



Research Article

Availability of Environmental Information and Secondary School Teachers' Attitude Towards Plastic Waste Disposal in Ibadan Metropolis, Nigeria

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Abstract

Indiscriminate plastic waste disposal has been a major environmental challenge in the urban cities in Nigeria, especially Ibadan Metropolis. Secondary schools in Ibadan Metropolis generate much plastic wastes in form of food wrappers, beverages in plastic containers and the like. The role of teachers of secondary schools in forming the attitudes of students towards proper waste disposal is crucial, but the cases of improper waste disposal are still observed, which leads to the concerns of the attitudes of the teachers and the availability to the information concerning the environment. This paper has explored the attitude of teachers working in secondary schools on plastic waste disposal in Ibadan Metropolis and evaluated how the availability of environmental information can affect the attitude. The descriptive research design was used and a structured questionnaire was used to collect data by administering it to the teachers in secondary schools. The analysis of data was done using the descriptive statistics, that is an average and standard deviation and a benchmark average of 2.50 was used to identify the level of attitude. Norm test was done to determine the degree of availability of environmental information among the teachers of secondary schools. According to the scale classification, the mean scores of 0-1.66 were low availability; 1.67-3.33 moderate availability, and 3.34-5.00 high availability. The total mean score received was 3.93 which was in the high range of the scale (3.345.00). Therefore, the finding suggests that the availability of environmental information to secondary school teachers in Ibadan Metropolis is usually high. The research findings conclude that teachers express positive attitudes; however, more focus is needed on transforming the attitudes into a longer-term advocacy and action in the school.

Keywords

Availability of Environmental Information, Disposal of Plastic Wastes, Teacher Attitude, Secondary School, Ibadan Metropolis

1. Introduction

Plastic waste disposal is the process of managing and disposing plastic waste products in a safe and environmental friendly way. Plastic waste is a non-biodegradable waste. It is persistent because it is made of petroleum-based polymers

having strong molecular structures that impart microbial degradation resistance [1]. Plastic waste poses a serious environmental hazard to the world but Nigeria is especially vulnerable

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with increased industrialisation, urbanisation, and insufficiency of waste-management facilities [2]. Therefore, they should ensure that plastic wastes are disposed of the most appropriate manner to prevent harm to the environment.

Plastic waste disposal is currently among the most urgent environmental issues facing the urban centres in Nigeria. The high level of manufacturing and use of plastic products, as well as the lack of waste-management approaches, have caused serious environmental consequences, such as land and water pollution, drainage obstruction, flooding, and health hazards to the population [3]. These problems are also compounded in fast growing cities like the Ibadan Metropolis which are also characterised by population increase, urbanisation and the lack of waste-management facilities [4]. Schools represent one of the most important environments to discuss the problem of environmental issues, as they produce substantial quantities of plastic waste by using water sachets, food wrappings, and other disposable but non degradable materials. In the school system, the teachers in the secondary-school level play a key role in influencing the attitude, values, and behaviours of students towards environmental sustainability. Teachers, as role models and key agents of environmental education are supposed to impact the environment-consciousness and practices of students and the existing culture of waste-management in schools because of their dispositions on plastic waste disposal [5]. To this end, it is necessary that teachers in secondary schools should embrace the proper attitude towards plastic waste disposal to make sure that they engage in and promote safe waste practices.

According to Yue and Gao, attitude is a crucial factor in the perception, response, and interaction of a person with the environment [6]. This construct is a mental and emotional model that guides decisions, behaviours, and human relationships. Within the framework of this research, the term attitude refers to the attitude and behavioural predispositions of teachers in secondary schools in relation to plastic waste disposal, including their adherence to recycling and reduction as well as environmentally friendly disposal methods.

The attitude of teachers to plastic waste disposal can either have positive or negative orientation. Positive attitude implies the promotion of environmental stewardship [7]. Teachers with positive attitude in secondary schools are more likely to participate in, and promote environmentally friendly programmes. They, therefore, act as role models to students to engage in recycling programmes, minimise the use of plastic materials and implement sustainable practices.

Conversely, a negative attitude towards plastic waste disposal is a sign that school teachers in the secondary school might not be concerned with the way and place that they dispose of their plastic waste. This outlook represents the kind of mindset that does not appreciate the importance of proper plastic waste disposal which does not encourage the students to take up responsible environmental behaviours. As a result, when teachers of secondary schools have a negative attitude towards plastic waste disposal, the need to dispose of their

plastic waste in an environmentally friendly way may translate into a burden and not an essential responsibility.

