57	0. 77	0. 69	1. 645*
19	2. 74	2. 29	0. 46	0. 59	5. 992
20	2. 20	1. 87	0. 75	0. 73	3. 141
21	2. 50	2. 23	0. 70	0. 68	2. 760
22	1. 88	1. 88	0. 74	0. 67	0. 00*
23	1. 68	1. 40	0. 82	0. 64	2. 709
24	2. 61	2. 29	0. 60	0. 64	3. 643
25	1. 58	1. 26	0. 82	0. 50	3. 327
26	2. 54	2. 02	0. 77	0. 77	4. 747
27	1. 70	1. 31	0. 80	0. 56	3. 994
28	2. 83	2. 08	0. 45	0. 65	9. 518

*denotes rejected items

e) **Finalization of the Scale**

Items with critical ratio greater than 2. 58 were selected for the final scale. Thus out of the 28 items, 24 items are selected for the final scale. The final scale consists 24items.

A copy of the final version of the tool Waste disposal Inventory (Malayalam & English version) are appended as Appendices III&IV respectively.

Reliability

Reliability is the degree of consistency that instrument or procedure demonstrates whatever it is measuring, it does so consistently (Best & Kahn, 2014). The investigator ensured the reliability of the tool by using test-retest method. The Inventory was administrated to sample of 50 secondary school students. After 3weeks the same scale was administrated to the same sample of 60 students. The reliability coefficient was 0. 74 (N=50) which ensured the reliability of the tool Scale on Academic Stress.

Validity

An index of validity shows the degree to which a test measures what it intends to measure when compared with accepted criterion. Validity as the quality of a data gathering instrument or procedure that ensures to measure what is supposed to measure (Best and Khan, 2012).

The validity of the present Inventory was ensured using face validity. A test is said to have face validity when it appears to measure whatever the author had in

mind, namely what he thought he was measuring (Garret,2007). The items in the present Inventory were phrased in the least ambiguous way and the meaning of all the terms were clearly defined, so that the subjects responded to the items without difficulty and misunderstanding. Hence the scale possesses face validity.

Selection of Sample

Selection of sample is an important aspect of any research. A sample is a small proportion of population selected for observation (Best & khan, 2012) The initial sample for the study constitutes 720 secondary school students from 15 secondary schools in Kozhikode and Malappuram districts. The sample were selected using stratified sampling techniques by giving due representation to the factors like gender of the pupils, locale of the school and type of management.

a) Gender

Gender has great influence on findings of research. Since it has been found that sex difference exists in many of the psychological variables, the investigator decided to give due weight age to male and female students.

Locale of the school

The number of secondary school students in rural area is more than the number of secondary school students in urban area. So the investigator decided to give due weight age to the locale of the school.

b) Type of school Management

The existing schools in Kerala fall into broad categories as government, aided and unaided schools. It was decided to give proper weightage to each type of school management.

Data Collection Procedure, Scoring and Consolidation of Data

For the collection of data, the investigator personally contacted the head of the institutions for obtaining permission. The investigator met the students and explained the purpose and ensured their co-operation to make the study as successful as possible. After that copies of the tools were distributed and collected back.

Scoring and Consolidation of Data

The response sheets were scored according to the scoring procedure and were consolidated and tabulated for further statistical analysis. While scoring, incomplete response sheets were rejected and hence the sample size is reduced from 750 to 720. The break up the final sample is given in Table 3.

Table 5

Details of the sample selected for the study

Sample	Categories	Number of students	Total
Gender	Male	360	720
	Female	360	
Locale of school	Urban	360	720
	Rural	360	
Type of management	Government	241	720
	Aided	239	
	Unaided	240	

Statistical Technique Used

The statistical techniques used for the analysis of data are explained below.

Apart from the preliminary analysis, the objectives and hypothesis warranted the use of the following statistical techniques in analyzing data.

The statistical techniques used for the analysis of data are explained below.

1. Descriptive Statistics

Mean

The mean is the most used method of describing the central tendency. The mean is found out using the formula

$$\bar{x} = A + \frac{\sum f_i d_i}{\sum f_i} \times c$$

Where

$\underline{X}$ = Mean

A = Assumed mean

f_i = frequency of the class interval

d_i = x_i-A

c = length of the class interval

$\sum f_i$ = Total number of scores

Median

Median is a point in an array, above and below which one half of the scores fall. It is the measure position rather than the magnitude.

The median is calculated using the formula.

$$Median = l + \frac{h}{f}\left(\frac{N}{2} - c\right)$$

Where:

l = lower class boundary of the median class

h = Size of the median class interval

f = Frequency corresponding to the median class

N = Total number of observations i.e. sum of the frequencies

c = Cumulative frequency preceding median class.

Mode

The mode is defined as the most frequently occurring score in a distribution.

The mode was calculated using the formula.

Mode = 3 median-2 mean

Standard Deviation

Standard deviation is the most important measure of variability. The standard deviation is the square root of the average of the squares of deviations of the scores taken from mean, standard deviation is calculated using the formula.

$$\text{Standard deviation} = \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2}$$

Where,

f	=	frequency of the class interval
∑f	=	total number of scores
x	=	raw score

Skewness

A distribution is said to be skewed if the value of the mean, median &mode are different and there is symmetry between the right and left half of the curve such type of curve is inclined more towards the left or right of the centre of the curve.

Skewness was calculated by using the formula.

$$SK = \frac{3\,(\text{mean} - \text{median})}{\text{standard deviation}}$$

Kurtosis

The term kurtosis refers to the flatness or peakness of a frequency distribution as compared with the normal. The following formula for measuring kurtosis is

$$\text{Kurtosis} = \frac{P_{75} - P_{25}}{2\,(P_{90} - P_{10})}$$

Where,

P_{75} = 75th percentile

P_{25}= 25th percentile

P_{90} = 90th percentile

P_{10} = 10th percentile

2. Percentiles

To find the extent of Academic Stress among higher secondary school students percentiles are used. The formula in

$$PP = L + \frac{pN - F}{fp} \times i$$ (Garret, 2007)

Where

P = Percentage of the distribution wanted

L = Exact lower limit of the class interval upon which Pp lies.

pN = Part of N to be counted off in order to reach Pp

F = Sum of all scores within the interval below L

Fp = Number of scores within the interval upon which Pp falls

i = Class interval.

