

Nigerian primary school pupils' level of knowledge about sustainability and their sustainability-related behaviours

AYOADE EJIWALE OKANLAWON

Department of Science, Technology and Mathematics Education
Faculty of Education
Osun State University
Nigeria
drokanla@gmail.com

ABSTRACT

Most educational institutions have failed in their responsibility of promoting acceptable pro social and sustainability behaviours among students. Consequently, there is a significant decline in the character, moral values and suitability behaviours of students. Perhaps, this can be attributed to status of sustainability integration into the existing school subjects in schools. Thus, this study explores Nigerian Primary School Pupils' level of knowledge about sustainability and their sustainability-related behaviours. 1314 fifth and sixth year primary school pupils served as the sample for the study. Researcher constructed True-False Knowledge Test and Sustainability behavioural scale were used to elicit information from the respondents in a descriptive survey study. The collected data were analyzed using descriptive statistics. The results of the study revealed that: (1) Nigerian primary school pupils had limited knowledge about sustainability (2) they exhibited favourable behaviours towards sustainability issues and (3) home upbringing, expense reduction, tendency to sustain what they have, convenience and waste reduction are the key factors in stimulating sustainability behaviours in the pupils. Based on the findings of this study, it was recommended that concerted efforts should be made by the elementary school teachers to equip pupils with sustainability knowledge through effective integration of sustainability in the existing school subjects. In addition, school administrators should direct their efforts towards rewarding display of sustainability behaviours by the pupils.

KEYWORDS

Primary school pupils, sustainability, behavioural theories, sustainability behaviour, pro-social behaviours, sustainability knowledge

RÉSUMÉ

La plupart des établissements d'enseignement ont échoué dans leur responsabilité de promouvoir des comportements pro-sociaux et durables acceptables parmi les étudiants. Par conséquent, il y a un déclin significatif dans le caractère, les valeurs morales et les comportements de convenance des étudiants. Cela peut être attribué au statut de l'intégration de la durabilité dans les matières scolaires existantes dans les écoles. Ainsi, cette étude explore le niveau de connaissance des élèves de l'école primaire nigériane sur la durabilité et leurs comportements liés à la durabilité. 1314 élèves des écoles primaires et secondaires ont servi d'échantillon pour

l'étude. Le chercheur a construit un test de connaissances vrai-faux et une échelle comportementale de durabilité ont été utilisés pour obtenir des informations auprès des répondants dans une étude d'enquête descriptive. Les données recueillies ont été analysées à l'aide de statistiques descriptives. Les résultats de l'étude ont révélé que: (1) les élèves des écoles primaires nigérianes avaient des connaissances limitées en durabilité (2) ils manifestaient des comportements favorables envers le développement durable et (3) éducation familiale, réduction des dépenses, tendance à maintenir ce qu'ils ont, commodité et gaspillage la réduction sont les facteurs-clés pour stimuler les comportements de durabilité chez les élèves. Sur la base des résultats de cette étude, il a été recommandé que les enseignants des écoles primaires fassent des efforts concertés pour doter les élèves de connaissances sur le développement durable grâce à une intégration efficace de la durabilité dans les matières scolaires existantes. En outre, les administrateurs scolaires devraient orienter leurs efforts vers la valorisation des comportements durables des élèves.

MOTS-CLÉS

Élèves de l'école primaire, durabilité, théories comportementales, comportements de durabilité, comportements pro-sociaux, connaissances de durabilité

INTRODUCTION: SITUATING THE PROBLEM

Schools have important roles to play in producing useful citizens. Apart from imparting knowledge, raising sustainability literates is another important responsibility of the educational institutions (Holdsworth & Sandri, 2014; Sahin, Ertepınar & Teksoz, 2012). Today, schools are not performing well in this regard (Sadusky, 2014). It is very disheartening because Nigerian daily newspapers report sad news about illegal migration, internet frauds, kidnapping, and murder. Similarly, news on bank robberies, impersonation, corruption and false declaration of assets by politicians are frequently relayed on radio and television. Surprisingly, most of the culprits are well educated people in the society. It is the expectation of the government and the society that educated persons would display civilized behaviour, decency, good manners and ethical conduct. Despite increase in budgetary allocation to the educational sector coupled with the expansion of educational system, there is a significant decline in the character, moral values and behaviours of students coming out of primary, secondary and tertiary institutions (Summers & Smith, 2014). Since, most educational institutions have failed in their responsibility of instilling sustainable behaviours (e.g. kindness, honesty, self-discipline, compassion and maintenance culture) then students tend to exhibit unsustainable behaviours. These kinds of behaviours have negative implications on our social and economic systems (Kaplan, 2000; Kollmuss & Agyeman, 2010; Woolcock & Narayan, 2000).