Teacher attitude towards waste disposal such as plastic waste has been the subject of academic research, especially in Nigeria. Sam, Imeh, Oham and Igwubuike studied the attitudes of 403 teachers in the Calabar Education Zone of Cross River State, Nigeria [8]. Their result showed that proper disposal of waste was a challenge to a large percentage of teachers as a result of the existence of attitudinal challenges that compromised the best practices. Such attitudinal profile is a negative attitude towards waste disposal, and this affects plastic waste management. The observed negative attitudes by a group of these teachers could be caused by various factors including environmental information availability.

Environmental information is described as the information about the environment that can be in written, visual, aural, or database format and it can encompass water, air, soil, fauna, flora, land, and natural sites [9]. This kind of information is critical as it informs the policies that seek to protect the environment and make decisions by policymakers. Without the availability of pertinent environmental information, environmental sustainability is likely to be compromised because the necessary data and facts to give the assurance will not be available. To achieve the intended effect of environmental information, there are some factors which should be taken into consideration. In the context of this paper, the availability of environmental information is the focal environmental information factor.

Availability of environmental information implies that various pieces of environmental information are within the reach of secondary schools. This is crucial because the availability of the information is a precondition for its use in developing positive attitude or behaviour by teachers towards plastic waste disposal.

There is a correlation between the accessibility of environmental information and the attitude of teachers on plastic waste disposal. Mentis, Maroulis, Latinopoulos and Bithas, for example, investigated environmental information provision in Greece and discovered that the availability of information increased residents' awareness and influenced their attitude towards the use of plastic bags [10]. These results indicate that increasing access to environmental information increases the motivation levels of the residents to use plastic bags in a responsible manner, thus decreasing the contravention of the environmental law.

Although there has been increased awareness of environmental sustainability and introduction of environmental education in schools, improper disposal of plastic waste is still rampant in secondary schools in the Ibadan Metropolis. This long-term issue suggests that awareness will not be enough to promote positive waste disposal behaviours. The attitude of teachers towards the disposal of plastic waste is most likely to be the key factor in the transfer of knowledge on the environment to practice in schools [11]. As such, the extensive description of these attitudes is necessary to promote sustainable

waste-management among faculty and students.

1.1. Statement of the Problem

Plastic waste is a major environmental threat in many urban areas in Nigeria and including Ibadan Metropolis. The inadequate disposition of plastic wastes contributes to the environmental pollution, drainage blockage, floods, and threat to the public health. Although there has been increased awareness of the importance of environmental sustainability, there has been little positive action done to manage the plastic waste, especially in the school environment where much plastic waste is disposed on a daily basis. The teachers in secondary schools play a major role in influencing the attitude and behaviour of the students towards the environmental issues such as safe waste disposal patterns. Since teachers are the key driving forces of environmental education and role models to students, their perception to plastic waste disposal is likely to impact on institutional practices and environmental awareness among students. However, it is observed that plastic wastes still litter the premises of many secondary schools in Ibadan Metropolis and this raises concerns about the attitude of teachers toward plastic waste disposal.

Previous studies in management of plastic wastes in Nigeria have focused mostly on the households, industries or students, giving little focus on teachers, particularly at the secondary school level. Furthermore, there is little empirical evidence on the impact of the availability of environmental information on the attitude of the teachers towards the plastic waste disposal in Ibadan Metropolis. This has created a knowledge gap on human factors that can contribute to the successful management of plastic waste in schools. In turn, it is necessary to evaluate the attitude of secondary school teachers to plastic waste disposal and explore how availability of information concerning the environment affects the teachers' attitude in Ibadan Metropolis. It is expected that the results of this research will provide the empirical evidence that will be used in the policy of environmental education, school waste management programmes, and specific interventions designed to facilitate the adoption of the sustainable approach to plastic waste disposal among teachers and students.

1.2. Research Questions

The following research questions were answered in the study:

- 1) What is the attitude of secondary school teachers in Ibadan Metropolis to plastic waste disposal?
- 2) What is the level of environmental information available to secondary school teachers in Ibadan Metropolis?

1.3. Hypothesis

H₀₁: There is no significant relationship between environmental information availability and the attitude of secondary school teachers to plastic waste disposal in Ibadan Metropolis.

