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Environmental Attitudes of Teachers and Students Towards Digital Technology Use in Science Education

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Abstract

The use of digital technology in science education is known worldwide to have the potential of improving the pedagogical consequences. Nevertheless, this combination comes with environmental concerns on energy use and electronic wastes (e-waste). This paper looks at the environmental attitudes of the secondary school science teachers and students in Oyo Zone of Oyo State, Nigeria, as far as the use of digital technologies in science teaching is concerned. The research design employed a descriptive survey research design where 432 participants (108 teachers and 324 students) were sampled in the study within the selected secondary schools. Data collection was done using a validated questionnaire called the Teacher and Student Environmental Attitudes towards Digital Technology Questionnaire (TSEADTQ). Descriptive (mean, standard deviation) and inferential (Pearson correlation, independent t-test) statistics were used to discuss the results. The findings show that although both teachers and students have very positive attitudes towards the pedagogical advantages of digital technology, their knowledge of the environmental impacts of digital technology (e-waste and energy use) is very low. In addition, positive attitudes towards the use of technology and pro-environmental attitudes were significantly and weakly correlated. The study does not show any significant difference between the overall attitudes of teachers and students towards the environment but observes that there is a significant difference in the level of awareness with teachers slightly more aware. Such results highlight a serious lack of connection between the use of technology and environmental awareness within the Nigerian educational setting. The paper ends with policy-maker, teacher training institution, and school administrator recommendations to incorporate sustainable technology practices into the science curriculum and school-wide policies so that the digital revolution of education is consistent with the principles of environmental stewardship.

Keywords: *Environmental Attitudes, Digital Technology, Science Education, Sustainable Technology, Teacher Attitudes, Student Attitudes, Technology Acceptance*

Introduction

The 21st century has seen a level of digital integration in every aspect of human life and the education sector has been one of the main beneficiaries (Adu & Olatundun, 2021). In science education, online science laboratories, data loggers, virtual laboratories, and interactive simulation games are digital tools, among other applications, that transformed teaching and learning. They provide active and interactive interaction with complicated scientific processes that are not confined to the parameters of textbook and fixed models (Al-Amri, 2021). The Nigerian government has been conducting campaigns to embrace these technologies in education to enhance quality and access to education through the policies of Information and Communication Technologies (ICTs) in Education (Federal Ministry of Education, 2019).

The interest in the digital technology in science teaching is justified. The research has revealed that the use of technology has the potential to result in the improved engagement of the students, the development of the higher level of thinking, and the understanding of the abstract scientific phenomena (Ghavifekr and Rosdy, 2015). Teachers can access a multitude of resources and novel teaching and learning techniques through the tools. This attitude towards technology is a key success factor in adopting and implementing technology in classes within Nigeria.

Nevertheless, the intensive development of digital devices in schools is one of the environmental issues that are not given

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much attention. The production process of digital technology, including recycling, is consumptive of resources and poses a significant environmental impact. The high energy use during charging and operating devices is a source of carbon emissions, and the low lifespan of electronics results in an ever-increasing e-waste (electronic waste) (Okunola, 2020). E-waste is the most dangerous type as it contains lead and other toxic substances such as mercury and cadmium which after reportedly reaching soil and water will also contaminate it.

The key paradox of this lies in the fact that although digital technology is an excellent source of development of the science education system, when used unsustainably, it can dismantle the foundations of the same educational system, which is taught in the very educational institutions where digital technology is being discussed and utilized. There exists a lack of connexion between the practical use of technology and awareness of its environmental impact. Although other studies have been conducted to determine the attitude of teachers and students towards the pedagogical utilization of technology, there is a considerable gap in studies that examine their environmental attitude concerning the utilization, and more specifically in the Nigerian context. This paper, thus, seeks to address this gap by investigating the environmental attitudes of science teachers and students of Oyo State in Nigeria towards the digital technologies they use to learn.

Related Literature Review.

The purpose of this paper is to explore the role and benefits of digital technology in science education.

The use of digital technology in the science classroom has been a subject of educational research since the 1990s. The literature on the topic is unanimous in its view that properly used technology can replace science learning as a passive process where facts are received and learning as an active process where facts are explored and discovered. Virtual reality (VR), and augmented reality (AR) technologies enable students to see and engage with more complex molecular structures or learn more about more distant planet systems than would otherwise be possible (Akcayir and Akcayir, 2017). From the viewpoint of experimentation, online simulations and virtual laboratories offer safe, affordable and repeatable environments in which experiments can be done, especially when physical resources are limited or dangerous to the experimenter (Olympiou and Zacharia, 2012).

