

A School-Based Participatory Programmes and Learning Outcomes in Solid Waste Disposal Concepts in Social Studies Among Primary School Pupils in Osun State

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Abstract: The Development of desirable Solid Waste Disposal (SWD) knowledge and practices in pupils are taught in primary school Social Studies. Records have shown that many pupils in Osun State exhibit poor practices of SWD. Previous studies concentrated on home factors influencing pupils' practices of SWD than on using School-based Participatory Programme (SbPP) intervention. Therefore, this study determined the impact of a SbPP on knowledge and practices of SWD among primary school pupils in Osun State. Bandura's Social Learning theories underpinned this study, while the pretest-posttest control group quasi experimental design was adopted. Four Local Government Areas-LGAs (Ifelodun, Odo-otin, Boluwaduro and Ila) were purposively selected for the study. Four public primary schools (one from each LGA) were randomly selected. A total of 145 primary 5 pupils in intact classes participated in the study. The schools were randomly assigned to SbPP (77) and control (68) groups. The instruments used were Achievement Test in SWD ($r=0.79$), Questionnaire on Practice of SWD ($r=0.73$). The quantitative data were analysed using descriptive statistics, analysis of covariance and estimated marginal means. The treatment had a significant main impacts on pupils' knowledge ($F_{(1; 144)}=91.76$, partial $\eta^2=0.40$), and practice ($F_{(1; 144)}=5.08$; partial $\eta^2=0.04$). The participants in the SbPP had a higher post-achievement mean score (18.40) than those in the control group (14.12) and. The participants in SbPP had a higher post-practice mean score (53.45) than their counterparts in the control group (51.19) The school-based participatory programme enhanced pupils' knowledge and practice of solid waste disposal in primary schools in Osun State, Nigeria. School based participatory programme should be adopted by teachers of Social Studies.

Keywords: School-Based Participatory Programme, Solid Waste Disposal Concepts, Learning Outcomes, Social Studies, Pupils.

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I. INTRODUCTION

One of the several environmental issues and challenges that exist is the improper solid waste disposal system. The manner and methods these wastes are collected, stored, and disposed pose risks to the public. Improper waste disposal has become important source of concern for the inhabitants because of its attendant effects. It has threatened the lives and livelihood of the Nigeria people. Improper solid waste disposal is a global problem but more pronounced in developing countries and Nigeria which is occasioned by improved technologies and most especially lack of supervision by the environmental officers. The deteriorating

condition of solid waste disposal in Nigeria has been attributed to inadequate solid waste disposal facilities, poor funding, weak implementation strategies, ineffective environmental laws, policies, and programme as well as unhealthy lifestyle, urbanization, poor living standard, industrial expansion, lack of enforced legislation and inadequate technologies.

As urbanization continues, the management of wastes is becoming a major public health and environmental issue and remains as one of the key themes of Sustainable Development Goals. As a matter of regret, poor waste disposal attitude characterized major schools in towns and cities. This is

inimical to human living. It is also at variance with required environmental culture as emphasised by the world health organisation and its associated agencies. It is therefore, imperative to mention this affects the lives and livelihood as well as health of several people (Claudel, 2010). By September 2015, The United Nations (UNs) rolled out 17 sustainable development goals (SDGs) to transform the entire world. It is to be noted that more than five of these goals were directly linked to the human environment. These goals lay emphasis on positive change in a transformed society for sustainability. These goals were to be actualized so that human beings can live a life worthy, healthy, and safe, as well as all other habitants. The sustainable development goals tend to promote adequate balancing of social progress that recognizes people's needs, yearnings and aspirations as well as cater for all and sundry. Since clean, safe, and secured environment must be sustained, hence, people's environmental attitude is of paramount importance as it determines to a large extent in providing plausible solution to the challenge (Keita, 2016). The accumulated wastes when not properly collected and disposed creates a polluted atmosphere which are capable of diminishing human's healthy living, wreaking havoc on the lives and livelihoods as well as causing endemic socio-economic and cultural crises among the people or within neighboring communities as equally noted by adeyemo and Gboyosola (2013).

In Osun State, every school generates wastes and the wastes generated arise several daily activities in class work, drinks of liquid-like soft drinks, malts juice, confectioneries, fruits like oranges, banana and grass cutting.