2. Review of Related Literature

Attitude is perceived as an evaluative ornamental position of an individual in relation to a given situation. Attitude forms the basis of judging responses in the situation. Attitudes forms a complex set of personality, beliefs, values, behaviours and motivations. In terms of plastic waste disposal, attitude includes the psychological orientation of a person towards the evaluation of favourable or unfavourable reaction to the process of plastic waste disposal on non-selective grounds [12].

Therefore, people who possess the traits of desirable personalities but have a negative attitude toward the disposal of plastic wastes have a greater chance to develop pro-environmental behaviours. Lack of proper attitude towards plastic waste disposal has been linked to decline in family and community health, odour nuisance, fly, cockroaches, rats, and small, potentially dangerous insects that carry diseases hence endangering human health.

The availability of environmental information clarifies the existence of information, reports, and educational resources in various sources, such as databases, publications, and online platforms. Obtaining and spreading information are critical to increasing awareness of the population and supporting environmentally friendly practices [13]. The availability of information creates viable solutions and opens a channel towards the eradication of plastic waste disposal issues in the society.

Bii and Otiike, emphasised, there is a lack of research on the effectiveness of the availability of environmental information on plastic waste disposal as a leading provider of health-related information services in Nigeria [14]. Educators act as the major channels of knowledge sharing as they are tasked with training students about how to manage plastic waste.

Molina and Catan, studied the awareness and practices that students have regarding solid waste management in one of the state colleges in Zamboanga City in the Philippines. The sample was 332 Grade 12 students, 68 STEM students, 166 Technical Vocational Livelihood (TVL) students and 98 General Academic Strand (GAS) students. The results showed that students had sufficient information about the meaning of solid waste, the impacts of improper disposal, illegal solid waste activities, institutional programmes, importance of solid waste management and their personal role [13]. However, they had low awareness of certain solid waste laws. The sources of primary information included television/radio, parental guidance, and social media. Moreover, students were found to be effective in the practice of waste-management in segregation, reduction, reuse, recycling, and disposal.

According to Puri, Information, Education and Communication (IEC) programmes can change the minds of the population on proper waste disposal [15]. To make citizens empowered and interested in bringing a qualitative change, they need to learn the basics of waste, involvement of stakeholders, and waste-solution technologies like composting and recycling in detail. Based on this, IEC should aim at informing, educating and motivating people to be aware of their roles,

responsibilities and advantages of engaging in good waste-management practices. The process of empowerment mediated by IEC may be promoted through various media, such as television advertisements, radio jingles, educational literature, online portals, environmental conferences, health lectures, training, awareness workshops and art contests.

The environmental information plays a fundamental role in fostering sustainable waste-management behaviour in education of institutions hence improving the stewardship of both teachers and students. Environmental education, when included in the curriculum fosters a more ecologically conscientious group of individuals who could be more capable of implementing sustainable waste-management policies [16]. In the schools where environmental education has been introduced, learners did not only learn about waste-reduction methods but also practised them in the school setting and at home [17]. Educational campaigns could be conducted on a regular basis in schools where teachers and students could be informed of the importance of proper waste management. These campaigns may include workshops, seminars and symposiums to educate the staff and learners on the waste-disposal processes (such as segregation, recycling, and the health and environmental impacts of poor waste management). In addition, environmental societies and student movements can be invited to be at the forefront of these activities.

The availability of detailed information regarding waste management is one of the key elements to the successful management of plastic waste disposal. Ovoh, argued that there exists some level of environmental information which is a mandatory condition to have adequate awareness on the appropriateness of proper disposal of plastic waste among teachers in secondary schools [18]. Data on environmental waste issues is critical in the promotion of a more sustainable way of life in the long run. The attitude and the disposition of the teachers towards waste management, especially plastic waste, is determined to be based on the amount, availability, and use of the available information on the environment by the teachers. In order to achieve high and sustainable rates of plastic waste disposal, teachers as the agents of change are important to be involved, and they are likely to have a significant impact on the future direction of environmental care on the planet [19].

According to Erhabor; Ibrahim and Babayemi, stated that information is one of the key elements in developing the awareness of the population concerning the environmental issues, and in particular, the knowledge and attitudes of people towards solid waste management processes like disposal of plastic waste [20, 21]. As a result, the environmental education derived knowledge is expected to have a considerable influence on the attitudes and behaviours in relation to environmental issues, such as waste management and suitability of waste disposal methods in the entirety of the process. The authors also argued that those who practice proper waste disposal tend to receive the information provided by a wider range of sources, such as informal messages shared with friends, open forums, campaigns, social media, newspapers,

television, and others. Several sources of environmental education that transpire out of the public education and the dissemination of information to the population via the public campaigns are likely to have a positive relationship with the waste disposal practices. In the case of waste product management and disposal, Karout and Altuwaijiri, found that there was a wealth of knowledge on diseases and health risks of waste accumulation among individuals that have undertaken the training and education programmes [22]. The attendees expressed positive attitude towards waste management and better waste handling habits which included recycling of domestic waste.

