ENVIRONMENTAL LITERACY AND LEARNING RESOURCES: PANACEA TO EMERGING DRIFT IN COMMUNITIES FOR SUSTAINABLE ENVIRONMENTAL DEVELOPMENT

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Abstract

The study was conducted to create awareness about environmental literacy as part of the 17 sustainable development goals and mitigate environmental challenges at the primary school level. To achieve this, the study examined primary school teachers' perceptions of picture books and animated cartoons as learning resources to create awareness; investigated the learning resources available and employed in primary schools for teaching/learning environmental-related topics; and highlighted the inhibitors of learning resources of picture books and animation cartoons. The study adopted a descriptive research of the survey type using quantitative method. A total of 60 primary school teachers in Ekiti State, Nigeria participated in the study. A questionnaire and a checklist were used for data collection. The data were analyzed through descriptive statistics. Findings revealed that respondents have positive perceptions of picture books and animated cartoons. The findings showed learning resources that were available, unavailable, utilized, and unutilized in teaching and learning of environmental-related topics. The findings also revealed inhibitors to the use of picture books and animation cartoons. It was suggested that primary school teachers should employ picture books and animated cartoons as learner-friendly learning resources to broaden pupils' horizon about environmental sustainability in classrooms at the primary school level.

Keywords: Environmental literacy, picture books, animated cartoons, sustainable development.

INTRODUCTION

The present predicament of global doldrums caused by substantial progress in all facets of life, consumption patterns and ways of living have negative resultant effects on environment and human lives. On September 25, 2015, the United Nations launched the Sustainable Development Goals (SDGs), outlining a set of global objectives with the aim of achieving them by the year 2030 Sustainable development focuses on how the present needs of individuals are met without obstructing the actualization of the needs of the future generations (Brundtland Report, 1987). The emergence of the Sustainable Development Goals (SDGs) at this time is established to tackle all the emerging trends and challenges in the world: end poverty; end hunger; unhealthy life style and well-being; non-inclusive, equitable and quality education; gender inequality; lack of portable drinking water and preservation; lack of sustainable energy; retarded economic growth; problem with climate change; lack of care for the environment (water and land use); and violence and injustice etc.

Presently, the whole world is faced with myriad of problems which are related to economic, social and environmental issues. Developing countries, in particular, grapple with environmental issues such as global warming, inadequate sanitation, deforestation, climate change, and various forms of pollution. Despite these challenges, the environment, encompassing air, water, and land, plays a vital role as a foundational support system and source of materials for achieving developmental goals in communication, industrialization, technology, agriculture, trade and commerce, transportation, and mining. Sethusha (2006) posits that the reasons why people subjugate the physical environment for economic growth is that people believe that the earth has an immeasurable supply of resources for human use for full exploitation to advance human civilization. Also, humans do not see themselves as part of the environment rather as separate entities from the environment, this has led to a presumed biological terrorism, an attempt to subjugate nature to satisfy their needs with little regard for the outcomes (Eneh, 2015). Observation also reveals that lack of awareness of and knowledge on cause-effect on environmental insensitivity and human-induced environmental actions on decimation of ecosystems are other reasons. These reasons have led the world to series of environmental vandalism.

This present study focuses on how primary school teachers through effective learning resources can help pupils actualize SDG 15 (sustainable use of life on land) by creating awareness about how to protect, restore and promote sustainable use of terrestrial ecosystems through waste disposal management, climate protection, anti-pollution sensitization, mitigating misconduct against plants and animals. To stop the looming menace steering at human sustenance and existence, this situation needs urgent and proactive steps at primary education level which is the foundation of other levels of education. One of the proactive steps is creating pupils' awareness about environmental literacy. However, there are limited studies on environmental sustainability and learning resources at the primary school level (Sethusha, 2006). The few ones do no focus on pupils' awareness of environmental literacy and learning resources employed in teaching environmental sustainability in primary schools.

A number of research has been conducted on picture books and animated cartoons by Hsiao and Shih (2015); Kochiyama (2016); He (2018); Chen (2019); Van der Merwe (2020); Olatunde-Aiyedun (2021); Ridha et al. (2022); Eryilmaz and Bozgün (2022). These studies have shown that using picture books and animated cartoons improve learning but none of these studies have reported on the use of picture books and animated cartoons in teaching environmental literacy at primary education level. To address this gap in the literature, this paper proposes picture books and animated cartoons as learning resources to propagate environmental literacy in primary schools as effective means to resolve environmental trends and challenges in communities for sustainable development at the early stage. The paper also seeks to examine the perception of primary school teachers about picture books and animated cartoons; investigate the learning resources available in primary schools; investigate the learning resources employed by primary school teachers; and discuss the inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics.

Research questions
To achieve the stated objectives of this study, the following research questions were raised:

1. What perception do primary school teachers have about picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools?
2. What are the teaching/learning resources available in primary schools for teaching/learning environmental-related topics?
3. What are the teaching/learning resources employed by primary school teachers in teaching environmental-related topics?
4. What are the inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics?