In the context of this study, sustainability behaviours can be conceived as the everyday human choices and behaviours that affect socio-economic systems of the society. In other words, sustainability behaviours are set of individual and collective deliberate and effective actions resulting in the conservation of the socio-economic system for present and future generations as adopted from Bonnes and Bonaiuto's (2002) definitions of environmentally responsible behaviour. By nature, this kind of behaviour is future-oriented because it considers the needs of forthcoming generations coincidently with the satisfaction of present needs (Tapia-Fonllem, Corral-Verdugo, Fraijo-Sing & Durón-Ramos, 2013). According to them, a complete exhibition

of sustainability behaviours must reflect pro-ecological behaviours, frugality behaviours, altruistic behaviours and equitable behaviours.

To promote development of sustainability behaviours, embracing sustainability through introduction of Education for Sustainable Development (ESD) in schools is the solution. Sustainability in higher institutions of learning aims to give students the knowledge, skills and attributes to address current and future challenges in their personal and professional lives (Sterling, 2001). Sustainable buildings contribute to community at the local level through the development of social justice and economic viability (Morgan & Talbot, 2001). In addition, they improve the quality of life within the dwelling, contributing to social and psychological satisfaction. Hence, in order to prepare any nation for the challenges of unsustainability behaviours, there is need to produce sustainability literate graduates across all levels of schooling.

Structurally, sustainable development consists of three domains, namely economy, ecological and social. The economic domain focuses on appropriate development and it comprises jobs and income. The ecological refers to the natural one and includes all living things, resources and life-supporting systems. Its objective is conservation. The social domain is concerned with people living together. Its goal is peace, equality and human rights. As observed by Tapia-Fonllem et al. (2017), there was imbalance in the teaching of sustainable development in schools. According to them, the social dimension (equality, cooperation, altruism, justice, etc.) was less emphasized. Perhaps, this may be responsible for the anti-social and unsustainability behaviours that are rampant among the youths in the society. Thus, the study examines Nigerian primary school pupils' level of knowledge about sustainability and their sustainability-related behaviours. To achieve the objective of the study, three research questions were formulated to guide the study.

1. What is the extent of primary school pupils' knowledge on sustainability?
2. What is the nature of primary school pupils' behaviours towards sustainability issues?
3. What motivates primary school pupils to exhibit sustainability behaviours when the need arises to do so?