In this regard, the success of environmental education programmes depends largely on the relevance and up to date environmental information resources that are accessible to teachers. The problem of the environment has gained more relevance and requires greater attention and response not only on the part of individuals but also on the part of institutions. Information is also very important in making people raise awareness and have an attitude of stewardship to the environment, hence the critical role of the teachers in secondary school that will determine the attitude and behaviour of future generations towards the environment. According to Yeganegi, Laplume and Dass, the availability of environmental information includes the existence of the resources, including textbooks, teaching materials, online databases, and professional development programmes and opportunities that can help teachers incorporate environmental content into their teaching practices [23].

According to Yeganegi, Laplume and Dass, the delivery of environmental information implies the presence of relevant information materials, including textbooks, teaching resources, online databases, and professional development that can help teachers to incorporate environmental content into the pedagogical practice [23]. Quality and well-rounded information is critical in enhancing the knowledge, confidence, and competence of teachers, which increases the quality of environmental education. The availability of environmental information to secondary school teachers is hindered by a number of challenges. The lack of funding on academic resources, the outdated textbooks, and the lack of training opportunities are often mentioned in the literature as a big obstacle [24]. Schools are usually limited by budgetary constraints to acquire new teaching material and technological facilities to access online resources. Besides, the lack of special training programs and professional development activities aimed at environmental education increases the reliance of teachers on old-fashioned or even insufficient sources of information.

Orume, Erhiyoma and Udugbawa, analysed the knowledge of secondary school learners in Ibadan, Nigeria, concerning waste management; their attitudes, and practices. Eight schools were randomly selected by using a structured self-administered questionnaire [25]. Fifty students were selected out of the eight schools and this gave an original sample of four hundred respondents but only three hundred and fifty eight

copies of the questionnaires were completed, returned and used for the analysis. The data obtained were analysed using descriptive statistics (percentage, mean, and standard deviation), correlation and chi-square. The results revealed that the overall level of knowledge, attitude and practices of the students with regard to waste management was moderate. A significant percentage of the students practiced indiscriminate solid waste disposal practices including open dumping and burning. Environmental information availability was a factor that affected solid waste management in secondary schools in Ibadan. There were significant relationships between the availability of environmental information, level of awareness, knowledge and waste management practices.

3. Methodology

The descriptive survey design of the correlational type was used. This was considered an appropriate methodological approach to include the opinion of the participants and examine the variables on a unit level [26]. Muo, states that this design is used to establish the presence and strength of association between two or more variables at a particular point in time [27]. Through this type of survey arrangement, the researcher

could objectively analyse and report on the existing phenomena. The study was, therefore, aimed at investigating the relationship between the independent variable, (availability of environmental information) and the dependent variable, (attitude of secondary school teachers towards the plastic waste disposal).

4. Results

The questionnaires were sent to teachers in secondary schools in the Ibadan Metropolis to a total of 711 teachers, including three local government areas Ibadan North East, Ibadan North West, and Ibadan South East. Among them, 685 questionnaires were sent back and were considered fit to analyze, which provided a response rate of 96.3.

4.1. Answers to the Research Questions

Research question 1: What is the attitude of secondary school teachers in Ibadan Metropolis toward plastic waste disposal?

Table 1: describes the attitude of secondary school teachers in Ibadan Metropolis towards plastic waste disposal.

Table 1. Attitude of secondary school teachers towards waste disposal.