Review of related literature
Environment, environmental education and environmental literacy
The environment is defined as the entire terrain, forms and all the socio-political, cultural and the natural impacts influencing the life and development of an organism (Charuvil, 2000). An ecosystem is the harmonious coexistence of living organisms and nonliving elements within their environment, interacting as interdependent components.

Plants, animals and humans depend on ecosystems to supply food, habitat and natural resources (Mohandas, 2020). When pupils possess correct knowledge of environmental concepts and also acknowledge global impact of environmental abuse resulting from human activities, they may not only see the necessity to support the wellness of the planet and the entire web of relation that connect jointly all life on earth, but they may also individually and collectively find solutions to environmental problems confronting them (Sethusha, 2006). Young ones need to be sensitized about the ecosystem, its effects on the environment vis-à-vis the living and nonliving inhabitants and make young ones answerable to every environmental decision they make.

Education is conceived as the surest means to inculcate right attitude and grand awareness about the environment. Education exposes learners to the causes of environmental degradation and its resultant effects. Education received from divergent approaches to problem solving for an economically, environmentally and socially sustainable world benefits the earth today and future generations (Assa et al., 2021; Tekbiyik & Celik, 2019). For instance, Mohandas (2020) in his study explains how Government Upper Primary School, Varadiyam in Avanoor Panchayat endorsed the inclusion of ecosystem-friendly-sustainability education into school activities through school cleaning up programme, vegetable garden, medicinal plant garden, rain water harvesting system, natural paintings, bird watching, lunch without waste, waste management, eco clubs/nature clubs, and plants and seed distribution to students.

Environmental education is a modern-day necessity. Environmental education is a holistic approach which involves the three learning domains of human development provided to create sensitization, knowledge, values, attitudes, motivation, skills, and the commitment to take actions towards a sustainable future (Charuvil, 2000). The main objective of environmental education is to propagate environmental literacy through problems-solving approach and community participation with the aim of raising useful and dependable individuals who are accountable to the sustainability of the environment and the planet.

Environmental literacy is the ability to comprehend and clarify the various health conditions of environmental systems and take right action to preserve, regenerate or improve the wellness of those systems (Roth, 1992). Environmental literacy helps in raising generation of sensitive persons who appreciate quality environment and will do everything possible to consistently and reasonably put into consideration the needs of human and interests of nature each time actions related to earth usage are to be carried out. Charuvil (2000) expatiates that environmentally literate person is alert to the environment and its resources, has feelings for the interdependence in nature, is responsive to environmental problems, has positive attitudes and values to ecosystem, is committed to protecting the environment, and finds panacea to basic environmental problems.

Coyle (2005) states three basic levels of learning environmental literacy: environmental awareness, personal conduct knowledge and environmental literacy. Environmental awareness is the possession of simple knowledge of environmental concepts such as water, land and air pollution; solid waste; habitat loss; and climate change with limited understanding of its main causes and implications. The second level involves awareness and action that embolden people to get involved in instant individual acts that contribute to environmental advancements such as saving electricity, water and gasoline; buying "green" products and seafood preference; decline of solid waste; and reducing individually-induced-run-off pollution.

Environmental literacy which is the third level begins with organized information, the transmission of the subject's underlying principles, the skills required to inquire into the subject, and an understanding of how to harness that information.

Primary education

Primary education is given in schools to children aged 6 to12 years. It is the basis on which other levels of education are laid. The objectives of primary education is to inculcate permanent literacy, numeracy and the ability to communicate effectively; lay a sound basis for scientific, critical and reflective thinking; instill social moral norms and values in the child; and develop in the child the ability to adapt to the child's changing environment (National Policy on Education; Federal Republic of Nigeria, 2014). The future lies in the hand of young ones hence they should not be left behind in the clamor for sustainable environment. The right type of attitude, values and skills about environmental literacy can be inculcated through participatory and inviting teaching learning resources at the elementary stage. Olatunde-Aiyedun (2021) asserts that in order to realize the goals of primary education, teaching strategies to be adopted should be practical, activity-based, experiential, and Information Technology (IT) supported. Learning at primary education level requires techniques that have the potentials to absorb pupils in multisensory dimensions especially, the use of visual aids, pictorial and graphical-related tools.

Visuals as learning resources

Shabiralyani et al, (2015) define visual aids as materials that help to make lesson clearer and simple to comprehend. Visual aids appeal to the sense of sight through pictures, models, charts, maps, videos, real objects) flannel board, flash cards, bulletin board, chalkboard, slides, overhead projector etc. Visual aids help the teacher to clarify, establish, correlate, and co-ordinate conceptions. Visual aids support learning tasks and make it genuine, exciting, soothing, and meaningful. Every pupil is prone to forgetfulness; however, the correct use of visual learning resources helps pupils retain concepts indelibly.