3. Test of Significance of difference between means for large independent samples.

The mean scores obtained are compared using the test of significance of difference between means for large independent samples. The formula used for finding the critical ratio is,

The t value can be calculated using the formula.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$ (Best and Khan, 2012)

Where

$\bar{x}_1$ = mean of each item in the upper group

$\bar{x}_2$ = mean of each item in the lower group

s_1 = standard deviation of each item in the upper group

s_2 = standard deviation of each item in the lower group

n_1 = Sample size of upper group

n_2 = Sample size of lower group

If obtained critical ratio is greater ratio is greater than the tabled valued required for significance at 0. 05 level or 0. 01level, the mean difference is considered to be significance.

4. ANOVA (One-Way)

The analysis of variance is an effective way to determine whether the means of more than two samples are different to attribute to sampling error (Best & Kahn, 2002). It helps us to know whether any of the differences between the means of the given samples are significant. In a single classification or one way analysis of variance, the relationship between one independent and one dependent variable is examined (Best & Khan, 2006)

The Analysis of Variance consists of these operations

- The variance of the score for four groups is combined into one composite group known as the total groups variance (vt)

- The mean value of the variance of each of the four groups, computed separately, is known as the within- groups variance (vw)

- The difference between the total groups variance and the within groups variance is known as the between group variance (vt-vw=vb)

- The F ratio is computed by,

  F= vb/vw = (between-group variance) / (within-groups variance)

For the present study the investigator used the analysis of variance (ANOVA) to determine whether the Awareness on Waste Management and Waste disposal behaviour among secondary school students is significant or not. Also it verifies whether the Awareness on Waste Management and Waste disposal behaviour significantly vary by gender, locale and type of management.

5. Pearson's Product Moment Coefficient of Correlation

The most often used and most precise coefficient of correlation is the Pearson's product moment co-efficient of correlation (r).

The degree of relationship is measured and represented by the coefficient of correlation which can be calculated using the formula.

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\,n\Sigma x^2 - (\Sigma x)^2\,]\,[\,n\Sigma y^2 - (\Sigma y)^2\,]}}$$

Where,

$\sum x$ = Sum of the x scores

$\sum y$ = Sum of the y scores

$\sum x^2$ = Sum of squared x scores

$\sum y^2$ = Sum of squared y scores

N = Number of paired scores

The value of 'r' obtained in the class is described in terms of :

1. Size of 'r'.
2. Statistical significance of coefficient.
3. Direction of 'r'.

Interpretation of computed correlation coefficient

The compound correlation coefficient between two variables is then interpreted to find out whether there exists any relationship between the two variables and if any such exists, how far the relation is significant.

The interpretation of correlation coefficient is presented in table 6

Table 6
The interpretation of correlation coefficient

Range of computed correlation	Interpretation
0	Zero correlation, no relationships
0.21 to +/- 0.40	Slight ; almost negligible relationship
0.41 to +/- 0.60	Moderate relation, substancial, but small relationship
0.61 to +/- 0.80	High correlation, marked relationship
0.71 to +/- 0.99	Very high correlation
+/-	Perfect correlation; almost identical or opposite relationship

In this study correlation coefficient 'r' is used to find out relationship between Moral disengagement and Media addiction among higher secondary school students.

ANALYSIS AND INTERPRETATIONS

Data analysis is the process of extracting information from data. Analysis of data means studying the organized material in order to discover inherent facts. The data was studied from as many angles as possible to explore new facts. Statistical techniques have contributed greatly in gathering, organizing, analyzing and interpreting numerical data. (Koul, 2014)

The main purpose of the study is to investigate the Awareness on Waste Management and waste disposal behaviour among secondary school students. The collected data was analyzed statistically and the results have been presented and discussed in this chapter with reference to the following hypotheses.

Objectives

1. To find out the extent of Awareness on Waste management among secondary school students.

2. To find out the extent of Waste disposal behaviour among secondary school students.

3. To find out whether there exists any significant differences in theAwareness of waste management among the following sub samples of secondary school students, based on

    a) Gender

    b) Locale

    c) Type of management

4. To find out whether there exists any significant differences in the Waste disposal behaviour among the following sub samples of secondary school students, based on

   a) Gender

   b) Locale

   c) Type of management

5. To find out whether there is any significant relationship between Awareness on Waste management with Waste disposal behaviour among secondary school students for the total sample and subsamples based on gender, locale and type of management.

Hypotheses

1. There will not be any significant difference between the mean scores of Awareness on Waste management between male and female secondary school students.

2. There will not be any significant difference between the mean scores of Awareness on Waste management between urban and rural secondary school students.

3. There will not be any significant difference between the mean scores of Awareness on waste management between government, aided and unaided secondary school students.

4. There will be exists significant differences between Waste disposal behavior of male and female secondary school students.

5. There will be exists significant differences between Waste disposal behavior of urban and rural secondary school students.

6. There will be exists significant differences between Waste disposal behavior of government, aided and unaided secondary school students.

7. There will be a significant relationship between Awareness on waste management with Waste disposal behaviour among secondary school students for the total sample and subsample based on gender, locale and type of management.

Preliminary Analysis

The important statistical properties of the scores on the variables under study are analyzed as a preliminary step. The mean, median, mode, standard deviation, skewness and kurtosis are computed for the whole sample. The details of the variable Awareness on Waste management statistics is presented in Table 7.

Table 7

Descriptive Statistics of the Variable Awareness on Waste management for the Total sample.

Total Sample	Mean	Median	Mode	S. D	Skewness	Kurtosis
720	21. 92	22. 00	24. 00	3. 30	-1. 69	4. 366

Discussions

Table 7 reveals that three measures of central tendency viz., mean, median and mode of the variable Awareness on Waste management for the total sample are almost equal. The extent of skewness obtained is -1. 69 which shows the distribution is negatively skewed. The measure of kurtosis is 4. 36 which show the distribution is leptokurtic.