THEORETICAL UNDERPINNING

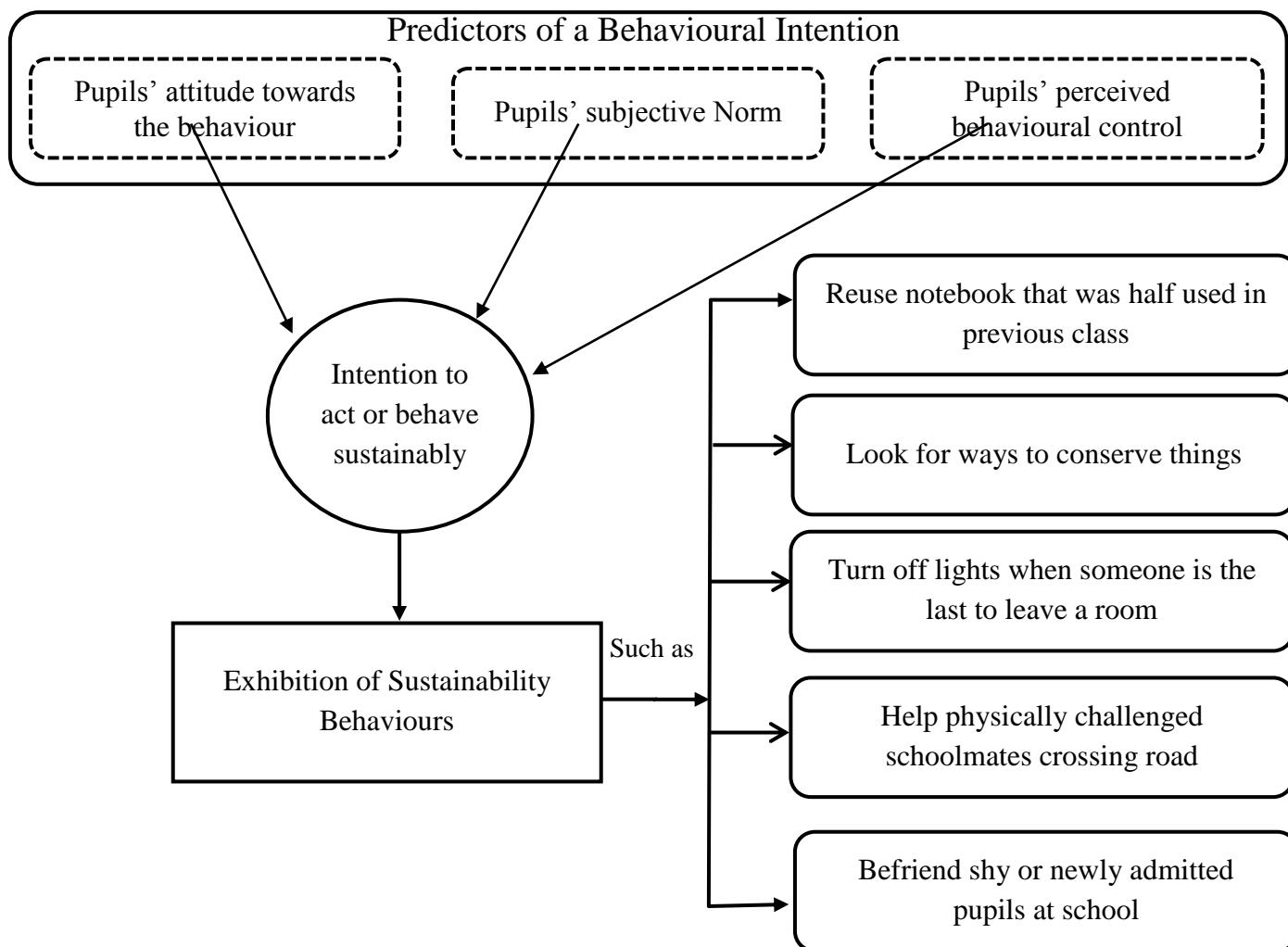
For better understanding of the nature of pupils' behaviours pertaining to sustainability, there is need to provide theoretical framework for the study on sustainability related behaviours of pupils. In building a sustainable society, the school curriculum should focus on the teaching of sustainable society building concepts: Diversity (variety exists), interdependence (relating to each other), and limitation (limit exist), Fairless (valuing everybody), cooperation (cooperating with others) and responsibility (taking responsibility).

The present study is deeply rooted in the behavioural theories developed by Ajzen (1985) and Fishbein and Ajzen (2010) to explain factors which influence people's intentions to behave in certain ways. These theories are theory of Reasoned Action (TRA) and theory of Planned Behaviour (TPB). According to the TRA, human behaviour depends on the person's behavioural intentions. As conceived by Wood (2000), the person's attitude and the person's subjective norms are the two factors which influence people's intention to behave in a specific ways. While making a distinction between the two factors, Cialdini, Pretty and Cacioppo (1981) explained that the person's attitude towards the behaviour is built up on numerous beliefs about the behaviour. On the other hand, the subjective norms are how the person thinks others will view the behaviour. It should be noted that the children's action towards sustainability depends on these two factors.

When children are in a situation to decide whether or not to help physically challenged schoolmates crossing road, or assist fellow pupils who fall or get hurt within the school premises, depend on the pupils attitude towards rendering assistance as well as how pupils think others within the school community will view their behaviours in that situation.