School- Based Participatory Programme (SBPP) is the teaching package which involves the pupils actively in the attainment of solid waste disposal in schools, the effects, and mechanisms to ameliorating the challenges of waste mismanagement. It is about pupils and teacher and school community working together, partaking in solid waste disposal practices in schools.

Kilvington and Horns (2020) affirmed that School -Based Participatory programme performed activity-based functions and is likely to promote high significant results in knowledge acquisition, positive attitude to and practices of environmental concepts, ideas and solutions to issues and challenges discovered such as excess waste generation, pollution. Mwangi (2012) in his study remarked that pupils exposed to School -Based Participatory programme performed more in environmental practices than those taught with conventional strategies. It is a very crucial learning approach which helps to promote effective teaching and learning even in environmental studies. It is considered appropriate in this new age where mere traditional strategies are not enough to impart meaningfully in pupils.

➤ *Statement of the Problem*

Concepts associated with waste disposal and management in primary schools Social Studies is to develop the Pupils' capacity in solid waste disposal learning outcomes. Several wastes are placed in strategic locations and schools in Osun State and this constitutes both land, air and

aesthetic pollution of the environment; promotes unhealthy living conditions and aids the spread of diseases.

The available records have shown that several pupils in primary schools are exhibiting poor knowledge and practices of solid waste disposal system in Nigeria, especially, Osun State. Various factors have been attributed to poor waste disposal system. Some of these are poor knowledge of waste disposal system, negative attitudes to waste management, inadequate waste disposal facilities, poor funding of waste disposal agencies, weak implementation of waste disposal policies, absence of school environment-friendly lifestyles, among others.

Previous studies have concentrated on home and pupils-centred factors influencing learning outcomes of solid waste disposal knowledge and practices in social studies than on interventions using School-based Participatory Programme (SbPP). Many of these strategies achieved little success as the problems of improper solid waste disposal persists. Several pupils are too far from the methods to solving the problems, schools are usually neglected and pupils, who should shoulder their future responsibilities, are left in the lurch.

Therefore, this study was designed to determine the impact of a School-based Participatory Programme (SbPP) on learning outcomes in solid waste disposal components among some selected social studies pupils in primary schools in Osun State, Nigeria.

➤ *Purpose of the Study*

The specific objectives of this study is to:

- Determine the major impact of School based Participatory Programme (SbPP) package on pupils' knowledge of solid waste disposal
- Investigate the major impacts of the School based Participatory Programme (SbPP) package on pupils' practices of solid waste disposal;

➤ *Hypothesis*

Two hypotheses were formulated to guide this study and was tested at 0.5 level of significance:

- Ho₁: There is no significant main impact of School based participatory programmes on pupils' knowledge of solid waste disposal.
- Ho₂: There is no significant main impact School -based Participatory Programme on pupils' Practice of solid waste disposal.

II. METHODOLOGY

The study adopted pretest- posttest control group quasi experimental design. Four Local Government Areas-LGAs (Ifelodun, Odo-otin, Boluwaduro and Ila) were purposively selected based on the prevalence of SWD problems. Four public primary schools (one from each LGA) were randomly selected. A total of 145 primary 5 pupils in intact classes participated in the study. The schools were randomly assigned to School-based Participatory Programme (77) and

control (68) groups. The instruments used were Achievement Test in SWD ($r=0.79$), and Questionnaire on Practice of SWD ($r= 0.73$). The instruments were tested and found to be reliable using Test- retest method and Cronbach -Alpha

fomular. The treatment lasted eight weeks .The quantitative data were analysed using descriptive statistics, analysis of covariance and estimated marginal means.