Pictures books

Pictures are portrayed in different types, sizes, shapes and colours. Pictures are represented by photographs, cartoons, real images and shapes of things which address objects, persons, places and events/phenomenon. Picture book is a coherent and orderly arrangement of pictures coupled with texts and illustrations to transmit information, story, themes, ideas, and emotions. Terwinghe, (2021) notes that a picture book is text, illustrations, total design; a social, cultural, and historic document; and foremost, an experience for a child. As an art form, it hinges on the interdependence of pictures and words, on the simultaneous display of two facing pages, and on the drama of the turning page. Serafini (2014) differentiates picture books as multimodal ensembles. Three main parts of printed multimodal ensembles are text, visual imagery (charts, drawings, photographs, tables, pictures) and design (typography, edges and other graphic elements). Other examples are nature books, animal books, counting books, miscellaneous easy to-read books, alphabet books, and concept books.

Picture books evoke pupils' empathy, motivate, compel and arrest the attention of pupils whenever they are taught environmental-related topic. Through picture books, information about climate change, greenhouse effect, ozone depletion, deforestation etc. could be transmitted by activating their critical thinking, creative, interpersonal and rational skills. The developmental stage of every child is monumental. Their emotion, psychology, education, and culture are developed through sight, touching, hearing, and smelling senses. The knowledge acquired or missed during this stage can influence individuals' perceptions, psyche, and beliefs about the world. Since children's minds are porous and tender, picture books fit in as appropriate literary, creative, motivational, and visual mechanisms capable to arrest learners' attention and interests about environment before onward transmission of the sensory information to the brain for processing. Utilizing picture books can be a valuable effort in teaching ecological awareness and instilling eco-critical messages

in the hearts and minds of young individuals. Through picture books, pupils' understanding of critical environmental issues of Sustainable Development Goal 15 can be taught.

Studies on picture books
Studies have been conducted on the effects of picture books on learners in the classroom, however much has not been written on the environment. Hsiao and Shih (2015) investigated preschool teachers' use of picture books for teaching environmental concepts and the conservation of resources. The result showed that picture book helped children to know why and how to save resources practically, helped them to reduce the use of water spontaneously when washing hands, even without a teacher, it served as reminder and instilled in them to immediately turn off the faucet after washing their hands. Chen (2019) discussed the need to employ picture books in English teaching. The research findings indicated that picture books not only enhanced students' motivation to learn but also facilitated the acquisition of additional expressions and the exploration of compelling new narratives. This compensates for the shortcomings found in traditional textbooks. He (2018) examined a detailed discussion to the teaching practice of English reading based on picture story books in primary schools. The findings showed that teaching English reading through picture story books developed students' enthusiasm and has improved their learning interest. Although these studies are limited, yet the study showed that picture books gave students the opportunity to learn some universal aspects of the human conditions with which learners can make meaningful connections. Nevertheless, these studies have not related the use of picture books as a strategy for teaching environmental literacy at primary schools.

Animated cartoons
Cartoons are daily amusing stories in picture form, which could be on a paper or in a video, with or without reproduction of sounds, representing the day-to-day activities of people. Cartoons help to simplify difficult subjects in form of teaching or entertaining pupils (Cosby, 2003). Eneh (2015) explains that cartoons are characterized by presentation of diverse notions about a concept, the use of visual images, less use of written language, and contexts that are common with children. Animated cartoons are presented in a way in which people and animals are made to move and talk. Animated learning contents can be harnessed for a number of purposes in schools: explaining complicated terminologies in an easy-to-comprehend form; supporting the imagination of children; presenting concepts from an entirely different angle; demonstrating certain concepts to pupils; stimulating pupils' sense organs; and invigorating critical thinking that may lead to reconstruction of ideas (Eneh, 2015; Jeetha & Krishna, 2021). Since children within the age range of 5 and teens are lovers of animated cartoons, using cartoons to teach environmental literacy could be an effective tool to change their attitude, improve their knowledge and sustain their interest about environmental literacy at the primary level.

Studies on animated cartoons
Studies have been conducted on the effect of animated cartoons on learners in the classroom, however much has not been written on the environment. Ridha et al. (2022) examined the influence of animated videos on vocabulary learning in an effort to improve students' vocabulary at the Noble Private Technical Institute. Majority of students in the study agreed that "animated videos aid in assimilation; make studying more interesting; aid in vocabulary development; make English learning more productive; and improve students' comprehension and assimilation of terminology". Olatunde-Aiyedun (2021) investigated the interaction effect of animation teaching strategy on secondary school students' achievement in climate change. The findings of this study revealed that climate change could be taught effectively through animation teaching strategy and can as well enhance students' achievement in climate change-related topics. Eryilmaz and Bozgün (2022) investigated the effect of using cartoons on primary school students' academic achievement in Social Studies courses in Turkey. It was concluded in the study that cartoons can be used as another viable teaching tools in Social Studies courses.