S/N	Items	SA	A	D	SD	$\bar{x}$	Std Dev
1.	I do not indulge in indiscriminate disposal of plastic wastes.	203 29.60%	383 55.90%	50 7.30%	49 7.20%	3.08	0.81
2.	I am very concerned about the impact of plastic waste disposal in and around the school premises.	227 33.10%	399 58.20%	59 8.60%	0 0.00%	3.25	0.60
3.	I feel a personal responsibility to actively contribute to reducing plastic waste disposal in and around the school premises.	242 35.30%	344 50.20%	95 13.90%	4 0.60%	3.20	0.69
4.	I caution students who indulge in indiscriminate plastic waste disposal in and around the school premises.	119 17.40%	218 31.80%	118 17.20%	230 33.60%	2.33	1.11
5.	I encourage students and colleagues to adopt practices that reduce indiscriminate plastic waste disposal within the school environment.	76 11.10%	230 33.60%	110 16.10%	269 39.30%	2.16	1.07
6.	I collaborate with students, other teachers and staff members to develop and implement strategies for reducing indiscriminate plastic waste disposal in the school.	100 14.60%	271 39.60%	146 21.30%	168 24.50%	2.44	1.02
7.	I am very concerned about controlling the negative human impact on wide spread of plastic waste disposal materials.	88 12.80%	296 43.20%	165 24.10%	136 19.90%	2.49	0.95
8.	I use my knowledge of environmental information to control hazards caused by indiscriminate disposal of plastic materials.	97 14.20%	251 36.60%	153 22.30%	184 26.90%	2.38	1.03
9.	I feel a sense of fulfillment when I successfully eliminate plastic waste disposal in and around the school premises.	174 25.40%	222 32.40%	100 14.60%	189 27.60%	2.56	1.14

S/N	Items	SA	A	D	SD	$\bar{x}$	Std Dev
10.	I believe that involving students in plastic waste disposal reduction efforts can foster their environmental awareness and responsibility.	152 22.20%	289 42.20%	118 17.20%	126 18.40%	2.68	1.02
11.	I actively engage in recycling programmes and ensure proper waste management practices in the school.	326 47.60%	298 43.50%	61 8.90%	0 0.00%	3.39	0.65
12.	I believe that the school has a responsibility to prioritise responsible plastic waste disposal as part of its environmental sustainability efforts.	321 46.90%	321 46.90%	34 5.00%	9 1.30%	3.39	0.65
13.	I always work against an unrealistic dumping of plastic materials in our school premises.	328 47.90%	248 36.20%	76 11.10%	33 4.80%	3.27	0.84
14.	I am motivated to continuously learn and stay informed about new strategies and innovations in safe plastic waste disposal.	330 48.20%	283 41.30%	49 7.20%	23 3.40%	3.34	0.76
15.	I believe that individual actions, such as reducing plastic waste disposal, can collectively make a significant impact on the environment.	126 18.40%	196 28.60%	126 18.40%	237 34.60%	2.31	1.13
16.	I am committed to practising and promoting environmentally friendly behaviours related to plastic waste disposal.	76 11.10%	144 21.00%	131 19.10%	334 48.80%	1.94	1.07
17.	It is important for teachers to serve as role models by actively practising and promoting environmentally friendly behaviours related to plastic waste disposal reduction.	204 29.80%	307 44.80%	122 17.80%	52 7.60%	2.97	0.88
18.	I am open to exploring and implementing alternative methods or practices that reduce the use of plastics in my classroom or school.	158 23.10%	411 60.00%	75 10.90%	41 6.00%	3.00	0.76
Weighted mean=2.79; Std. dev =0.90							

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree

The results from Table 1 showed that the attitude portrayed by the secondary school teachers of Ibadan Metropolis towards plastic waste disposal include: active participation in recycling programmes and proper waste disposal practices within the school ($M = 3.39$; $SD = .65$), the belief that the school has a role to play in ensuring that waste disposal of plastic materials is minimised as part of its sustainability efforts ($M = 3.39$; $SD = .65$), being motivated to continuously learn and stay informed about new strategies and innovations in plastic waste disposal reduction ($\bar{x} = 3.34$; std dev. =.76), always working against an unrealistic dumping of plastic materials in our school compound ($\bar{x} = 3.27$; std dev. =.84) and feeling highly concerned about the impact of waste disposal in and around the school premises ($\bar{x} = 3.25$; std dev. =.60). However, the least exhibited attitude are: showing commitment towards practising and promoting environmentally friendly behaviours related to plastic waste disposal reduction ($\bar{x} = 1.94$; std dev. = 1.07) and encouraging students and colleagues to adopt practices that reduce waste disposal within the school environment ($\bar{x} = 2.16$; std dev. = 1.07).

Based on the findings some of the attitude often exhibited by

the teachers in Ibadan Metropolis regarding waste disposal practices include active participation in recycling programmes and proper waste management practices within the school, recognition of the role of school in ensuring that reducing plastic waste disposal is part of its sustainability efforts, a desire to continuously learn and be informed about new strategies and innovations in waste disposal of plastic materials, consistent opposition to unrealistic dumping of plastic materials in the school compound, feeling of highly concerned about the impact of plastic waste disposal in and around the school premises among others.