The graphical representation of the scores of the variable Awareness on Waste management of secondary school students for the total sample is presented in Figure I.

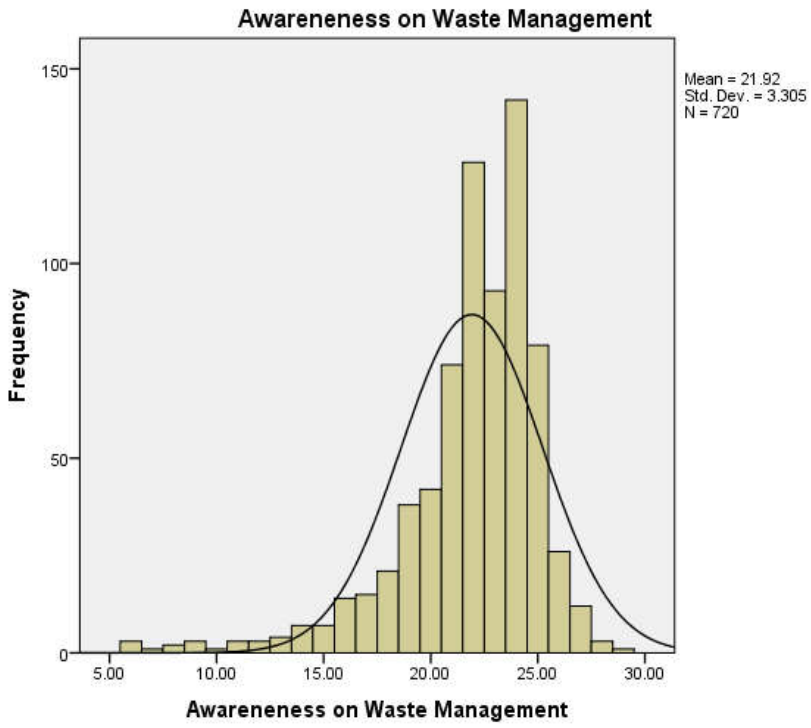

Figure. I Smoothed frequency curve of Awareness on Waste management among secondary school students in the total sample

The statistical constants and graphical representation was evident that the distribution of scores of Awareness of Waste management of secondary school students is approximately normal distribution.

The results of descriptive statistics for the distribution of scores for Waste disposal behavior of secondary school students for total sample is calculated and presented in Table 8.

Table 8

Descriptive statistics of the Waste disposal Inventory of secondary school students for total sample.

Variables	Category	Number	Mean	Median	Mode	SD	Skewness	Kurtosis
Waste disposal behaviour	Total	720	49. 45	50	50	4. 64	-. 259	. 295

Table 8 shows that the obtained value of the mean, median, and mode of the variable Waste disposal behaviour of secondary school students are 49. 45,50 and 50 respectively for the total sample. It reveals that the value of Mean, Median and mode coincide approximately for the total sample. The extent of skewness obtained is -.259 which shows that the distribution of the scores of Waste disposal behavior of the secondary school students is negatively skewed for the total sample. The indices of kurtosis for Waste disposal behavior shows that the distribution of scores of Waste disposal behaviour (K=. 295) is leptokurtic in nature for the total sample of the secondary students.

Thus, the distribution of the scores of Waste disposal behaviour of secondary school students shows that the distribution is almost normal for the total sample.

The graphical representation of the distribution of scores of waste disposal behavior for the total sample of secondary school students is given in Figure2.

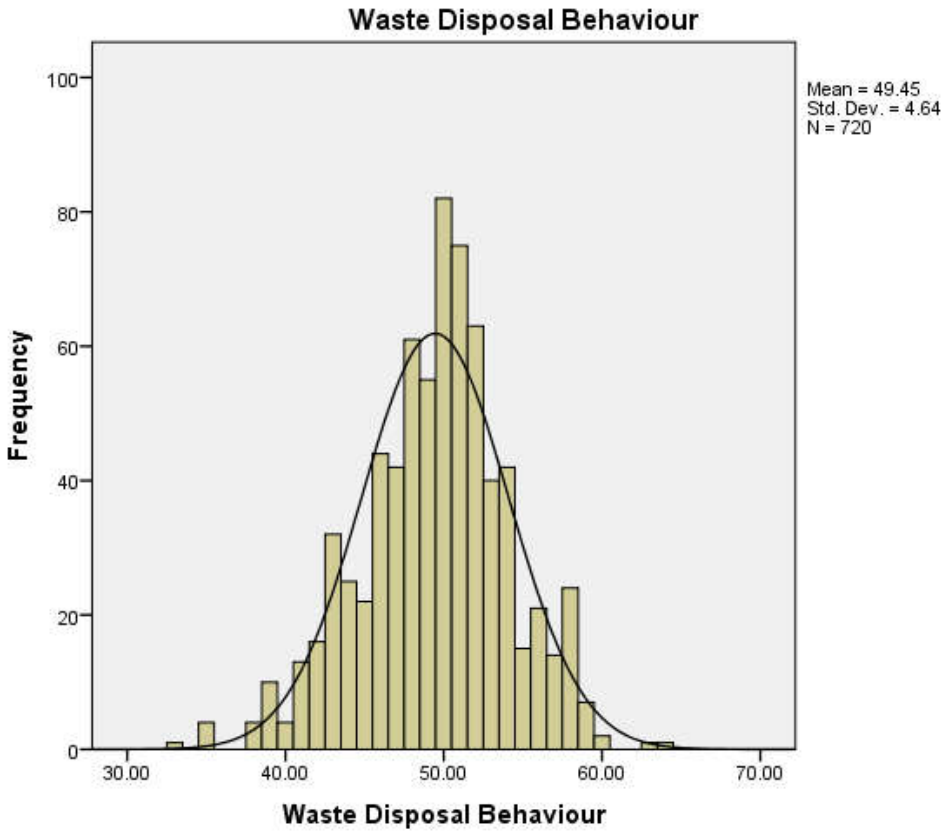

Figure 2. Graphical representation of the distribution of scores of waste disposal behaviour for the total sample.