Van der Merwe (2020) focused on the use of interactive storytelling, cartoon animation and educational gaming to communicate biblical messages to preschool children. The study discovered that in a postmodern era, parents, the church and Christian nurseries, nurseries, or any other religious education agents are encouraged to explore these modes of teaching of the Gospel to preschool children. Şahin and Arslan (2022) explored the effect of an animated cartoon series on middle school students' on students' environmental literacy sub-dimensions using "Su Elçileri" as a case study. The findings indicated that "exposure to the "Su Elçileri" animated cartoon series resulted in significantly better improvement in environmentally responsible behaviors and the attitude toward environmental problems than the control group". The findings draw attention to animated cartoons as a teaching strategy in environmental education and science education, especially in younger age groups. Eneh (2015) investigated the effect of cartoons on pupils' interest and achievement in environmental education in Basic Science and Technology. The study showed that pupils' achievement and interest environmental education was enhanced by the use of cartoons. Pupils taught with cartoons performed better than those who were not exposed to the treatment. These studies have revealed that the use of animated cartoons is an effective strategy for teaching and learning. However, the focus of these studies have not centered on sensitizing pupils on environmental literacy through the use of animated cartoons but this present study seeks to achieve this by sensitizing pupils on environmental literacy through the use of animated cartoons.

Teaching sustainable environmental development through an animated cartoon Titled "Tomorrow"

The animated cartoon "Tomorrow" (English Version) is a short animated cartoon about the climate crisis. It is the intellectual property of Kazi Media Limited, Bangladesh. The animated cartoon was culled from the link.

Figure 1. The cartoon Ratul.

The story focuses on the cartoon Ratul, a young boy in Bangladesh, who embarks on a trip with his father on a bicycle. Ratul shows his repugnance at nature while his father attests to his love for butterflies, trees, rivers, oceans and natural things and frowns at activities that will harm them.

Figure 2. Ratul on a trip with his father discussing their environment.

They both meet some villagers who are sharing their thoughts on the news heard on the Internet that they are to remove their houses away from the sea shore. Ratul's father explains that need to relocate because the sea level is rising and floods and cyclones are occurring almost every year. This will affect crops and human beings will not be able to survive. The earth is getting warmer and that is why these havocs are happening because of climate change.

Figure 3. Villagers discussing flood.

Figure 4. Ratul listens to what climate change means.

At night, Ratul dreams. He encounters a supernatural being who shows him two different visions about the future of ecosystem. The first scenario shows what is currently happening around the village. The dream reveals the category of people like Ratul who do not take care for the Mother earth but want to destroy the world by harming and heating the earth through burning of fuel and cutting trees; and how the factories, for many centuries, have been growing and expanding through the use of fossil fuel.

Figure 5. A supernatural being discusses with Ratul.

Figure 6. Factories heating the earth through the use of fossil fuel.

The smoke from these fossil fuels causes air pollution which has caused many people in the larger cities to suffer from asthma and other diseases.

Figure 7. An ambulance conveying asthmatic patients.

Figure 8. A flooded village.

Nothing in this world will survive, everything will be destroyed by the greenhouse effect if people of earth do not stop harming the earth because there will be flood, famine, hunger, death and depletion of ozone layer etc.

Figure 9. The rising of the sea level.

Figure 10. Children suffering from hunger.

Ratul wants to know what will happen in the future if people stop harming the earth. The second scenario reveals the future where everyone decides to help change the planet. By then, the world has replaced fossil fuels with renewable energy and the catastrophe of rising sea levels has been prevented.

Figure 11. Factories are run through windmills.

Figure 12. Factories are run through solar panels.

Factories are run through windmills and solar panels since fossil fuel are no longer burnt, the greenhouse effect is no more and the earth has become soft, green and livable again.

Figure 13. Habitable environment.

Figure 14. A supernatural being advises Ratul to be a change agent.

Ratul wakes up from his dream and decides to save his country, Bangladesh, from going into extinction. He determines that their air, water and land must not be ruined.

Figure 15. Ratul asks how he can save his country.

Figure 16. Ratul's father reveals how to be a change agent.

His father tells him how to save the air, land, water and other ecosystems by: i. educating ourselves individually; ii. educating people around us that all should take responsibility; iii. government should take decisive steps by making and implementing policies that will protect the earth such as putting taxes on fossil fuels and the tax money should be spent subsidizing renewable energy iv. all kinds of pollution, especially water and air, has to be reduced and eventually eliminated.

Figure 17. A group of individuals campaigning.

Figure 18. A boy advocating taxes on fossil fuels.

Ratul educates his friends in the school and on the social media on the dangers of global warming and its harmful effects on our community, our health and our climate.

Figure 19. A placard on environmental sustainability.

Figure 20. Ratul and his friends at school discussing climate change.

Ratul and the community begin public advocacy with a peaceful protest on government's negligence on climate change.

Figure 21. A peaceful protest on climate change.