The insistence on the adoption of technology in Nigeria is perceived as an important move towards the modernization of the education system. Adebisi (2020) conducted a study in Lagos State and discovered that computer-assisted instruction (CAI) was effective in enhancing the academic performance of students in biology. Likewise, a study by Gambari, Falode, and Adegbenro (2017) has shown that video-based instructional packages are effective in helping students to understand physics concepts. These research papers confirm the teaching worth of digital technology and assert the affirmative welcome it has been accorded by the Nigerian education sector.

Teacher/Student attitude towards Digital Technology.

The attitudes of the end-users of any educational innovation: teachers and students, determine its success. According to Technology Acceptance Model (TAM) advanced by Davis (1989), perceived usefulness and perceived ease of use are the two key factors that determine whether an individual will use a technology or not. Numerous studies have been conducted to implement TAM and its variations to the education sector, with the general conclusion that educators and learners who view technology as helpful and easy to use are more prone to using it (Scherer, Siddique, and Tondeur, 2019).

When it comes to science education, teachers and students have tended to exhibit positive attitudes. An example of this is the pre-service science teachers who have expressed more interest in utilizing machines such as 3D printers since they were trained on how to apply them in the learning of scientific subjects (Yilmaz and Goktas, 2021). Nevertheless, there is a major challenge of teacher competency and technological pedagogical content knowledge (TPACK). A significant number of educators are willing to do so but are not prepared to implement technology in their instruction, citing the lack of training and technical assistance as a significant obstacle (Koehler and Mishra, 2009; Adu and Olatundun, 2021).

Digital Technologies in Education and their Environmental Impact.

The digital revolution does not come free. The two issues that have been most pronounced are the use of energy and the production of e-waste. With the increasing number of objects consuming electricity such as computers, tablets, projectors and servers, educational establishments are beginning to be large consumers of electricity. This added energy requirement especially in areas that use fossil fuels leads to greenhouse gases and climate change (Selwyn, 2016).

The e-waste is a greater threat directly and toxic. The high rate of obsolescence of electronic appliances results in a huge and increasing waste. The Global E-waste Monitor 2020 states that in 2019, the globe produced 53.6 million metric tonnes of e-waste, which is expected to increase significantly (Forti, Balde, Kuehr, and Bel, 2020). Nigeria is a big recipient of second-hand electronics and a significant producer of e-waste in Africa, but it does not have strong and formal systems to dispose of and recycle electronics safely (Okunola, 2020). The dangerous substances of e-waste might contaminate the environment when not disposed of in proper landfills or dumpsites where they can cause extreme harm to the ecosystem and human life.

Environmental Education and Practices of Sustainable Technology.

Environmental education proposes to impart on employees the knowledge, skills, and attitudes required of them to become responsible environmental stewardships. Green IT or sustainable technology practises should, therefore, be a significant part of contemporary environmental education. This includes popularising awareness and actions that reduce the adverse environmental effects of technology use. These practises are energy conservation by turning off electronic

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gadgets, prolonging the life of electronic products by maintaining them, and promoting responsible e-waste recycling initiatives (Parris, 2016).

Such topics belong, of course, to the science curriculum, since it has already addressed ecosystems, pollution and resource management. Incorporating conversations of the environmental lifecycle of the same technologies to be employed in learning can produce an effective meta-level learning experience. It also ties abstract environmental principles with material objects students and teachers encounter everyday, developing a more pragmatic and holistic perspective on sustainability.