From the figure 2, it was evident that the distribution of scores of Waste disposal behaviour among secondary school students is approximately normal distribution.

Extent of Awareness on Waste management in the total sample

The extent of Awareness on Waste management in the total sample is established by calculating the means score and the percentiles.

The maximum score obtainable for the Awareness on Waste management in the test is 30 and the minimum score is 0. The obtained mean score is 21. 92 which is greater than to the neutral value on the test. So it can be interpreted that the extent of Awareness on Waste management among secondary school students is moderate level.

Percentile Norms of Awareness on Waste Management in the Total Sample.

Percentiles P_{10} P_{20} P_{30} P_{40} P_{50} P_{60} P_{70} P_{80} and P_{90} are computed for the total sample. They are presented in Table 9.

Table 9

Percentile Norms of Awareness on waste management for the Total Sample

Percentile	Value
P_{90}	25. 00
P_{80}	24. 00
P_{70}	24. 00
P_{60}	23. 00
P_{50}	22. 00
P_{40}	22. 00
P_{30}	21. 00
P_{20}	20. 00
P_{10}	18. 00

Table 9 indicates that the 10th percentile of Awareness on Waste management of secondary school students is 18. That is only 10 percent of students are having the score less than 18. Also, Table 6 shows that 50 percent of students are

having the score greater than 22, the neutral value on the test. In a similar way we can interpret all other percentiles. This result suggests that the extent of Awareness on Waste management among secondary school students is comparatively high.

Extent of Waste disposal behaviour in the total sample

The extent of Waste disposal behaviour in the total sample is established by calculating the means score and the percentiles.

The maximum score obtainable for the Waste disposal behaviour in the Inventory is 72 and the minimum score is 24. The obtained mean score is 49. 45which is greater than the neutral value on the test. So it can be interpreted that the extent of Waste disposal behaviour among secondary school students is moderate level.

Percentile Norms of Waste disposal behaviour in the Total Sample.

Percentiles P_{10} P_{20} P_{30} P_{40} P_{50} P_{60} P_{70} P_{80} and P_{90} are computed for the total sample. They are presented in Table 10

Table 10

Percentile Norms of Waste disposal behavior for the Total Sample

Percentile	Value
P_{90}	55. 00
P_{80}	53. 00
P_{70}	52. 00
P_{60}	51. 00
P_{50}	50. 00
P_{40}	49. 00
P_{30}	47. 00
P_{20}	46. 00
P_{10}	43. 00

Table 10 shows that the 10th percentile of Waste disposal behaviour of secondary school students is 43. That is only 10 percent of students are having the score less than 43. Also, Table 6 shows that 50 percent of students are having the score greater than 50 the neutral value. In a similar way we can interpret all other percentiles. This suggests that the extent of Waste disposal behaviour among secondary school students is comparatively above the average.

Mean Difference Analysis

Mean difference analysis was done in order to find out whether there exist any group differences in scores of variables with respect to gender, locale and type of management. The intention was to find out whether any significant difference exists in the mean scores of Awareness on Waste management and waste disposal behaviour for girls and boys, urban and rural and government, aided, unaided secondary school students.

Gender Difference

The test of significance of the difference between mean scores of boys and girls for the variables namely Awareness on Waste management and Waste disposal behavior for, urban and rural and government, aided, unaided secondary school students were calculated.

Locale Difference

The test of significance of the difference between mean scores of urban and rural for the variables namely Awareness on Waste management and Waste disposal

behavior for girls and boys and government, aided, unaided secondary school students were calculated.

Management Difference

The test of significance of the difference between mean scores of government, aided and unaided for the variables namely Awareness on Waste management and Waste disposal behavior for girls and boys and urban and rural secondary school students were calculated.

Comparison of the mean scores of Awareness on Waste management of Boys and Girls secondary Schools Students

The data and results of the test of significance difference between the mean scores of Awareness on Waste management for boys and girls secondary schools students are presented in Table 11.

Table 11

Comparison of the mean scores of Awareness on Waste management of Boys and Girls secondary Schools Students

Category		N	Mean	Std. Deviation	t-value	Level of significance
Awareness on Waste Management	Boys	360	21. 77	3. 49	1. 196	NS*
	Girls	360	22. 06	3. 09		

*Mark indicates not significant

From the table 11, it is indicates that the mean scores of Awareness on Waste management of male secondary students are 21. 77 and the mean scores of Awareness on Waste management of female secondary students are 22. 06. The standard deviation obtained for male students is 3. 49 and female students are 3. 09. The t-value obtained is 1.196, which is less than the tabled value at 0. 05 level (1. 96). Since the t-value obtained is less than the tabled value, it can be concluded there exists no significant difference in the mean scores of Awareness on Waste management of male and female secondary school students.

Discussion

From the analysis of mean scores of Awareness on Waste management among male and female students, it is found that there exists no significant difference in the mean scores of Awareness on Waste management of male and female secondary school students.

Comparison of the mean scores of Awareness on Waste management of urban and rural secondary Schools Students

Table 12

Comparison of the mean scores of Awareness on Waste management of urban and rural secondary Schools Students

Category		N	Mean	Std. Deviation	t-value	Level of significance
Awareneness on Waste Management	Urban	360	21. 62	3. 65	2. 398	. 05
	Rural	360	22. 21	2. 89		

Table 12 indicates that the mean scores of Awareness on Waste management of urban secondary students are 21. 62 and the mean scores of Awareness on Waste management of rural secondary students are 22. 21. The standard deviation obtained for urban students is 3. 65 and rural students are 2. 89. The t-value obtained is 2. 398, which is greater than the tabled value at 0. 05 level (1. 96). Since the t-value obtained is greater than the tabled value, it can be concluded there exists significant difference in the mean scores of Awareness on Waste management among urban and rural secondary students.