After twenty-five years, Ratul has become a grown up. He is invited to address the public from all countries of the world on how he and his countrymen actualized their dream about environmental sustainability of their beloved country. Now, in his country from primary schools to tertiary institutions, both literates and illiterates, companies, and government establishments etc. have become responsible and alert to their environment and will not relent at sustaining their ecosystem.

Figure 22. Ratul addresses the public from all countries of the world.

Ratul and his people have become environmental-literates, sensitive to their environment, responsible to the decisions they make about their environment and achieved environmental sustainable development because of individual, state and global-led solutions.

METHOD

Research Design
The study adopted a descriptive research of the survey type using quantitative method of data gathering. Descriptive research of the survey type was adjudged appropriate for the study because the purpose was to gather information on the existing situation and describe the phenomenon as given by the respondents.

Participants
The respondents were randomly drawn from primary schools in Ekiti State, Nigeria. Through simple random sampling technique, a total of 60 primary school teachers were selected and participated in the study.

Research Instruments and Procedure
Two research instruments, a questionnaire and a checklist, were used for data collection. Sixty-five questionnaires were distributed but 60 questionnaires were completed and returned. Respondents were given adequate time to fill out the questionnaires. The questionnaire was titled "Teachers' notions about picture books and animated cartoons as learning resources in teaching environmental literacy in primary schools." The questionnaire was divided into two parts. Part A focused on the demographic information of the respondents while Part B was categorized into Group A and Group B. Group A addressed teachers'

perceptions of picture books and animated cartoons as learning resources for teaching environmental-related topics in primary schools with 8 items. This part was measured using a four-point-Likert-type scale of Strongly Agree (SA), Agree (A), Strongly Disagree (D), and Strongly Disagree (SD). Group B dealt with constraints faced by primary school teachers in the use of picture books and animated cartoons for teaching environmental literacy. This part was measured using a "Yes or No" format with 16 items.

The second instrument was a checklist. The instrument was subdivided into Aspect A and Aspect B. Aspect A investigated the teaching/learning resources available in primary schools for teaching/learning environmental-related topics. In this part, the respondents ticked 'available' or 'not available' as applicable to the teaching/learning resources available in primary schools for teaching/learning environmental-related topics. In Aspect B, the focus was on learning resources employed by primary school teachers in teaching environmental-related topics. The respondents ticked 'never', 'rarely', 'sometimes' or 'always' as applicable to the teaching learning resources they use during teaching and learning of environmental-related topics. The data were analyzed through frequency and percentage while the hypothesis was analyzed using inferential statistics of t-test.

Validity and Reliability of the Instruments

The instruments were self-constructed. Experts in testing, language, primary education, and measurement and evaluation ascertained the face and content validity of the instrument. To ensure reliability, the questionnaire was administered by research assistants on 25 primary school teachers who were not part of the selected sample of the study. Face to face survey for the distribution of the instruments for data collection was employed. Pearson's Product Moment Correlation was employed to measure the reliability after a test-retest was conducted and a reliability coefficient of .76 was obtained.

RESULTS

Research Question 1: What perception do primary school teachers have about picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools?

Table 1 reveals that 100% of the respondents perceived that picture books and animated cartoons are effective means of teaching primary pupils, while 57% of the respondents opined that picture books and animated cartoons foster clarity and comprehension of lessons.

Table 1. Primary school teachers' perceptions of picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools.

S/N	Statement	Strongly Agree	Agree	Strongly Disagree	Disagree
1	I know what picture books and animated cartoons mean in teaching primary pupils	35 (58.3%)	25 (41.7%)	-	-
2	Picture books and animated cartoons help to make lessons clearer and easier to understand	28 (46.7%)	29 (48.3%)	2 (3.3%)	1 (1.7%)
3	Picture books and animated cartoons help teachers explain and connect ideas to make the process of learning more interesting, enjoyable, persuasive and effective	27 (45%)	29 (48.3%)	1 (1.7%)	3 (5%)
4	Picture books and animated cartoons help pupils recall, remember and retain information for a longer period of time	26 (43.3%)	28 (46.7%)	2 (3.3%)	4 (6.7%)
5	Picture books and animated cartoons increase pupils' vocabulary and concepts about the environment	33 (55%)	24 (40%)	2 (3.3%)	1 (1.7%)
6	Picture books and animated cartoons derail pupils by treating topics that are outside the scope of the lesson	11 (18.3%)	6 (10%)	22 (36.7%)	21 (35%)

Table 1 (Continued). Primary school teachers' perceptions of picture books and animated cartoons as learning resources for teaching environmental literacy in primary schools.