To be able to establish the attitude of secondary school teachers in Ibadan metropolis towards plastic waste disposal, a threshold of $\bar{x} = \frac{4+1}{2} = 2.5$ was applied. Since the overall weighted mean $\bar{x} = 2.79$, STD dev. = 0.90, is higher than the threshold of 2.50. It can, therefore, be concluded that secondary school teachers in Ibadan metropolis have positive attitude towards plastic waste disposal management and practices.

Research question two: How available is environmental information to secondary school teachers in Ibadan Metropolis?

Table 2: presents the result of environmental information availability to secondary school teachers in Ibadan Metropolis.

Table 2. *The availability of environmental information to secondary school teachers.*

S/N	Items	VRA	RA	A	NRA	NA	$\bar{x}$	Std Dev
1	Information about the negative effects of plastic waste disposal on ecosystems and humans' life is:	199 29.10%	356 52.00%	83 12.10%	39 5.70%	8 .20%	4.02	0.86
2	Information about the potential harm caused by plastic waste disposal to humans through chemical consumption and environmental hazard is:	118 17.20%	376 54.90%	79 11.50%	60 8.80%	22 .60%	3.65	1.10
3	Information about how plastic waste disposal affects the physical environment is:	174 25.40%	370 54.00%	80 11.70%	42 6.10%	19 .80%	3.93	0.93
4	Information about the introduction of harmful chemicals into the environment due to indiscriminate plastic waste disposal is:	132 19.30%	396 57.80%	90 13.10%	46 6.70%	1 .10%	3.84	0.92
5	Information about plastic waste disposal as a global environmental concern is:	108 15.80%	393 57.40%	88 12.80%	64 9.30%	32 .70%	3.70	1.00
6	Information about non-biodegradable nature of plastics is:	137 20.00%	388 56.60%	82 12.00%	49 7.20%	9 .20%	3.81	0.98
7	Information about human consumption and waste generation contributing to plastic waste disposal is:	195 28.50%	359 52.40%	55 8.00%	58 8.50%	8 .60%	3.96	0.97
8	Information about the role of single-use plastics in increasing plastic waste disposal is:	209 30.50%	352 51.40%	55 8.00%	61 8.90%	8 .20%	4.01	0.92
9	Information about plastic waste disposal affecting human health through consumption of contaminated seafood and junks is:	220 32.10%	315 46.00%	64 9.30%	78 11.40%	8 .20%	3.96	0.99
10	Information about the collective efforts required to reduce plastic waste disposal, including government regulations and individual actions, is:	227 33.10%	324 47.30%	59 8.60%	56 8.20%	9 .80%	4.00	1.00
11	Information about the need for improved waste management and recycling practices to reduce plastic waste disposal is:	234 34.20%	348 50.80%	42 6.10%	57 8.30%	4 .60%	4.10	0.88
12	Information about innovative solutions such as biodegradable plastics and alternative packaging materials to mitigate plastic waste disposal is:	196 28.60%	374 54.60%	77 11.20%	29 4.20%	9 1.30%	4.05	0.83
13	Information about campaigns and initiatives aimed at raising awareness about plastic waste disposal and encouraging responsible behaviour is:	206 30.10%	399 58.20%	38 5.50%	38 5.50%	4 .60%	4.12	0.79
Weighted mean=3.93; Std. dev =0.93								

Key: VRA = Very Readily Available, RA = Readily Available, A = Available, NRA= Not Readily Available, NA= Not Available

The results in Table 2 have shown that respondents reported on several categories of the available information: awareness-raising activities and initiatives related to the plastic waste disposal and the promotion of responsible behaviours (mean = 4.12; SD = 0.79); the need to increase the waste management and recycling practices to reduce plastic waste disposal

(mean = 4.10; SD = 0.998); information about innovative solutions such as biodegradable plastics and alternative packaging materials to mitigate plastic waste disposal ($\bar{x}$ = 4.05; std dev. = .83); information about the negative effects of plastic waste disposal on ecosystems and human's life ($\bar{x}$ = 4.02; std dev. = .86); information about the role of single-use plastics in increasing plastic waste disposal ($\bar{x}$ = 4.01; std dev.