Discussion

From the analysis of mean scores of Awareness on Waste management among urban and rural secondary students, it is found that there exists significant difference in the mean scores of Awareness on Waste management among secondary school students.

Comparison of the mean scores of Awareness on Waste management of government, aided and unaided secondary Schools Students

In the present study, the technique one-way ANOVA is used to find out whether there exists any significant difference in Awareness on Waste management among government, aided and un aided secondary school students.

Being a parametric technique, ANOVA has some basic assumptions viz.,

1. The distribution of the dependent variable shows normality.

2. Homogeneity of variance.

3. The sample drawn should be random and independent.

The statistical constant and graphical representation obtained for the dependent variable reveals that Awareness of Waste management is normally distributed in the total sample.

Since the sample is drawn from the normal population and also is sufficiently large, the investigator assumes that there is homogeneity of variance. As the samples in the present study are randomly and measures are independent, it also satisfies the third basic assumptions of ANOVA. As the basic conditions of ANOVA are almost satisfied, ANOVA is carried out. The statistical analysis and discussion of the result with regard to this technique are described under the following sections.

Awareness on Waste management

The data and results showing Awareness on Waste management are given in Table 13.

Table 13

Data and results showing Awareness on Waste management are given in

Awareness of Waste management	Sum of Squares	Degrees of freedom	Mean Square	F
Between Groups	20. 267	2	10. 133	. 928
Within Groups	7833. 061	717	10. 925	
Total	7853. 328	719		

Discussion of results

From Table 13, it can be found that 'F' value obtained is. 928 which is less than the F –value required for significance at 0. 05 level (3. 008), the tabled value of 'F' for (2,717) degrees of freedom at 0.05 level. This implies that there exist no significant difference in Awareness on Waste Management among government, aided and unaided secondary school students.

Comparison of the mean scores of Waste disposal behaviour based on gender, locale and type of management.

Comparison of the mean scores of Waste disposal behaviour of Boys and Girls secondary Schools Students

The data and results of the test of significance difference between the mean scores of Waste disposal behaviour for boys and girls secondary schools students are presented in Table 14.

Table 14

Comparison of the mean scores of Waste disposal behaviour of Boys and Girls secondary Schools Students

Category		N	Mean	Std. Deviation	t-value	Level of significance
	Boys	360	49. 62	4. 68	. 988	NS
	Girls	360	49. 28	4. 59		

From the table 14, it is indicates that the mean scores of Waste disposal behaviour of male secondary students are 49. 62 and the mean scores of Waste disposal behaviour of female secondary students are 49. 28. The standard deviation obtained for male students is 4. 68 and female students are 4. 59. The t-value obtained is. 988, which is less than the tabled value at 0. 05 level (1. 96). Since the t-value obtained is less than the tabled value, it can be concluded there exists no significant difference in the mean scores of Waste disposal behaviour of male and female secondary school students.

Discussion

From the analysis of mean scores of Waste disposal behaviour among male and female students, it is found that there exists no significant difference in the mean scores of Waste disposal behaviour of male and female secondary school students.

Comparison of the mean scores of Waste disposal behaviour of urban and rural secondary Schools Students

Table 15

Comparison of the mean scores of Waste disposal behaviour of urban and rural secondary Schools Students

Category		N	Mean	Std. Deviation	t value	Level of significance
Awareneness on Waste Management	Urban	360	49. 41	4. 82	. 249	NS
	Rural	360	49. 49	4. 45		

Table 15 indicates that the mean scores of Waste disposal behaviour of urban secondary students are 49. 41 and the mean scores of Awareness on Waste Management of rural secondary students are 49. 49. The standard deviation obtained for urban students is 4. 82 and rural students are 4. 45. The t-value obtained is -.249, which is less than the tabled value at 0. 05 level (1. 96). Since the t-value obtained is less than the tabled value, it can be concluded there exists no significant difference in the mean scores of Waste disposal behaviour among urban and rural secondary students.

Discussion

From the analysis of mean scores of Waste disposal behaviour among urban and rural secondary students, it is found that there exists no significant difference in the mean scores of Waste disposal behaviour among secondary school students.

Comparison of the mean scores of Waste disposal behaviour of government, aided and unaided secondary Schools Students.

The data and result needed for finding the Waste disposal behavior are given in the Table 16

Table 16

Comparison of the mean scores of Waste disposal behaviour of government, aided and unaided secondary Schools Students

	Sum of Squares	df	Mean Square	F
Between Groups	88. 159	2	44. 080	2. 053
Within Groups	15392. 328	717	21. 468	
Total	15480. 487	719		

Discussion of results

From Table 16, it can be found that 'F' value obtained is 2. 053 which is less than the F –value required for significance at 0. 05 level (3. 008), the tabled value of 'F' for (2,717) degrees of freedom at 0.05 level. This implies that there exist no significant difference in Awareness on Waste management among government, aided and unaided secondary school students.

RELATION BETWEEN AWARENESS OF WASTE MANAGEMENT AND WASTE DISPOSAL BEHAVIOUR AMONG SECONDARY SCHOOL STUDENTS .

The collected data has been analyzed to find out the coefficient of correlation between awareness on Waste management and waste disposal behavior among secondary school students subsample based on gender, locale and type of management. The coefficient correlation was calculated using Pearson's product moment correlation method. The analysis and discussion of results with regrard to correlation are follows.

The correlation coefficient obtained for the variables are presented in below tables.

Correlation Coefficient between Awareness of Waste management and Waste disposal behaviour among secondary school students.

Table 17

Correlation Coefficient between Awareness of Waste Management and Waste disposal behaviour among secondary school students

Sl No.	Sample	N	r
1	Total	720	. 152**
2	Boys	360	. 84**
3	Girls	360	. 320**
4	urban	360	. 089
5	Rural	360	. 239**
6	government	241	. 067
7	Aided	239	. 311**
8	Unaided	240	. 138**

** Correlation is significant at the value 0. 05 level

Discussion of results

Above table 17 shows that coefficient correlation between Awareness on waste Management and waste disposal Behaviour among the total sample of the secondary school students was analyzed. Coefficient of correlation 'r' for the total sample is .152, which shows that significant slight positive correlation is found between the mean scores of Awareness on Waste management and Waste disposal behaviour in the total sample. The association between these two variables is significant at 0. 05 level. Hence there exist significant positive relationship between the variables Awareness on Waste management and Waste disposal Behaviour for the total sample of secondary school students.