S/N	Statement	Strongly Agree	Agree	Strongly Disagree	Disagree
7	Although, picture books and animated cartoons are fun-filled but they are time-consuming and energy sapping	27 (45%)	24 (40%)	5 (8.3%)	4 (6.7%)
8	Picture books and animated cartoons could be distracting to pupils and make the class rowdy	24 (40%)	25 (41.7%)	5 (8.3%)	6 (10%)

Fifty-six teachers asserted that the use of picture books and animated cartoons develop pupils' interest in the lesson and help them connect ideas in the lesson to their personal experience, while 54% of the teachers believed that picture books and animated cartoons assist pupils to recall, remember and retain information for a longer period of time. Fifty-seven teachers noted that pupils' vocabulary and concepts about the environment could be increased through the use of picture books and animated cartoons. However, forty-three of the respondents affirmed that picture books and animated cartoons could be a derailment to the scope of the lesson. Although, fifty-one teachers agreed that picture books and animated cartoons are fun-filled but they are time-consuming and energy sapping. Also, forty-nine respondents opined that picture books and animated cartoons could be distracting to pupils and make the class rowdy.

Research Question 2: What are the teaching/learning resources available in primary schools for teaching/learning environmental-related topics?

Table 2 reveals that real objects 38(63.3%), diagrams 46(76.7%), illustrations 60(100%), drawings 51(85%), cartoons in recommended textbooks 56(93.3%), charts 53(88.3%), flash cards 52(86.7%), pictures 40(66.7%), and pictures in recommended textbooks 60(100%) are readily available in schools as learning resources employed in teaching environmental-related topics.

Table 2. Teaching/learning resources available in primary schools for teaching/learning environmental-related topics.

S/N	Visual Aids	Available	Not Available
1	Real objects	38 (63.3%)	22 (36.7%)
2	Diagrams	46 (76.7%)	14 (23.3%)
3	Photographs	28 (46.7%)	32 (53.3%)
4	Illustrations	60 (100%)	-
5	Drawings	51 (85%)	9 (15%)
6	Cartoons in recommended textbooks	56 (93.3%)	4 (6.7%)
7	Cartoons downloaded online or from other means aside recommended textbooks	5 (8.3%)	55 (91.7%)
8	Animated cartoons	3 (5%)	57 (95%)
9	Charts	53 (88.3%)	7 (11.7%)
10	Flash cards	52 (86.7%)	8 (13.3%)
11	Overhead projector	6 (10%)	54 (90%)
12	Videos/Films	8 (13.3%)	52 (86.7%)
13	Painting	35 (58.3%)	25 (41.7%)
14	Pictures	40 (66.7%)	20 (33.3%)
15	Picture books	11 (18.3%)	49 (81.7%)
16	Pictures in recommended textbooks	60 (100%)	-
17	Picture books downloaded online or from other means aside recommended textbooks	4 (5.7%)	56 (93.3%)

Research Question 3: What are the teaching/learning resources employed by primary school teachers in teaching environmental-related topics?

Table 3 shows that during the teaching/learning of lessons that focused on environmental-related topics, 37 respondents affirmed that they hardly use real object, 45 teachers utilized diagrams, 20 teachers taught with

photographs, 60 teachers affirmed that they always used illustrations, 55 respondents made use of drawings, 60 respondents always employed cartoons in recommended textbooks, 51 teachers did not download cartoons online or from other means aside cartoons in recommended textbooks, 54 teachers did not use animated cartoons, 57 teachers utilized charts, 50 teachers did not employ overhead projector, 54 teachers affirmed that they did not make use of videos/films, 38 teachers made use of painting, 48 teachers do not use picture books, 60 teachers make use of pictures in recommended textbooks, and 48 teachers did not download pictures online or from other means aside pictures in recommended textbooks. For painting, 30% of the teachers utilized painting while 30% did not.

Table 3. Teaching/learning resources employed by primary school teachers in teaching environmental-related topic.

S/N	Visual Aids	Never	Rarely	Sometimes	Always
1	Real objects	25 (41.7%)	12 (20%)	20 (33.3%)	3 (5%)
2	Diagrams	10 (16.7%)	5 (8.3%)	23 (38.3%)	22 (36.7%)
3	Photographs	19 (31.7%)	21 (35%)	12 (20%)	8 (13.3%)
4	Illustrations	-	-	-	60 (100%)
5	Drawings	1 (1.7%)	4 (6.7%)	32 (53.3%)	23 (38.3%)
6	Cartoons in recommended textbooks	-	-	-	60 (100%)
7	Cartoons downloaded online or from other means aside recommended textbooks	36 (60%)	15 (25%)	5 (8.3%)	4 (6.7%)
8	Animated cartoons	52 (86.7%)	2 (3.3%)	2 (3.3%)	4 (6.7%)
9	Charts	1 (1.7%)	2 (3.3%)	44 (73.3%)	13 (21.7%)
10	Flash cards	6 (10%)	4 (6.7%)	45 (75%)	5 (8.3%)
11	Overhead projector	41 (68.3%)	9 (15%)	8 (13.3%)	2 (3.3%)
12	Videos/Films	51 (85%)	3 (5%)	2 (3.3%)	4 (6.7%)
13	Painting	15 (25%)	15 (25%)	15 (25%)	15 (25%)
14	Pictures	12 (20%)	10 (16.7%)	19 (31.7%)	19 (31.7%)
15	Picture books	46 (76.7%)	2 (3.3%)	9 (15%)	3 (5%)
16	Pictures in recommended textbooks	-	-	-	60 (100%)
17	Picture books downloaded online or from other means aside recommended textbooks	33 (55%)	15 (25%)	8 (13.3%)	4 (6.7%)

Research Question 4: What are the inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics?