Studies have found that both educators and learners tend to have a positive attitude to the use of the digital technology in the teaching of sciences, and they see the benefits of their application in science pedagogy; they believe that this tool would positively influence the motivations of learners, their individual orientation in learning, and their scientific literacy (Walan, 2020; Litina b& Rubene, 2024). Educators are also confident in utilizing digital tools and think that the technologies can expand their teaching opportunities, but they also admit that they have to deal with low-achieving students and successfully apply the inquiry-based method (Walan, 2020). Teachers are more readily inclined to integrate technology into their teaching when they have a more positive attitude toward digital technology, which in turn depends on the mentioned aspects such as digital literacy, technological competence, and access (Yesilyurt, & Vezne, 2023; Alieto, Abequibel-Encarnacion, Estigoy, Balasa, Eijansantos, and Torres-Toukoumidis, 2024; Muhaimin, Habibi, Mukminin, and Hadisaputra, 202

Attitudinal factors (specific to the use of digital technology) demonstrate that teachers are increasingly aware of the environmental impact of digitalization (varying in energy use, carbon emissions, and electronic waste). Nonetheless, most teachers believe that they are not adequately informed regarding these impacts on the environment and that they need to be trained and integrated into the curriculum to manage them (Vlachopoulos et al., 2023). Attitude toward sustainability and environmental self-efficacy can be positively impacted with the help of technology-based environmental education, yet the level of digital literacy is unlikely to improve significantly without such assistance (Nacaroglu, & Goktas,2024). Infrastructure and administrative support are considered as school facilitating conditions that enable positive attitudes and effective use of digital technology to achieve the goals of environmental and science education Cabellos, Siddiq, & Scherer,2023).

Gaps in Literature

The literature available is quite exhaustive regarding the pedagogical advantages of digital technology in science teaching and the overall perception of the users of these tools. An independent and expanding body of research on the environmental impact of technology, specifically e-waste and energy consumption, also exists. But there is a crucial point of intersection between these disciplines. Only a small number of studies have empirically examined the environmental attitudes of teachers and students in reference to the utilisation of educational technology.

Particularly, the literature does not contain:
An in-depth examination of the extent to which the positive attitudes towards the usefulness of digital technology in science education are reflected in the awareness or concern regarding the environmental impact of the technology.

The extent of awareness of the problems of e-waste and the energy footprint of the digital learning tools used by teachers and students in Nigeria.

The relative attitudes of teachers and students in this context towards the environment and that is the key to the development of specific educational intervention.

A study utilising the well-known theoretical frameworks of environmental behaviour (e.g. Theory of Planned Behaviour) to the context of digital technology use in education in a developing country such as Nigeria.

The study will attempt to fill this gap by incidentally offering a targeted inquiry into the environmental disposition of science teachers and learners within Oyo State, Nigeria.

Theoretical Framework

The paper is based on a combination of two theoretical frameworks: The Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB).

Technology Acceptance Model (TAM): TAM is one of the most significant theories that have been developed to explain the use and adoption of technology (Davis, 1989). Its constructs are Perceived Usefulness (the extent to which an individual believes that the utilisation of a specific system would lead to improved performance at work or learning) and Perceived Ease of Use (the extent to which an individual believes that the utilisation of a specific system would be effortless). These affect the Attitude Towards Using of an individual which in turn affects his/her Behavioural Intention to Use and eventually the actual System Use. In this research, TAM offers the prism through which teachers and students who strongly believe in the use of digital technology to achieve the pedagogical advantages of science can be understood and quantified.

Theory of Planned Behaviour (TPB): TPB is a powerful theory of human behaviour prediction in any situation, including pro-environmental behaviour, proposed by Ajzen (1991). According to TPB, behavioral intention is the immediate antecedent of behavior, and is influenced by three factors Attitude toward the Behavior (the individual positive or negative appraisal regarding whether or not the behavior should be performed) Subjective Norms (the perceived social pressure or absence thereof to perform the behavior) and Perceived Behavioral Control (the perceived ease or difficulty of performing the behavior, similar to self efficacy).

Through this combination, this paper will assume that TAM describes the reason people use technology in science

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education (high perceived usefulness) whereas TPB describes the possible absence of pro-environmental behaviors (such as energy saving or disposal) that are linked to that use of technology. The research will explore the Attitude toward the Behaviour element of TPB in terms of sustainable technology practises. The key research question is whether a positive attitude toward the use of technology is accompanied by a positive attitude towards environmental stewardship of that technology.

Statement of the Problem

Nigeria advanced and promoted the use of digital technologies to secondary education (especially science) not only due to their seemingly positive pedagogical value but also because of the perceived value and advantages of digital education. This has resulted in a general positive perception of the use of these tools in the learning process by teachers and students. But this utility of pedagogy has overshadowed the major environmental impacts, that is, the energy usage and the production of toxic e- wastes. The primary users are severely lacking in awareness and concern of sustainable technology practises. This is a long term threat because the educational institutions automatically become the cause of environmental degradation disregarding the ideas of sustainability as they are usually preached in the science course of studies or in the subject matter of science. Consequently, this research problem is the lack of research on the environmental attitudes of science teachers and students in Oyo State regarding the use of digital technology in secondary schools.