Above table 17 reveals that coefficient correlation between Awareness on Waste Management and Waste disposal behaviour among the male secondary school students was analyzed. Coefficient of correlation 'r' for male sample is .84, which shows that high positive correlation is found between the mean scores of Awareness on Waste management and Waste disposal behaviour in the male sample. The relation between these two variables is significant at 0. 05 level. Hence there exist sifnificant positive relationship between the variables Awareness on Waste management and Waste disposal Behaviour for the male sample of secondary school students

Above table 17 shows that coefficient correlation between Awareness on Waste management and waste disposal behaviour among the female secondary school students was analyzed. Coefficient of correlation 'r' for female sample is .320, which shows that significant slight correlation is found between the mean scores of Awareness on Waste management and Waste disposal behaviour in the female sample significant at 0. 05 level. Hence there exist significant positive relationship between the variables Awareness on Waste management and waste disposal Behaviour for the female sample of secondary school students

Above table 17shows that coefficient correlation between Awareness on Waste management and Waste disposal behaviour among the urban secondary school students was analyzed. Coefficient of correlation 'r' for urban sample is. 089, which shows that no significant found between the mean scores of Awareness on Waste management and Waste disposal Behaviour in the urban sample. Above table 16 reveals that coefficient correlation between Awareness on Waste management

and Waste disposal behaviour among the rural secondary school students was analyzed. Coefficient of correlation 'r' for rural sample is. 239, which shows that significant positive correlation is found between the mean scores of Awareness on Waste management and Waste disposal Behaviour in the rural sample. The association between these two variables is significant at 0. 05 level. Hence there exists significant positive relationship between the variables Awareness on Waste management and Waste disposal Behaviour for the rural sample of secondary school students.

Above table 17 shows that coefficient correlation between Awareness on Waste management and Waste disposal behaviour among the government secondary school students was analyzed. Coefficient of correlation 'r' for government sample is. 067, which shows that no significant correlation is found between the mean scores of Awareness on Waste management and Waste disposal Behaviour in the government sample is significant at .05 level.

Above table 17 shows that coefficient correlation between Awareness on Waste management and Waste disposal behaviour among the aided secondary school students was analyzed. Coefficient of correlation 'r' for aided sample is .311, which shows that significant positive low correlation is found between the mean scores of Awareness on Waste Management and Waste disposal Behaviour in the aided sample. The association between these two variables is significant at 0.05 level..Hence there exist positive relationship between the variables Awareness on Waste management and Waste disposal Behaviour for the aided sample of secondary school students

Above table 17 shows that coefficient correlation between Awareness on Waste management and Waste disposal behaviour among the unaided secondary school students was analyzed. Coefficient of correlation 'r' for unaided sample is.138, which shows that significant positivecorrelation is found between the mean scores of Awareness on Waste Management and Waste disposal Behaviour in the unaided sample. The association between these two variables is significant at 0. 05 level.Hence there exist slight positiverelationship between the variables Awareness on Waste management and Waste disposal Behaviour for the unaided sample of secondary school students

Major Findings

Following are the major findings obtained after analysis of the collected data

1. The extent of Awareness on Waste management is moderate level among secondary school students for total sample is 21. 92.

2. The extent of Waste disposal behaviour is moderate levelamong secondary school students for total sample is 49. 45.

3. The extent of Awareness on Waste Management of secondary students in total sample in terms of percentile is
   P10=18,P20=20,P30=21,P40=22,P50=22,P60=23,P70=24,P80=24,P90=25

4. The extent of Waste disposal behaviour of secondary students in total sample in terms of percentile is as follows
   P10=43,P20=46,P30=47,P40=49,P5=50,P60=51,P70=52,P80=53,P=55

5. There exists no significant difference in the mean scores of Awareness on Waste management between male and female secondary school students at 0. 05 level (t=-1. 196,A>O.O5).

6. There exists significant difference in the mean scores of Awareness on Waste management between urban and rural secondary school students at 0. 05 level (t =2. 398,A<O.O5)

7. There exists no significant difference in the mean scores of Awareness on Waste management between government aided and unaided secondary school students at 0. 05 level F =. 928,A>0.05(2.717)degrees of freedom

8. There exiss no significant difference in the mean scores of Waste disposal behaviour between male and female secondary school students at 0. 05 level (t =. 988.A>O.O5).

9. There exists no significant difference in the mean scores of Waste disposal behaviour between urban and rural secondary school students at 0. 05 level (t =. 249,A>0.05).

10. There exists no significant difference in the mean scores of waste disposal behaviour between government. aided and unaided secondary school students at 0. 05 level F =2. 053 >0.05 (degrees of freedom)

11. There exists significant positive relationship between Awareness on Waste management and Waste disposal behaviour of total sample of secondary school students (r =0. 15).

12. There exists significant high positive relationship between Awareness on Waste management and Waste disposal behaviour among male secondary school students (r =0. 84).

13. There exists significant slight positive relationship between Awareness on Waste management and Waste disposal behaviour among female secondary school students (r =0.32).

14. There exists no significant relationship between Awareness on Waste management and Waste disposal behaviour among Urban secondary school students (r =0. 89).

15. There exists significant slight positive relationship between Awareness on Waste management and Waste disposal behaviour among rural secondary school students (r =0.23).

16. There exists no significant relationship Awareness on Waste management and Waste disposal behaviour among Government secondary school students (r =0.06).

17. There exists significant slight relationship between Awareness on Waste management and Waste disposal behaviour among Aided secondary school students (r =0.31).

18. There exists slight significant relationship between Awareness on Waste management and Waste disposal behaviour among unaided secondary school students (r =0.13).