In advancing the TRA, Ajzen (1991) propounded another behavioural theory (Theory of Planned Behaviour) by adding another predictor of a behavioural intention. He justifies this based on the fact that behaviour is sometimes not completely under the subject's control. Most behaviours are either totally intentional or totally accidental. To accommodate this, Ajzen (1991) introduce the third predictor which he labeled as perceived behavioural control. Below is a flow chart depicting pupils' exhibition of sustainability behaviours based on the theory of Planned Behaviour.

FIGURE 1



Theory of Planned Behaviour as applied to the exhibition of sustainability behaviours

METHODOLOGY

A descriptive research of the survey type was employed in this study since the researcher intends to gather information pertaining to the pupils' level of knowledge about sustainability and their

sustainability related behaviours. Primary 5 and 6 pupils in one of the educational zones in Oyo State constituted the population for the study. In selecting the study sample, the researcher randomly selected four primary schools from each of the five Local Government Areas which constituted an educational zone in Oyo State. These twenty schools provided a total of 42 intact classes for the researcher to undertake the study. These classes consisted of 1314 primary 5 and 6 pupils (Male = 746, Female = 568) with a mean age of 11.54 years.

The construction of the instrument used for data collection was informed by the empirical and theoretical literature on Education for Sustainable Development (ESD). The researcher-designed questionnaire consisted of four sections. Section A comprised demographic variables (gender, class level, Local Government Area). Section B measured pupils' knowledge of sustainable Development using True/False statement. Section C measured pupils' behaviour related to sustainability using a five-point Likert-type scale ranging "All the time" to "Never" with "Sometime" as the pivoted of the scale Section D required pupils to indicate the primary reasons for exhibiting sustainability behaviours whenever possible.

Face and content validity of the instrument were established by a five-member panel of experts in elementary education and education for sustainable Development vetted the instrument. On their advice, the 25-item draft instrument (Section C) was reduced to a 20-item draft instrument after discarding 5 items that were assessed to be inadequate or irrelevant in the light of the objective of the study. A pilot study involving 200 primary six and five pupils from neighbouring educational zone outside the state was conducted for further validation and reliability determination of the instrument. The results of the pilot study revealed that the instrument is readable; and it yielded reliability co-efficient of 0.87 through the split-half method after the application of Spearman - Brown correction formula. The high coefficient of reliability value is an indication of the consistency of the test instrument. It was therefore, necessary to distribute copies of the questionnaire to the target group for data collection.

Four research assistants who were trained in advance before the commencement of data administration were engaged in the distribution and collection of data. The services of the headmasters /headmistresses were sought for ease administration and collection of questionnaire. Data collected were analyzed using frequency counts, percentage, mean and standard deviation. Research question 1 was resolved quantitatively by using three levels of knowledge: limited knowledge, moderate knowledge, adequate knowledge. The 21 True-False statements have a maximum score of 21. Scores within the range of 0 to 7 were considered as little knowledge; scores within the range of 8 to 14 were taken as moderate knowledge; and scores within the range of 15 to 21 were considered as adequate knowledge. In order to resolve research question 2, criterion mean of 2.50 was set for decision making. That is, item and cluster mean of 2.50 and above indicate favourable behaviours towards sustainability issues while below 2.50 indicate unfavorable behaviours towards sustainability issues. If a statement's mean was closer to 5.00 then majority of the pupils exhibit sustainability behaviours all the time as occasion arises to do so, and if it was closer to 1.00 then they exhibit sustainability behaviours occasionally even when the needs arise to do so.

FINDINGS

For clarity, the results' section was organized in accordance with the research questions. Also, relevant data to the research questions are presented in tables.

Responses to the research questions

Question 1: What is the extent of primary school pupils' knowledge on sustainability?

Table 1 provides a summary of the pupils' level of knowledge about sustainability on the basis of study subjects' background variables. This summary provides answer to the research question 1.