III. RESULTS

- Ho1: There is no significant main impact of treatment on pupils' knowledge of solid waste disposal

Table 1 ANCOVA of Post-Knowledge by Treatment

Sources	Type III Sum Of squares	Df	Mean Square	F	Sig,	Partial Eta Squared
Corrected Model	1277.051	1	59.631	26.25	.000	.607
Intercept	3119.189	1	3119.189	513.050	.000	.790
Pre-knowledge	41.347	1	41.37	6.801	.010	.048
Treatment	557.860	1	557.860	91.758	.000*	.403
Error	826.839	136	6.080			
Total	40972.000	145				
Corrected Total	2103.890	144				

R Squared = 0.40 (Adjusted R² = 0.58) Denotes Significant $p < 0.05$

Table 1 showed that a significant main effect of treatment on pupils' knowledge of solid waste disposal ($F_{(1, 144)} = 91.76$; $p < 0.05$, partial $\eta^2 = 0.40$). Table 1 indicated the effect size of 40.0%. This means that 40.0% of the total

58.0% variation was observed (Adjusted R² = 0.58) in pupils' post-knowledge scores on solid waste disposal. The magnitude of the effects and EMM was also analysed.

Table 2 Estimated Marginal Means for Post-Knowledge by Treatment and Control Group

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
School-based Participatory Programme (SBPP)	18.40	.30	17.81	19.00
Conventional Lecture Strategy (CLS)	14.12	.32	13.49	14.75

Table 2 showed that pupils in the School-based Participatory Programme treatment group had the highest adjusted mean score in their post-knowledge of solid waste disposal (18.40) while the Conventional Lecture Strategy (CLS) control group had (14.12). This order is represented as SBPP > CS.

- Ho2: There is no significant main impact of treatment on pupils' practice of solid waste disposal

Table 3 ANCOVA of Post-Practice

Sources	Type III Sum Of squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2048.297a	8	256.037.	7.738 .	.000	.313
Intercept	852.457	1	852.457	25.764	.000	.159
Pre-Practice	1380.583	1	1380.583	41.726	.000	.235
Treatment	168.000	1	168.000	5.077	.026*	.036
Error	4499.841	136	33.087			
Total	404369.000	145				
Corrected Total	6548.138	144				

R Squared = 0.31 (Adjusted R Squared = 0.27) * Denotes Significant $p < 0.05$

Table 3 showed that there was a significant main impact of treatment on pupils' practice of SWD ($F_{(1, 144)} = 5.08$; $p < 0.05$, partial $\eta^2 = 0.04$). Table 4 indicated the effect size of 4.0%. This means that 4.0% of the total 27.0% variation observed (Adjusted $R^2 = 0.27$) in pupils' post-practice scores

of solid waste disposal in this ANCOVA model because of the treatment which was significant. Therefore, hypothesis 2 was rejected. Thus, exploring the degree of effect, EMM is hereby presented on table 4.

Table 4 Estimated Marginal Means for Post-Practice by Treatment and Control group

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
School-Based Participatory Programme (SBPP)	53.45	.73	52.01	54.89
Conventional Strategy (CS)	51.19	.69	49.82	52.56

Table 4 showed that pupils in the School-based Participatory Programme category were found to have the highest average score in their post-attitude to solid waste disposal (53.45) while those in the Conventional Strategy had (51.19). This order is represented by SBPP > CS.

environment where pupils participated actively in the attainment of SWD in schools and, discussions of the effects and possible ways of mitigating the problems of school solid waste disposal.

IV. DISCUSSION

➤ Major Impact of Treatment Package on Pupils' Knowledge of SWD

The outcomes showed the major difference in the pupils' achievement scores of pupils in solid waste disposal concepts across the planned categories. Pupils taught using the School-based Participatory Programme (SBPP) had the highest adjusted post-achievement mean score, while those exposed to the Conventional Lecture Strategy (CLS) had the least adjusted post-achievement mean score.

The effectiveness of the School-based Participatory Programme (SbPP) over the Conventional Lecture Strategy (CLS) could be attributed to the fact that it employed the activity-based learning approach which promoted pupils' participation skills and deep understanding of the effects of improper solid waste disposal on society. The School-based Participatory Programme (SbPP) created the learning

The School-based Participatory Programme (SbPP) encouraged collaboration and teamwork among members of each group as the pupils positively interacted with one another. Also, the School-based Participatory Programme (SbPP) is the teaching package which involves collaborative efforts and pupils' interests were sustained throughout the period of the study because the researcher provided the incentives to the pupils and schools in the treatment group. The participatory programme featured included peer-group education, video show, awareness campaign, short lecture by sanitary officers and creation of solid waste disposal clubs whose constitutions were adopted by the participating pupils in the schools.