=.92) while the least available environmental information was information about the potential harm caused by plastic waste disposal to humans through chemical consumption and environmental hazard ($\bar{x}$ =3.65; std dev. =1.10), followed by information about waste disposal being a global environmental issue ($\bar{x}$ =3.70; std dev. = 1.00).

As revealed by Table 2, the most common environmental information that teachers in secondary schools in the Ibadan Metropolis can access is the awareness campaigns and initia-

tives that can be taken to promote responsible behaviour regarding plastic waste disposal, the recommendations of better waste management and recycling measures, the innovative solutions that can be implemented to ameliorate the negative effects of plastic waste on ecology and human life, and the role of single-use plastics in encouraging the spread of plastic waste disposal, among others.

To ascertain the levels of access to environmental information to secondary school teachers in the Ibadan Metropolis a test of norm was performed, as shown in Table 3.

Table 3. Test of norm showing the level of environmental information availability to secondary school teachers.

Interval	Level of electronic information resources used	Mean
0-1.66	Low	3.93
1.67-3.33	Moderate	
3.34-5.00	High	

Result in Table 3 shows that scale between 0-1.66 is low; 1.67-3.33 is moderate, while 3.34-5.00 is high. The overall mean for the availability of environmental information to secondary school teachers in Ibadan Metropolis is “3.93” which falls between the scales “3.34-5.00”. It can, therefore, be inferred that the level of available environmental information to

secondary school teachers in Ibadan Metropolis is high.

There is no significant relationship between environmental information availability and the attitude of secondary school teachers to plastic waste disposal in Ibadan Metropolis.

Table 3. Relationship between environmental information availability and attitude towards plastic waste disposal by secondary school teachers.

Variables	N	Mean	St. Dev	Df	R	P	Sig
Attitude towards plastic waste disposal	685	2.79	0.37	684	.360	.000	Sig
Environmental information factors	685	2.65	0.42				
Sub-personal factor							
Environmental information availability	685	2.55	0.55	684	.453	.000	Sig

Note: hypothesis was tested at 0.05 significant level

Table 3 shows that the attitude of teachers in the Ibadan Metropolis towards the disposal of plastic waste is related to the availability of environmental information. The analysis indicates that the environmental information factors (r =.360; p =.05) have a significant relationship with the attitude of teachers secondary school teachers towards plastic waste disposal and, therefore, the linear relationship between these variables is statistically significant.

The correlation between the availability of environmental information and the attitude of teachers in secondary-schools towards the disposal of plastic wastes in Ibadan Metropolis

was also tested. These findings also show that availability of environmental information had positive correlation with the attitudes of teachers towards waste disposal in Ibadan Metropolis. Thus, the null hypothesis stating that there is no significant relationship between environmental information factors and the attitude of secondary school teachers towards plastic waste disposal in Ibadan Metropolis is hereby rejected.

4.2. Discussion of the Findings

The results showed that the teachers of secondary schools

in Ibadan Metropolis had positive attitudes towards plastic waste disposal. The attitudes involved actual engagement in the recycling activities, a statement that schools had the role to play in terms of ensuring waste minimisation as part of sustainability efforts, and finally an obligation of remaining abreast with new methods and innovations of minimising waste. Moreover, the teachers were also concerned about the effects of waste disposal on school premises and in the surrounding areas and they were involved in the prevention of the misuse of dumping plastic waste in the school premises. Nevertheless, the study also found the areas in which the attitudes failed to be robust enough. In particular, educators were not very motivated to support both the students and other staff members to spread waste-minimisation practices in the school setting. A cut-off point was used to determine the overall attitude of the teachers and the outcome revealed that the secondary school teachers as a group were favorably disposed towards plastic waste disposal. Therefore, secondary school teachers in Ibadan Metropolis have a favourable disposition toward waste management, although they can do better in practicing and encouraging environmentally friendly behaviours among students and colleagues.

This result is consistent with a previous cross-sectional study by Shaira, Ismail Ahmed, Zeena, Arooj, Shreya, Shafir and Nazeer on Madani Nagar residents on the attitude to single-use plastic and plastic waste disposal [28]. The research has found that the attitude of respondents towards single-use plastic waste were satisfactory with a high percentage agreeing that single-use plastic waste should be prohibited and more than a half of them were open to using alternatives to plastic bags. The practice on plastic waste disposal was also found to be sub optimal with majority of the respondents indicating that they regularly used plastic bags. Altogether, the information on the disposal of single-use plastic waste was insufficient, the attitudes were positive, and the practices were unsatisfactory.