Objectives of the Study

The primary goal of the research is to examine the attitudes of both the science teachers and students towards the application of the digital technology in secondary schools in the Oyo Zone, Oyo State. The objectives in question are to:

Determine the overall attitudes of science teachers and students towards the pedagogical application of the digital technology in science education.

Find out the awareness level of teachers and students in science about the e-waste and energy consumption (environmental effects) of digital technology.

Test the connexion between the attitudes towards the pedagogical application of digital technology and pro-environmental attitudes.

Compare the environmental attitudes and level of awareness of the science teachers and their students.

Research Questions

The research questions that will be used in the study are the following:

What are the perceptions of science teachers and students regarding pedagogical application of digital technology in science learning?

What is the awareness of science teachers and students about environmental effects of digital technology?

How do attitudes of teachers and students towards the pedagogical use of digital technology relate to their pro-environmental attitudes?

Do science teachers and students differ significantly in terms of their environmental attitudes and level of environmental awareness?

Research Hypotheses

The null hypotheses were as follows and were tested at 0.05 level of significance:

H01: There is no significant correlation between teachers and students attitude towards the pedagogical use of digital technology and pro-environmental attitudes.

H02: No significant difference exists between the mean scores of students and science teachers on their environmental attitudes towards using digital technology.

Methodology

Research Design

The research design adopted a correlational element of descriptive survey research. Such design can be chosen because it gives an opportunity to collect the data in a systematic way and describe the current situation with the attitudes and awareness level of the target population. The relationship between the variables of interest was analysed using the correlational aspect.

Population, Sample and Sampling Procedure.

This study population included all science teachers and students in all the senior secondary schools (SSSs) within the Oyo Education Zone of Oyo State in Nigeria.

The sample was selected using a multi-stage sampling process.

Stage 1: The Oyo Education Zone was selected purposely because it has both urban and semi-urban schools.

Stage 2: The zone was sampled to come up with 12 public secondary schools using simple random sampling.

Stage 3: The final participants were selected by means of stratified random sampling. A total of 108 teachers were chosen randomly out of each of the 12 schools, comprising of 9 science teachers. In the same way, 27 SSS 2 science students were randomly chosen in each school, and thus, the total number of students was 324. This increased the number of participants to 432. This is believed to be a sufficient sample size to be used in the statistical analyses.

Instrumentation

The data collection method was a structured questionnaire that was created by the researcher and was known as the teacher and student environmental attitudes towards digital technology questionnaire (TSEADTQ). The questionnaire was categorised into four parts:

Section A: Demographic Information: This section gathered the data regarding the status of the respondent (teacher or student), gender, and years of teaching experience (teachers).

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Section B: Pedagogical Use of Digital Technology Attitudes: This section included 10 questions, which were grounded on the TAM framework (perceived usefulness). The respondents were asked to agree on a 4-point Likert scale of Strongly Agree (4) to Strongly Disagree (1).

Section C: Environment of impacts: This segment had a total of 10 questions that aimed at determining the level of awareness of issues such as e-waste, energy use, and other toxic elements of electronics. It employed a 4-point scale (Very Aware 4) to Not Aware (1).

Section D: Pro-Environmental Attitudes: This section consisted of 10 questions according to the TPB model, which evaluated attitudes towards such sustainable behaviours as turning off devices, getting repairs, and disposal. It employed a 4 point Likert scale ranging between Strongly Agree (4) and Strongly Disagree (1).

Psychometric Properties of the Instrument.

Validity: Face and content validity of TSEADTQ were determined by sending the draught instrument to two Senior Lecturers in Science Education and one in Measurement and Evaluation in Ajayi Crowther University. Their professional opinion regarding the clarity, relevance, and comprehensiveness of the items was utilized to narrow down to the final version of the questionnaire.