Table 4 reveals the various inhibitions faced by primary school teachers whenever they are to teach environmental-related topics.

Table 4. Inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics.

S/N	Constraints bedeviling the use of picture books and animated cartoons	Yes	No
1	Distract pupils from learning	40 (66.7%)	20 (33.3%)
2	Cost-consuming	55 (91.7%)	5 (8.3%)
3	Some online picture books and animated cartoons require a lot of bandwidth	58 (96.7%)	2 (3.33%)
4	Not beginner-friendly	3 (5%)	57 (95%)
5	Lack of technological know-how	15 (25%)	45 (75%)
6	Large class size	30 (50%)	30 (50%)
7	Insufficient/lack of picture books and animated cartoons	60 (100%)	-
8	Unwillingness by teachers/poor disposition to the use of picture books and animated cartoons	10 (16.7%)	50 (83.3%)
9	Time consuming	48 (80%)	12 (20%)
10	Lack of awareness and knowledge of picture books and animated cartoons	8 (13.3%)	52 (86.7%)

Table 4 (Continued). Inhibitors to the use of picture books and animation cartoons for teaching/learning environmental-related topics.

S/N	Constraints bedeviling the use of picture books and animated cartoons	Yes	No
11	Lack of/Inadequate technical and infrastructural facilities	52 (86.7%)	8 (13.3%)
12	Lack of gadgets, ICT tools, electronic and other allied facilities	55 (91.7%)	5 (8.3%)
13	Textbooks have sufficient picture books and animated cartoons	43 (71.7%)	17 (28.3%)
14	Paucity of fund	58 (96.7%)	2 (3.3%)
15	Teachers' inability to improvise	40 (66.7%)	20 (33.3%)
16	Erratic and unreliable internet connection and unstable power supply	53 (88.3%)	7 (11.7%)

The respondents 66.7% opined that pupils easily get distracted, 91.7% noted that the learning resources are cost-consuming, 96.7% noted that some online picture books and animated cartoons require a lot of bandwidth, 95% noted that they are not beginner-friendly, all the respondents (100%) claimed that insufficient/lack of picture books and animated cartoons deterred them, 80% noted that time consumption of the learning resources hindered them, 86.7% would have loved to utilize the learning resources but lack of/inadequate technical and infrastructural facilities is an obstacle, 91.7% opined that lack of gadgets, ICT tools, electronic and other related facilities affect them, 71.7% claimed that they teach with recommended textbooks since they have sufficient picture books and animated cartoons, 96.7% agreed that lack of fund to procure necessary facilities is an impediment, 66.7% claimed that most teachers are unable to improvise in classes. Respondents, 88.3% responded that erratic and unreliable internet connection and unstable power supply are noted to be problems. Nevertheless, 95% said the learning resources are beginner-friendly, 75% reported that they did not lack technological know-how, 83.3% affirmed that they were not indisposed to use of picture books and animated cartoons, 86.7% affirmed that they are aware of and knowledgeable about picture books and animated cartoons.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

Respondents in this present study have positive perceptions of picture books and animated cartoons and have shown that they are aware and knowledgeable about what picture books and animated cartoons are, their usefulness in teaching/learning of environmental literacy, the positive impacts they have on pupils' learning outcomes, and their negative resultant effects. Birisci et al. (2010) corroborated the findings that teachers are knowledgeable about cartoons and acknowledge that cartoons make lessons more interesting and entertaining, improve leaners' critical thinking skills and make them develop positive attitude towards lesson. More so, Awasthi (2014) also agreed that visual aids activate all the sensory organs of children and make learning easy, effective and permanent. In addition, Shreesha and Tyagi (2016) affirmed that animation instructional materials help to teach and visualize complicated topics in a simple way, catchy tunes endear learners to master the key words and foster students' academic performance.

Findings revealed that real objects, diagrams, illustrations, drawings, cartoons in recommended textbooks, charts, pictures, flash cards, painting, and pictures in recommended textbooks are readily available for teaching/learning of environmental literacy while cartoons downloaded online or from other means aside recommended textbooks, picture books, animated cartoons, overhead projector, videos/films, and picture books downloaded online or from other means aside recommended textbooks are unavailable. A study conducted by Sam-Kayode et al. (2020), it was noted that learning resources were available but not adequate for teaching and learning, however, the available ones were not adequately utilized.