TABLE 1
Level of knowledge of study sample about sustainability

Variable	Category	Limited knowledge		Moderate knowledge		Adequate knowledge	
		N	%	N	%	N	%
Gender	Male (N= 746)	283	37.9	341	42.1	149	20.0
	Female (N= 568)	193	34.0	273	48.1	102	17.9
	Total (N= 1314)	476	36.2	587	44.7	251	19.1
Class Level	Primary 5 (N= 692)	352	50.9	236	34.1	104	15.0
	Primary 6 (N= 622)	218	35.0	329	52.9	75	12.1
	Total (N= 1314)	570	43.4	565	43.0	179	17.9
Local government area	LGA A (N= 302)	91	30.1	142	47.0	69	22.9
	LGA B (N= 227)	72	31.7	112	49.3	43	19.0
	LGA C (N= 195)	66	33.9	88	45.1	41	21.0
	LGA D (N= 355)	99	27.9	174	48.2	85	23.9
	LGA E (N= 235)	82	34.9	106	45.1	47	20.0
	Total (N= 1314)	410	31.2	616	47.1	285	21.7

Table 1 revealed that 37.9% of the male pupils have little, 42.1% of them have moderate and 20.0% of them have adequate knowledge about sustainability. On the other hand, 34.0% of the female pupils have little, 48.1% of them have moderate and 17.9% of them have adequate knowledge about sustainability.

Table 1 showed that 50.9% of the primary 5 pupils have little, 34.1% of them have moderate and 15.0% of them have adequate knowledge about sustainability. 35.0% of the primary 6 pupils have little, 52.9% of them have moderate and 12.1% of them have adequate knowledge about sustainability.

As could be seen from Table 1, 30.1% of the primary school pupils whose schools are located in LGA A have little, 47.0% of them have moderate, and 22.9% of them have adequate knowledge about sustainability. 31.7% of the pupils whose schools are located in LGA B have little, 49.3% of them have moderate and 19.0% of them have adequate knowledge about sustainability. 33.9% of the pupils whose schools are located in LGA C have little, 45.1% of them have moderate and 21.0% of them have adequate knowledge about sustainability. 27.9% of the pupils whose schools are located in LGA D have little, 48.2% of them have moderate, and 23.9% of them have adequate knowledge about sustainability. 34.9% of the pupils whose schools are located in LGA E have little, 45.1% of them have moderate and 20.0% of them have adequate knowledge about sustainability.

The average performance of the primary school pupils on True-False statements which were used to measure their knowledge about sustainability gives a clear indication of possession of moderate knowledge. As could be seen from Table 1, 44.7% of the study sample have moderate knowledge about sustainability. Item-by-item analysis of the responses of the respondents revealed that the most frequently correctly answered question was item 8,

“Education for Sustainable Development calls for peaceful living”, which 98.5% of the respondents answered correctly”. Another frequently correct answer was given to item 12, “protection of our environment is good for Sustainable Development”. 98.2% of the respondents answered this item correctly. Similarly, Table 2 revealed that the most frequently incorrectly answered question was item 13,”Education for Sustainable Development emphasizes equal distribution of natural resources”. 97.4% of the respondents answered this item incorrectly. Another example of frequently incorrect answer was given to item 6, “We cannot stop the habit of dumping refuse anywhere in our environment”. Table 2 provides a sample list of True-False sustainability statements most frequently answered correctly and incorrectly by the primary school pupils.

TABLE 2
True-False sustainability statements most frequently answered correctly and incorrectly by the pupils

Correctly answered statements			Incorrectly answered statements		
Statement Number	Statement	(%)	Statement Number	Statement	(%)
8	Education for sustainable development calls for peaceful living	98.5	13	Education for sustainable development emphasize equal distribution of natural resources.	97.4
12	Protection of our environment is good for sustainable development	98.2	6	We cannot stop the habit of dumping refuse anywhere in our environment.	95.2
1	Nigerian power (electricity) supply has witnessed appropriate improvement	97.1	4	Living lightly is not a sign of sustainable development	94.7
7	Sustainable development has nothing to do with road maintenance	96.4	20	Tree planting is not a priority in Nigeria because we have plenty of trees	89.5
10	Giving clothes and food items to poor is necessary for Sustainable Development	89.6	16	Sustainable consumption includes using chemical in a way that minimize pollution and reduce waste.	87.3
21	Sustainable development seeks to ensure equal educational opportunities for boys and girls	88.5	14	Education for sustainable development encourages visiting and donating food and clothes items to the inmates.	76.8
15	Education for sustainable development seeks supports for the handicapped	86.3	5	Sustainable development has nothing to do with activities of Boko Haram (terrorists) in the north east of Nigeria	75.5
9	Putting in place strict laws/regulations against child trafficking and kidnapping is an act of sustainability.	84.5	19	Oil and gas pipeline vandalization in Niger/Delta region of Nigeria by the Ijaw youths is relevant to Sustainable Development	69.6
2	Education for sustainable development emphasizes respect for human right.	83.7	17	Education for sustainable development supports cultural diversity.	66.9
18	Education for sustainable development encourages land boundary dispute.	82.3	3	Sustainable Development is as much about the children in the future as it is about what we need today.	52.2
11	Education for sustainable development discourages commercial clashes	77.6			