The results also revealed that the most common environmental information that secondary school teachers in Ibadan Metropolis, Ibadan, Oyo State, Nigeria, were exposed to include information on campaigns and initiatives that could increase awareness of waste disposal and promote responsible plastic waste behaviour; information on the need to improve waste management and recycling activities in order to reduce waste disposal; information on innovative interventions that may be used to reduce waste disposal, including biodegradable plastics and alternative packaging materials; data about adverse effects of waste disposal on the ecosystem and human lives; and information about the role of single-use plastic, confirmed that a given amount of environmental information is an inevitable precondition of developing adequate awareness of proper plastic waste disposal behaviour among secondary school teacher [18]. Environmental waste issues are crucial areas of knowledge that would help in creating a more environmentally sustainable way of life in the long run. It is assumed that the disposition and attitude of teachers towards

waste management, including plastic waste depend on the levels of environmental information available to them. Yeganegi, Laplume and Dass, claimed that the availability of environmental information is the presence of any pertinent resources like textbooks, teaching resources, online databases, and professional development programmes and opportunities to assist teachers in incorporating environmental content into their teaching activities [23].

The results of this research are in line with the outcome of a study by Oladapo, on the impact of a participatory environmental education intervention on the knowledge, attitudes, and practices of traders in solid waste management in the selected markets in Oyo State, Nigeria [29]. The research established that there was a main positive effect of treatment on the knowledge, attitudes, and practices of the traders in solid waste management. The traders who were subjected to the participatory environmental education programme did better in knowledge as compared to control group counterparts. Likewise, the scores of the participants in the participatory group were higher than the scores of the control group in terms of attitude scores and the same case was evident in practice scores where the participants in the experimental group scored higher in terms of practice scores than the control group. The research determined that the access of the participatory environmental education programme was effective to enhance the knowledge, attitudes and practices of the traders in solid waste management. Based on this, it was recommended that all waste management agencies should adopt the participatory environmental education programme, which should be made available to educate the traders on solid waste management, and all the governmental agencies charged with the responsibility of solid waste management in Nigeria.

5. Implications for Library and Information Studies

The implications of the findings of this study are far reaching to library and information services especially in the area of environmental education and encouragement of teachers and learners to dispose plastic wastes safely. The main implications are as follows:

- 1) Schools and community libraries that already exist should expand their collections with books, journals, scholarly articles, and digital materials on environmental sustainability, plastic waste management, and plastic waste recycling, while schools without libraries or media resource centres should establish, properly staff and equip them to increase environmental information resources.
- 2) In schools and community settings, libraries could contribute to teacher capacity building and awareness programmes through workshops, exhibitions, and information sessions on environmental matters, such as the

proper disposal of plastic waste and sustainable waste management.

- 3) School librarians should partner with teachers to integrate environmental information materials into the pedagogical processes, thereby fostering a positive attitude toward environmental stewardship.
- 4) Libraries can use electronic information systems, including institutional repositories, dedicated websites and social media, to disseminate information on environmental protection, recycling programmes, and waste management policies.
- 5) Schools can advocate for environmental education by supporting school-based environmental programmes and environmental conservation clubs with appropriate informational resources, research support, and environmental conservation bibliographies.

6. Conclusion

The research suggests that fostering positive mindset on plastic waste disposal among secondary school teachers in Nigeria requires providing environmental information rather than suppressing it, as access to such information plays a key role in shaping their attitude and highlights the need to strengthen information resources to promote sustainable practices.

7. Recommendations

Recommendations to the study findings are as follows:

- 1) In order to sustain the positive attitude displayed by the secondary school teachers in Ibadan Metropolis towards plastic waste disposal, educational authorities and administrators should provide the teachers with adequate training through regular seminars and workshops. The enlightenment they will receive through these programmes will help to reinforce their positive attitude.
- 2) The availability of environmental information to the secondary school teachers could be increased if the relevant stakeholders like the Ministry of Education and school administrators can provide relevant environmental information to the teachers. This can be done by equipping the school libraries with current information resources of different formats and good facilities that can promote teaching and learning. It is also important for school administrators to sponsor the teachers to conferences and workshops on environmental information.

Abbreviations

IECC	Information Education and Communication
GASS	General Academic Strand

TVL Technical Vocational Livelihood

Author Contributions

Gbemisola Morolayo Adegbuyi: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Conflicts of Interest

The author declare no conflicts of interest.

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