Conclusion

Major findings of the study helped the investigator to conclude as below**.**

The extent of Awareness on Waste management and Waste disposal behaviour is moderate level. It is also found that the comparison of the mean scores of Awareness on Waste management and Waste disposal behavior based on sub sample there exists no significant difference.

The study shows there exists significant slight positive relationship between the variables Awareness on Waste Management and waste disposal behaviour for the total sample of secondary school students. Whereas, there exists high positive relationship between boys and girls secondary school students. The boys students have better Awareness on Waste management and Waste disposal behaviour than the girls students.

The study reveals that there exists no significant relationship between Awareness on waste Management and waste disposal behaviour among the sub sample urban and rural. The study also shows that there exists significant slight positive relationship between the sub sample of female, rural, aided and unaided students between Awareness on waste Management and waste disposal behaviour.

Tenability of hypotheses

Based on the findings, the tenability of hypotheses for the study were reviewed.

The first hypothesis states that there will not be any significant difference between the mean scores of Awareness on Waste management between male and female secondary school students. Findings of the study reveals that the mean scores of Awareness on Waste management between male and female students shows no significant difference in their Awareness on Waste management at 0. 05 level of significance. Hence hypothesis is accepted.

The second hypothesis states there will not be any significant difference between the mean scores of Awareness on Waste management between urban and rural secondary school students. In this study the findings suggest that the mean scores of Awareness on Waste management between urban and rural students shows that there exists significant difference in their Awareness on Waste management at 0. 05 level of significance. Hence hypothesis is rejected.

The third hypothesis states there will not be any significant difference between the mean scores of awareness on Waste management between government, aided and unaided secondary school students. The result of the comparison of the mean scores of Awareness on Waste management between government, aided and unaided shows no significant difference in their Awareness on Waste management at 0. 05 level of significance. Hence hypothesis is accepted

The forth hypothesis states there will be exists significant differences between Waste disposal behavior of male and female secondary school students. The result reveals that the mean scores of Waste disposal behaviour among male and female students shows no significant difference in their Waste disposal behaviour at 0. 05 level of significance. Hence is rejected.

The fifth hypothesis states there will be exists significant differences between Waste disposal behavior of urban and rural secondary school students. The result reveals that the mean scores of Waste disposal behaviour among urban and rural students shows no significant difference in their Waste disposal behaviour at 0. 05 level of significance. Hence hypothesis is rejected.

The six hypothesis states there will be exists significant differences between Waste disposal behavior of government, aided and unaided secondary school students. The result of the comparison of the mean scores of waste disposal behavior between government, aided and unaided shows no significant difference in their Waste disposal behavior at 0. 05 level of significance. Hence hypothesis is rejected

The seven hypothesis states there will be a significant relationship between Awareness on Waste management with Waste disposal behaviour among secondary school students for the total sample and subsample based on gender, locale and type of management.

The first part of the hypothesis states that there will be a significant relationship between Awareness on Waste management and Waste disposal behaviour among secondary school students for the total sample. The result is there exist significant positive relationship. Hence hypothesis is accepted.

The second part of the hypothesis states that there will be a significant relationship between Awareness on Waste management and Waste disposal behaviour among secondary school students for the male sub sample. The result shows that significant high positive correlation is significant at0.05 level. There exists significant positive relationship between the variables Awareness on waste management and Waste disposal Behaviour for the male sample of secondary school students. Hence hypothesis is substantiated. Hence hypothesis is accepted

The third part of the hypothesis states that there will be a significant relationship between Awareness on Waste management with Waste disposal behaviour among secondary school students for the female sub sample. Result shows that significant slight positive correlation is significant at 0. 05 level. There exists significant positive relationship between the variables Awareness on Waste management and Waste disposal Behaviour for the female sub sample of secondary school students. Hence hypothesis is accepted

The fourth part of the hypothesis states that there will be a significant relationship between Awareness on Waste management and Waste disposal behaviour among secondary school students for the urban sub sample .Result shows that no significant correlation relationship between their Awareness on waste Management and waste disposal Behaviour. Hence hypothesis is rejected

The fifth part of the hypothesis states that there will be a significant relationship between Awareness on Waste management and Waste disposal behaviour among secondary school students for the rural sub sample. The result shows that low positive correlation is significant at 0. 05 level. There exists significant positive relationship between the variables Awareness on Waste

Management and waste disposal Behaviour for the rural sub sample of secondary school students. Hence hypothesis is accepted.

The sixth part of the hypothesis states that there will be a significant relationship between Awareness on Waste management with Waste disposal behaviour among secondary school students for the government sub sample. The result shows that no significant relation between their Awareness on waste Management and waste disposal Behaviour. Hence hypothesis is rejected.

The seventh part of the hypothesis states that there will be a significant relationship between Awareness on Waste management with Waste disposal behaviour among secondary school students for the aided sub sample. Result shows that slight positive correlation between their Awareness on waste Management and waste disposal behaviour is significant at 0.05 level. There exists significant slight positive relationship. Hence hypothesis is accepted.

The eighth part of the hypothesis states that there will be a significant relationship between Awareness on Waste management with Waste disposal behaviour among secondary school students for the unaided subsample. Result shows that significant slight positive correlation at 0.05 level. There exists significant slight positive relationship between the variables Awareness on Waste management and Waste disposal behaviour for the unaided subsample of secondary school students. Hence hypothesis is rejected.

SUMMARY CONCLUSION AND SUGGESTIONS

This chapter provides a retrospective view of the study, major findings, educational implications and suggestions for further research.

Restatement of the problem

The present study was entitled "AWARENESS ON WASTE MANAGEMENT AND WASTE DISPOSAL BEHAVIOUR OF SECONDARY SCHOOL STUDENTS"

Variables of the study

The present study involves two types of variables, those are awareness on waste management and waste disposal behavior

Objectives of the study

Following were the objectives set for the present study.