Question 2: What is the nature of primary school pupils' behaviours towards sustainability issues?

Tables 3 revealed the results of analysis which provide answer to the research question 2.

TABLE 3
Mean and Standard Deviation on pupils' behaviours towards sustainability issues

S/N	Statement	Mean	Std.D
1.	Use most money gift for buying sweets and biscuit	3.02	0.81
2.	Not interested in buying new school bag until the one in use is wear-out	3.10	0.77
3.	Prefer to walk to school rather than taking a bike	3.15	0.82
4.	Reuse notebook that was half used in previous class	2.87	0.86
5.	Buy more writing materials that are necessary for class work	2.77	0.90
6.	Visit sick classmates at home/hospital	3.40	0.82
7.	Guide visitors asking for direction in the school premises	2.93	0.85
8.	Assist fellow pupils who fall or get hurt	2.81	0.89
9.	Contributes financially when there is call to help the needy	2.75	0.78
10.	Help elderly or physically challenged people crossing road	3.15	0.72
11.	Bring empty soft drink cans to a waste bin	2.70	0.68
12.	Look for ways to reuse things	2.88	0.82
13.	Prevent picking of flowers from the flowering plants	2.05	0.84
14.	Watching documentary on how to recycle materials	3.02	0.81
15.	Female pupils should have same rights male pupils have in my class	2.84	0.93
16.	Treat pupils from rich and poor family equally	3.06	1.01
17.	Cooperate with my classmates in campaigning against forest destruction	2.61	1.02
18.	Participate in flower planting activities	3.37	0.79
19.	Assist the community in controlling soil erosion	3.22	0.65
20.	Show interest in the activity of school road safety club	2.79	0.91
21.	Turn off lights when I am the last to leave a room	3.23	1.05
22.	Make an effort to use less water when brushing my teeth or bathing	3.12	0.75
23.	Chose to read publications that focus on environmental issues.	3.22	0.82
24.	Comfort a classmate who was teased	3.07	0.76
25.	Befriend shy or newly admitted pupils at school	2.66	0.94

Table 3 presents a list of the 25 items dealing with sustainability related behaviours attached to the mean values which indicated pupils concern towards sustainability. Item 6 had the highest mean value (3.40) while item 13 had the lowest mean value (2.05). With the cluster mean value of 2.95, it can be concluded that pupils exhibited favourable behaviours towards sustainability matters. However, they can still exhibit more concern than what have been revealed in this study. This is because the cluster mean value is a little above 2.50. There were six areas where the pupils have shown greater concerns towards sustainability issues. These are: (1) visiting sick classmates at home or hospital (3.40) (2) participating in flower planting activities (3.37) (3) turning off lights when they are the last to leave a room (3.23) (4) assisting the community in controlling soil erosion (3.22) (5) choosing to read publications that focus on environmental issues (3.22) (6) helping elderly or physically challenged people crossing road (3.15).

Question 3: What motivates primary school pupils to exhibit sustainability behaviours?

Tables 4 revealed reasons why primary school pupils engaged in sustainable action.