This agrees with Aderemi (2015); Adekunle (2015); Adejumbi, (2015) and, Omollo, Nyakrura and Mbalamula (2017). It is also in line with the findings of Mwangi (2012) that pupils exposed to the school-based Participatory Programme performed better in environmental practices than those taught with the conventional strategies. It is a very

crucial learning approach which helps to promote effective teaching and learning even in environmental studies. Corroborating the foregoing, Kilvington and Horns (2002) affirmed that the School-based Participatory Programme performed activity-based functions and was likely to promote high significant results in knowledge acquisition, positive attitudes to and practices of environmental concepts, ideas and solutions to issues and the challenges discovered such as excess waste generation and pollution.

This finding negates the submission of Omollo, Nyakrura and Mbalamula, (2017) which stated that school-based learning strategy is only effective for skills development but weak in imbuing knowledge as well as inculcating positive attitudes into pupils. It also at variance with the submission of Adeyemo and Gboyesola (2013) which found that lecture method is also an effective strategy irrespective of the concept and themes in which it is deployed. Conventional strategy avails the teacher the avenue to empower the pupils with skills and expository knowledge of what they do not know. School-based Participatory Programme is a better strategy than the Conventional Lecture Strategy in terms of both pupils' attainment in solid waste disposal among pupils in Osun State.

➤ *Major Impact of Package on Pupils' Practice to Solid Waste Disposal*

The outcomes showed significant differences in the scores of pupils' practice of SWD across planned groups. Pupils' knowledge to solid waste disposal. Pupils were found to have the highest average score, while those exposed to the Conventional Lecture Strategy (CLS) had the least adjusted post-achievement mean score. In line with studies by Maclaughlin, and Sheridan (2016); Li, Zheng, Cai, Garza, Yu, and Zhou (2011) but contrary to the studies of Abegunde (2014); Olawumi, (2012); Oladapo (2012) and Okosun (2011). It is of paramount importance to State that School -Based Participatory programme is designated for the purpose of making pupils functional, participation and translate activity-based learning into proper conduct within the society. Ifegbesan (2011) researched into waste generation and its management in school and posited that pupils' practice of proper solid waste disposal is based on the functionalities of the system to equip pupils with the activity-based curricula experience as it is instrumental to their approach and perception of the environment. In the light of the results obtained, Abdulahi-Zim, Garba and Balogun (2017); Wilcox (2013) Vivek Raghavan, Kamath Saritha, Anies and Jobphina (2013) added that schools are charged with the responsibilities. In term of conventional strategy, Adediran (2015) found it to be effective but not more than the School-based Participatory programme. It was the contention of Adejumo (2015) which explained that pupils' practice to solid waste disposal can also be triggered by a happy and friendly teacher who carries the pupils along well in a classroom situation. The two strategies; School-based participatory programme and conventional strategies are effective in promoting pupils' practical skills in solid waste disposal among Primary school pupils.

V. CONCLUSION

The pupils taught with School-Based Participatory programmes had the opportunities to make contributions to providing lasting solutions to the problems of improper solid waste disposal among primary school. Pupils' cooperation and collaboration skills were enhanced during the participatory programme. Pupils' interest was sustained throughout the period of the study because the researcher provided incentives to the pupils and the schools in the treatment group. The participatory programme featured in the schools greatly enhanced primary school pupils' knowledge and practices of solid waste disposal in Osun State.

RECOMMENDATION

➤ *Based on the Findings of this Study, the Researcher Recommends that:*

- School-Based Participatory Programme should be included in the curriculum of teacher training institutions.
- Peer education, video shows, resource persons, field trip, awareness campaign programme and formation of clubs on Solid waste Disposal should be introduced into the teaching of solid waste disposal in Primary schools
- there is need to partner with non-governmental agencies on the intervention programme which are school-based such as waste management, recycling activities, sanitation exercises, cleaning of toilets, incinerators, clearing, and several other environmental-related activities.

There is also need for the training and retraining through seminars, workshops, and symposia for Social Studies teachers at all levels of education on the proper deployment of School -Based Participatory programme to teach several themes and concepts in the field.

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