1. To find out the extent of awareness on waste management among secondary school students.
2. To find out the extent of waste disposal behaviour among secondary school students.
3. To find out whether there exists any significant differences in the awareness of waste management among the following sub samples of secondary school students:

a) Gender

b) Locale

c) Type of management

4. To find out whether there exists any significant differences in the waste disposal behaviour among the following sub samples of secondary school students:

a) Gender

b) Locale

c) Type of management

5. To find out whether there is any significant relationship between awareness on waste management with waste disposal behaviour among secondary school students for the total sample and subsamples based on gender, locale and type of management.

Hypotheses

1. There will not be any significant difference between the mean scores of awareness on waste management between male and female secondary school students.

2. There will not be any significant difference between the mean scores of awareness on waste management between urban and rural secondary school students.

3. There will not be any significant difference between the mean scores of awareness on waste management between government, aided and unaided secondary school students.

4. There will be exists significant differences between waste disposal behaviour of male and female secondary school students.

5. There will be exists significant differences between waste disposal behaviour of urban and rural secondary school students.

6. There will be exists significant differences between waste disposal behaviour of government, aided and unaided secondary school students.

7. There will be a significant relationship between awareness on waste management with waste disposal behaviour among secondary school students for the total sample and subsample based on gender, locale and type of management.

Sample selected for the study

The sample under present study was secondary school students. The sample consists of 720 students drawn from 15 secondary schools of Kozhikode and Malappuram districts using stratified sampling technique.

Tools used for the study

For the present study, the investigator used the following tools

1. Awareness Test on Waste management (Manoj Praveen & Rukiyabi Juvairiyath , 2019)
2. Waste disposal behavior Inventory (Manoj Praveen &Rukiyabi Juvairiyath, 2019)

Statistical techniques used

The following statistical techniques were used in the study for analyzing the data.

1. Percentiles
2. One-way ANOVA
3. Test of significance of difference between means
4. Coefficient correlation

Summary of Findings

1. The extent of Awareness on Waste management is moderate level among secondary school students for total sample is 21. 92.
2. The extent of Waste disposal behaviour is moderate level among secondary school students for total sample is 49. 45.
3. The extent of Awareness on Waste Management of secondary students in total sample in terms of percentile is P10=18, P20=20, P30=21, P40=22, P50=22, P60=23, P70=24, P80=24, P90=25.
4. The extent of Waste disposal behaviour of secondary students in total sample in terms of percentile is as follows P10=43, P20=46, P30=47, P40=49, P5=50, P60=51, P70=52, P80=53, P=55

5. There exists no significant difference in the mean scores of Awareness on Waste management between male and female secondary school students at 0. 05 level (t=-1. 196,A>O.O5).
6. There exists significant difference in the mean scores of Awareness on Waste management between urban and rural secondary school students at 0. 05 level (t =2. 398,A<O.O5)
7. There exists no significant difference in the mean scores of Awareness on Waste management between government aided and unaided secondary school students at 0. 05 level F =. 928, A>0.05(2.717)degrees of freedom
8. There exists no significant difference in the mean scores of Waste disposal behaviour between male and female secondary school students at 0. 05 level (t =. 988, A>O.O5).
9. There exists no significant difference in the mean scores of Waste disposal behaviour between urban and rural secondary school students at 0. 05 level (t =. 249, A>0.05).
10. There exists no significant difference in the mean scores of waste disposal behaviour between government, aided and unaided secondary school students at 0. 05 level F =2. 053 >0.05 (degrees of freedom)
11. There exists significant positive relationship between Awareness on Waste management and Waste disposal behaviour of total sample of secondary school students (r =0. 15).

12. There exists significant high positive relationship between Awareness on Waste management and Waste disposal behaviour among male secondary school students (r =0. 84).
13. There exists significant slight positive relationship between Awareness on Waste management and Waste disposal behaviour among female secondary school students (r =0. 32).
14. There exists no significant relationship between Awareness on Waste management and Waste disposal behaviour among Urban secondary school students (r =0. 89).
15. There exists significant slight positive relationship between Awareness on Waste management and Waste disposal behaviour among rural secondary school students (r =0.23).
16. There exists no significant relationship Awareness on Waste management and Waste disposal behaviour among Government secondary school students (r =.06).
17. There exists significant slight relationship between Awareness on Waste management and Waste disposal behaviour among Aided secondary school students (r =0.31).
18. There exists slight significant relationship between Awareness on Waste management and Waste disposal behaviour among unaided secondary school students (r =. 138).

Educational Implications

The major findings of the study helped the investigator to put forward the following suggestions for the improvement of educational practices at secondary level.

One of major significant findings of the study is that the relationship between Awareness on Waste management and Waste disposal of the boys shows higher than the girls. It was most notable findings of the study. So, necessary action plan is needed for encourage the better awareness on Waste management among students especially girls. Waste management Education should be integrated with the secondary curriculum to save earth and we too from the environmental pollution.

Now a day's Waste management is the very crucial problem of our society. Today's children are the tomorrow's citizen. Hence it was the duty of our government to put forward various programs for enhancing the level of awareness on Waste management among school students.

In order to improve the Awareness on Waste management among secondary school students, the findings of the study helped the investigator to suggests the following for the improvement of educational practices at school level.

- As the children are aware of the risk of deforestation they should be given an opportunity to replant
- Introduce green curriculum to their syllabus.

- As they have knowledge about the hazardous of plastic, they should be given to implementing the proper disposal of plastics.
- Conduct an exhibition about the hazardous of plastic
- The government should be encouraging practical disposal of waste rather than conducting an awareness campaign.
- Celebrate important days like Earth day, Environmental day and other nature-friendly days to develop awareness about the nature conservation towards the children

Suggestions of further Research

Findings of the present study and limitations involved made the investigator to suggest the following for further research in this area.

- The same study may be conducted among higher secondary school students.
- Modeling can be extended on a global scale to have a complete pollution effects towards landfill site.
- The same study can be conducted among pre service and in service teachers
- Conduct a qualitative research on cause and effects of Waste management.
- Conduct a comparative study on Hazardous of plastic and E-waste management.

- Construct instructional module for enhancing judicious use of Waste Disposal.
- The study may be extended for a longer period with more sampling points to get extra information regarding the rate and quantum of contaminant spread.

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