TABLE 4
Motivators of sustainability behaviour exhibited by the pupils

S/N	Motivators of sustainability behaviour	Proportion of pupils action sustainability (%)
1	Home upbringing	97.7
2	Expense reduction	83.5
3	Sustaining what they already have	80.7
4	Convenience	78.6
5	Waste reduction	65.5
6	Peer influence	61.8
7	Personal lifestyle	58.9
8	Hazard prevention	54.4
9	Others	49.3

As shown in Table 4, the four major motivating factors influencing pupils to act sustainably are home upbringing (97.7), expense reduction (83.5), tendency to sustaining what they already have (80.7) and convenience (78.6). While the minor reasons are: waste reduction (65.5), peer influence (61.8), personal lifestyle (58.9), hazard prevention and others (49.3). This finding indicates that home upbringing played a significant role in motivating Nigerian primary school pupils behave in a sustainable manners.

DISCUSSION

The objectives of this study were to determine: (1) The pupils' level of knowledge about sustainability (2) Whether they display favourable or unfavourable feelings towards sustainability (3) The motivating factors behind pupils' exhibition of sustainability behaviours.

The results revealed that Nigerian primary school pupils had limited knowledge about sustainability. Probably, the contents of sustainability were not properly integrated into the contents or subject matters of Basic Science, Social Studies, Security Education and Civic Education during the teaching and learning process. This finding is in agreement with the finding of Watson (2014) who reported that students' sustainability knowledge when assessed using concept map was found to be somewhat limited.

This finding is also in line with the finding of Horvath, Stewart and Shea (2013) who revealed that non-science undergraduates had lowest scores compared to their counterparts in science in an examination designed to measure undergraduates' knowledge of sustainability. They attributed their finding to the fact that more sustainability-related course contents featured in the curricula of Agricultural Science and Natural Sciences which accounted for their high scores.

Another finding of the study was that primary school pupils exhibited more favourable behaviours towards sustainability issues. This finding corroborates Beery's (2013) finding who reported that university students' engagement in sustainability activities within the university system was encouraging. Specifically, he reported that they incorporated sustainability into their lifestyle habits by displaying high level of sustainability behaviours e.g., high desire for local food products, recycling of materials, monitoring electricity use and reuse of food containers for other reasonable purposes.

From the data gathered and analyzed in this study, it was revealed that the fundamental factors underlying pupils' willingness to live a sustainable lifestyle (e.g., assisting the needy, saving water, reducing energy use and purchasing inexpensive locally produced items) are home upbringing, expense reduction, sustaining what they already have and waste reduction. Home upbringing as a major factor plays a significant role in stimulating or controlling pupils' sustainability behaviours. Children are more likely to exhibit acceptable pro-social behaviours and sustainability behaviours such as sharing, empathy, reusing half-used school notebooks, assisting fellow pupils who fall sick, guiding visitors who ask for direction and helping elderly or physically challenged people crossing road, if their parents do. Teachers' behaviours and how they respond to unsustainability behaviours in schools contribute to the development of sustainability behaviours in pupils. How teachers interact with one another can also influence pro-social and sustainability behaviour by teaching how to interact in social relationships. This type of interaction can help a pupil learn sharing, problem-solving techniques and conflict resolution skills that are fair and not harmful to another.

CONCLUSIONS

Major conclusions which arise from this study are:

1. Nigerian Primary School Pupils had limited knowledge about sustainability.
2. Despite their limited knowledge about sustainability, they exhibited more favourable behaviours towards sustainability issues.
3. Their sustainability behaviours were mainly stimulated or controlled by the following factors: home upbringing, expense reduction, habit of sustaining what they already have, convenience and waste reduction.

RECOMMENDATIONS

Based on the findings of this study, the researcher makes the following recommendations for improving pupils' knowledge about sustainability and promoting sustainability behaviours:

1. Concerted efforts should be made by the elementary school teachers to equip pupils with sustainability knowledge through effective integration of sustainability in the existing school subjects.
2. School administrators should gear their efforts towards rewarding sustainability behaviour as a way of promoting such behaviour among pupils. However, it should be noted that rewards are effective while they continuously administer it but once they are removed the behaviour usually disappear.
3. Realizing the fact that home upbringing is a key factor in stimulating sustainability behaviours then teachers acting as parents in schools should be a good model in exhibiting sustainability behaviours. Pupils will model their teachers' behaviours and that of other adults in their environment with whom they frequently come into contact. It should be noted that honesty, kindness, compassion, and lying are pupils' behaviours commonly influenced by adults' behaviours in children's environment.

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