Reliability: A pilot study was carried out on 20 teachers and 40 students in a school that was not within the study area. The data obtained was tested with the Cronbachs Alpha method of internal consistency. The sections yielded the following reliability coefficients: Attitudes towards Pedagogical Use (a = 0.88), Awareness of Environmental Impacts (a = 0.81), and Pro-Environmental Attitudes (a = 0.85). The general consistency of the tool was 0.86. The instrument was considered reliable in the study since the values exceeded the recommended level of 0.70.

Data Collection Procedure

A preliminary letter was obtained through the Head of the Department of Science Education to request the principals of the sampled schools to allow the researcher into their schools. The researcher, through two trained research assistants, visited the schools to administer the questionnaire. The participants were informed of the purpose of the study and assured of the confidentiality and anonymity of their responses. The questionnaires would be filled at the point of completion and gathered instantly to assure the high return rate. A total of 432 questionnaires were distributed, and 100 percent of the questionnaires were returned to the researcher.

Data Analysis

The data obtained was analysed by using the Statistical Package of the Social Sciences (SPSS) version 25.

The descriptive statistics (mean and standard deviation) were used to answer Research Question 1 and 2. The criterion level was considered to be 2.50 (above 2.50 is positive attitude/high awareness and below 2.50 is negative attitude/low awareness).

Pearson Product-Moment Correlation (PPMC) was used to test hypothesis 1 and establish the relationship between the variables.

The independent samples t-test was applied to test hypothesis 2 to compare the mean scores of teachers and students.
All the hypotheses were analysed at the 0.05 level of significance.

Results

This section presents the analysis of the data collected based on the research questions and hypotheses.

Research Question **1:** What are the attitudes of science teachers and students towards the pedagogical use of digital technology in science education?

Table 1: Mean and Standard Deviation of Attitudes towards Pedagogical Use of Digital Technology

Respondent Group	N	**Mean ($\bar{X}$)**	**Std. Deviation**	**Decision**
Teachers	108	3.45	0.52	Positive Attitude
Students	324	3.51	0.48	Positive Attitude
Overall	432	3.49	0.49	Positive Attitude

Table 1 shows that the mean score for teachers ($\bar{X}$ = 3.45) and students ($\bar{X}$ = 3.51) are both well above the criterion mean of 2.50. The overall mean score is 3.49. This indicates that both science teachers and students have a highly positive attitude towards the pedagogical use of digital technology in science education.

Research Question 2**:** What is the level of awareness among science teachers and students regarding the environmental impacts of digital technology?

Table 2: Mean and Standard Deviation of Awareness of Environmental Impacts

Respondent Group	N	**Mean ($\bar{X}$)**	**Std. Deviation**	**Decision**
Teachers	108	2.41	0.65	Low Awareness
Students	324	1.98	0.71	Low Awareness
Overall	432	2.09	0.72	Low Awareness

Table 2 reveals that the mean awareness score for teachers ($\bar{X}$ = 2.41) and students ($\bar{X}$ = 1.98) are both below the 2.50 criterion. The overall mean score is 2.09. This suggests that both groups have a low level of awareness regarding the environmental impacts of the digital technologies they use.

Hypothesis Testing

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$H_{o}1$: There is no significant relationship between attitudes towards the pedagogical use of digital technology and pro-environmental attitudes.

Table 3: Pearson Correlation between Attitude to Tech Use and Pro-Environmental Attitude

Variables	N	r-value	p-value	Decision
Attitude to Tech Use vs. Pro-Environmental Attitude	432	0.087	0.071	Not Significant

Correlation is not significant at $p < 0.05$

Table 3 shows a Pearson correlation coefficient (r) of 0.087 with a p-value of 0.071. Since the p-value (0.071) is greater than the alpha level of 0.05, the null hypothesis is not rejected. This indicates that there is no statistically significant relationship between having a positive attitude towards the pedagogical use of technology and having a pro-environmental attitude regarding that technology.

$H_{o}2$: There is no significant difference between the mean scores of science teachers and students on their environmental attitudes towards digital technology use.

Table 4: t-test Comparison of Teachers' and Students' Pro-Environmental Attitudes

Respondent Group	N	Mean ($\bar{X}$)	Std. Deviation	df	t-value	p-value
Teachers	108	2.38	0.59	430	0.812	0.417
Students	324	2.33	0.64			
Not significant at p < 0.05						

The t-test analysis in Table 4 yielded a calculated t-value of 0.812 with a p-value of 0.417. Since the p-value is greater than 0.05, the null hypothesis is not rejected. This means that there is no statistically significant difference between the pro-environmental attitudes of science teachers and students

Discussion

The results of this paper are essential in determining the relationship between the items of technology usage and ecological awareness in the Nigerian education system.