The findings further show that real objects, photographs, cartoons downloaded online or from other means aside recommended textbooks, animated cartoons, picture books, overhead projector, videos/films, picture books downloaded online or from other means aside recommended textbooks are unpopular and not utilized in teaching and learning of environmental-related topics. Nevertheless, the most widely embraced and utilized educational resources include diagrams, pictures, illustrations, drawings, cartoons in recommended

textbooks, as well as charts and pictures featured in recommended textbooks. It could be implied from the findings that picture books and animated cartoons are not utilized whenever topics related to environment are taught. It is observed that the most popular and utilized learning resources do not appeal to all the sensory organs of children unlike picture books and animated cartoons. The findings of Shabiralyani (2015) is in tandem with the findings of this study that text books and wall chart are the most usual learning resources used by teachers. Furthermore, Shabiralyani (2015) revealed that the use of ICT tools and the Internet where teachers can download visual learning resources were not yet common and also, teachers and learners did not use visual aids teaching/learning resources such as CDs, TV, and computers because they were not available in some schools. In contrast, Huong and Chuyen (2020) showed in their study that PowerPoint presentations, pictures and videos were the most favorable teaching and learning aids.

Findings in the study have shown the various constraints bedeviling the use of picture books and animated cartoons. By implication, lack of fund; dearth of technical and infrastructural facilities; lack of gadgets, ICT tools, electronic and other allied facilities; irregular and unreliable internet connection, and unstable power supply are constraints to the utilization of picture books and animated cartoons in classrooms. Pam et al. (2020) noted in their study that inadequacy and non-availability of visual aids are apparently evident in primary schools and other reasons for non-utilization of visual aids are non-provision of adequate fund by the government to purchase visual aids, lack of time management by teachers, problem with operation of the audio-visual aids, dearth of storage facilities, teachers' inability to improvise (Shabiralyani 2015; Pam et al., 2020; Enekwe et al., 2021). Also, Awasthi (2014) found out that primary school teachers were not trained to use visual aids and teachers' attitude towards the use of audio-visuals is appalling. Also Shabiralyani (2015) found out that most teachers could not improvise teaching/learning resources for their teaching, there are very limited number of teachers who are trained and skilled in the use of ICT, and hence these teachers are unable to decide on software packages utilized. Respondents in the study conducted by George and Ige (2022) responded that dearth of policy on the use of instructional materials and irregular power supply are banes to the use of learning resources. However, Sam-Kayode et al. (2020) established that teachers demonstrated willingness in their dispositions to the use of materials in teaching and learning. Huong and Chuyen (2020) affirmed that teachers had positive perceptions of the use of multimedia visual aids in English language teaching in spite that there were some problems with the use of this type of visual aids.

Conclusion

The prevalent agitation about the rise in human exploitation and degeneration of natural environment continues unabated. The earth is presently in emergent need of monumental efforts such as environmental literacy to protect its environment. Education is key to launch a campaign to change public perception of environmental abuse; protection of natural resources; revealing environmental problems; providing solutions, making eco-friendly decisions; and living sustainable lifestyles. To achieve this, environmental literacy should start in earnest, at the foundational level, the primary education level. It is therefore necessary to consider an effective learning resources that could help increase and spread knowledge about sustainable environmental development at primary education level. Two learning resources, picture books and animated cartoons, are presented as learning resources needed to create awareness and achieve environmental sustainable development, and as well employed as remedies to various trends and challenges to sustainable development in our society with a view to building environmentally responsible generation.

Recommendations

To raise environmentally-responsible generation and tackle various trends and challenges to sustainable development at primary education level, the following suggestions are raised;

- ✓ environmental-related topics should decisively treat issues related to sensitivity and awareness about environmental issues, environmental protection, action, and responsibilities,

- ✓ children are not robots, hence their ideas about environment should be welcome, harnessed and built upon. Their ideas could serve as windows into from where teachers can probe into their views for necessary corrections and appraisal,

- ✓ learning resources that would broaden children's horizon about the environment be made available and accessible in schools,

- ✓ picture books and animated cartoons that foster full involvement of pupils on environmental issues like environmental protection, action, and responsibility be encouraged in the class,

- ✓ learning resources and tasks that would broaden children's horizon, correct their misconceptions and sharpen their conceptions about the environment be made available and accessible,

- ✓ schools, philanthropists, education stakeholders and government must provide schools with audiovisual rooms, technological equipment, visual aids such as computers, projection screen, TVs, video projector, etc.),

- ✓ stable Internet connectivity, regular power supply and other allied facilities that support the teaching and the learning of environmental-related topics aside the available ones in the study be encouraged,

- ✓ schools and immediate communities should encourage and organize extracurricular activities and environmental campaigns that could help pupils know more about their environment such as tree planting advocacy, recycling drive, cleaning campaigns, and vegetable gardens plantation project,

- ✓ literacy clubs, extra-curricular activities and environmental promotional clubs should be formed. These clubs will see to the sustenance of environmental literacy and activities in the school.

Limitations

Limited number of sample, 60 respondents, participated in the study, hence makes the study less representative and cannot be used for generalizations. Further study could be carried out on the same topic, but experimental research gives the research a new and interesting dimension.

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Ethics and Conflict of Interest

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