The initial significant discovery was that teachers and students in Oyo State have very positive views towards the application of digital technology in the classroom. This is consistent with the general literature (Adebisi, 2020; Ghavifekr and Rosdy, 2015) and the postulations of the Technology Acceptance Model (TAM), in which positive attitudes are a result of high perceived usefulness. This energy can be utilized in modernizing the teaching of science in Nigeria.

The second finding, however, is a very disturbing and dramatic one: the level of awareness about the environmental impact of their use of technology is very low in both groups. The total mean awareness level (2.09) was significantly lower than the standard, which means that the problem of e-waste, energy usage, and resource waste are not high on the list of users. This helps to prove the main idea of the research, that the emphasis on pedagogical advantages has overshadowed the environmental issues. This observation is especially concerning in a nation such as Nigeria, which is already grappling with a serious e-waste management problem (Okunola, 2020).

The most important conclusion is the absence of significant correlation between positive attitudes to the use of technology and pro-environmental attitudes. This implies that having an interest in learning science with the help of a tablet does not correspond to being worried about the way to recycle it and the amount of energy it uses. This alienation is the issue which this study was aimed to examine. It means that pro-environmental behaviour cannot be an automatic consequence of using the technology; it has to be taught and encouraged. This observation undermines the belief that exposure to technology, in any form, in the educational context is absolutely positive and shows a significant lack of connecting learning with technology to learning about the impact of technology on society and the environment.

Lastly, the research did not establish any significant difference between the general attitudes of teachers and students on the environment. Although teachers were slightly more aware, the difference was not significant in their attitudinal scores. This is one of the most crucial findings. Teachers are supposed to be knowledge facilitators and role models. Unless their environmental attitudes towards technology are considerably more advanced than that of their students, it can hardly be expected that they will be capable of effectively imparting the values and practises required to make use of technology in a sustainable manner. This indicates a systematic failure in the teacher training and professional development programmes which, according to Koehler and Mishra (2009), concentrates on the how-to of technology integration (TPACK) rather than the what-if of the environmental and social impact of the technology integration.

Conclusion

The paper has concluded that although the digitalization of science education in Oyo State, Nigeria, is being received with excitement by both teachers and students, it is moving on a path that is not environmentally sustainable. The lack of awareness and concern regarding the environmental impact of digital tools is deeply disconnected with the high value placed on their use in pedagogy. The positive attitudes towards the use of technology are not correlated with pro-environmental attitudes, which means that the two are independent constructs in the minds of the users. Unless an active measure is taken,

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educational institutions will become a major source of the environmental issues that the science curriculum in question is supposed to solve.

Recommendations

On the basis of the results and conclusions of this paper, the following recommendations are offered:

To the Federal and State ministries of education:

- The science curriculum (especially in such subjects as Basic Science, Chemistry, and Biology) should be revised by the curriculum developers in such a way that it contains the topics about the lifecycle of digital technology, e-waste, energy conservation and sustainable IT.
- Design and implement national green procurement and e-waste management policies in the education sector.

Where Teacher Training University Institutions (e.g. Universities and Colleges of Education) are concerned:

- The training curriculum of pre-service teachers should be revised to incorporate compulsory courses in Sustainable Pedagogy and Green IT. This would broaden the TPACK model to cover environmental knowledge.
- In-service teachers should be provided with opportunities to enhance their capacity to teach and model sustainable technology practices through the organization of Continuous Professional Development (CPD) workshops.

Because of their roles as School Administrators and Principals:

- Adopt school-wide energy conservation policies, i.e. power-down campaigns in computer labs and classrooms.
- Identify specific collection points of used batteries and other e-waste and collaborate with certified e-waste recycling companies.
- Encourage the culture of Reduce, Reuse, Repair, Recycle of electronic devices in the school fraternity.

For Future Research:

- An experimental study may be carried out to evaluate the effectiveness of a specific educational intervention in enhancing environmental attitude of students and teachers.
- The study needs to be extended to other parts of Nigeria to ascertain the nationality of this problem.

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