Available online at https://asric.africa/agricultural-sciences
ASRIC Journal on Agricultural Sciences Vol.5(2)(2024) 138-146

Unveiling the Impact of Environmental Education: Enhancing Waste Segregation Practices Among University Students

Norris Igbinosa Erhabor

Department of Health Safety and Environmental Education, University of Benin, Nigeria.
Norris.erhabor@uniben.edu
Received 30 June 2024; revised 11 July 2024; accepted 5 September 2024

Abstract
Fostering positive environmental attitudes, particularly among young people, is key to addressing future environmental challenges. The objective of this study was to evaluate how environmental education influences the knowledge and attitudes of students in the Health, Safety, and Environmental Education (HSE) and Human Kinetics Departments at the Faculty of Education, University of Benin, Benin City. A quasi-experimental design was adopted for the research, with data collected from 200 respondents—100 from each department—using a simple random sampling method. Participants were categorized into experimental and control groups. Data collection was carried out using a validated instrument, and the analysis involved statistical methods such as frequency and percentage tables, along with the t-test at a 0.05 significance level. The study sought to examine how environmental education relates to both the awareness and practice of waste segregation in solid waste management among the two groups. The findings indicated a significant disparity in both knowledge and attitudes toward waste segregation between students who received environmental education and those who did not, highlighting the vital role of environmental education in fostering effective waste segregation. Given the substantial difference in waste segregation knowledge between students in environmental and non-environmental departments, it is important to review and potentially improve the environmental education curriculum in higher education institutions. There should be a focus on integrating comprehensive waste segregation modules to ensure that all students, not just those in environmental programs, acquire a solid understanding of these practices.

Keywords: Waste segregation, environmental education, waste

Introduction
The escalating global municipal waste generation, expected to surge from 2.01 billion to 3.40 billion tons by 2050, is currently managed inadequately, with at least 33 percent disposed of unsafely (Kaza; Yao, Bhada-Tata; Van-Woerden, 2018). Both developed and developing countries have adopted strategies to improve waste management through material segregation and potential recycling, which helps conserve landfill space and promote environmental cleanliness. These strategies include infrastructure development and a range of technological and social initiatives aimed at reducing waste generation, encouraging segregation, and minimizing environmental impact. Research indicates that both voluntary and mandatory waste separation at the source are effective in enhancing waste management and recycling efforts (Pires, 2011).

Effective waste management is integral to sustainable development. Resource and energy conservation concerns everyone, necessitating comprehensive environmental education for a sustainable future. Globally, strategies for waste management vary and encompass educational approaches to enhance knowledge and awareness concerning environmental waste, crucial for sustainable living. In developing countries like Nigeria, solid waste management poses persistent challenges, attributable to various factors

such as insufficient involvement of trained professionals and inadequacies in funding and policy support (Amadi, 2011).

Waste segregation, involving the sorting of waste into different categories for recovery and reuse, is pivotal in successful municipal waste management (Ovoh, 2015). Environmental education at tertiary levels is deemed essential, shaping students' knowledge and attitudes toward waste management and segregation, thereby fostering sustainable waste practices (Farmer, Knapp, & Bentoon, 2007).

Nigeria's efforts in solid waste management have emphasized environmental education in higher institutions. However, the efficacy of the National Minimum Standards in equipping students with the necessary knowledge and attitudes for effective environmental teaching, particularly in solid waste management, remains a concern (Malakahmad & Nasir, 2010). Behaviour change hinges on adequate education. Waste segregation behaviours, aimed at reducing waste contamination and promoting recycling, rely significantly on knowledge enhancement initiatives (Malakahmad & Nasir, 2010). Environmental education's impact on students' knowledge and attitudes can significantly influence their behavior, specifically in waste management and segregation (Babayemi, 2010).

Understanding students with proficient environmental knowledge and attitudes is pivotal in comprehending their behaviour and encouraging waste separation and recycling at the source. Various studies have shown a correlation between knowledge, attitude, and practice in waste management, underscoring the importance of enhancing environmental knowledge for sustainable waste practices (Arora & Agarwal, 2011; Karout & Altuwaijri, 2012).

Attitudes toward waste management significantly influence behaviour. Studies reveal varying attitudes among community members, households, and students, affecting their approach to waste segregation and recycling (Kagwala, 2016).

Studies conducted in Nigeria have revealed varied attitudes towards waste management and disposal, highlighting the need for a positive shift in perceptions to foster better waste management practices (Eneji et al., 2016; Barloa, 2016). Additionally, initiatives in tertiary institutions have shown potential in nurturing environmentally literate students, crucial for Environmental Education (Erhabor and Don, 2016). Therefore, this study seeks to assess the impact of environmental education on students' knowledge and attitudes regarding waste segregation at the University of Benin.

Research Questions

The study was guided by the following research questions:

1. Is there a difference in waste segregation knowledge between the experimental and control groups?
2. Is there a difference in attitudes toward waste segregation between the experimental and control groups?

Hypotheses

The following null hypotheses were tested at a 0.05 significance level:

1. There is no significant difference in waste segregation knowledge between the experimental and control groups.
2. There is no significant difference in attitudes toward waste segregation between the experimental and control groups.

Purpose of the Study

This study aims to assess how environmental education affects the knowledge and attitudes of students at the University of Benin concerning waste segregation.

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) has been extensively utilized in examining pro-environmental behaviors, particularly in waste separation studies, and its application extends to research focusing on the

behavior of young individuals (Kanyimba, 2014). This theoretical framework explores the relationships between attitudes, subjective norms, perceived behavioral control, intentions, and subsequent behaviors across different settings. The current study extends this established framework and is guided by hypotheses based on the core principles of the Theory of Planned Behavior (TPB).

Environmental attitude is defined as an individual's psychological inclination expressed through the evaluation of the natural environment with varying degrees of preference or aversion (Tonglet, 2004). Multiple studies (Karim; Rusli; Diak; & Idris, 2013; Zhang; Huang; Yin, Gong & Tchounwou, 2015) have identified attitude as the primary predictor of intentions or behaviors related to waste separation. In this study, it is hypothesized that the inclination to participate will rely on the awareness of environmental concerns.

Subjective norm refers to the perceived influence or pressure individuals sense from significant others within their immediate social environment (Sidique, 2010). This suggests that the influence of important individuals such as family members, neighbors, and colleagues at work can significantly impact an individual's recycling behavior. Prior research has consistently affirmed that subjective norms play a pivotal role in motivating segregation practices (Sidique, 2010), particularly among secondary school students influenced by a collectivist culture where peers and teachers hold significant sway. Additionally, the theory posits that subjective norms strongly influence the intention of young students to engage in waste segregation (Shi; Wang & Zhao, 2017).

The connection between PBC and behavioral intention has yielded mixed findings in past research. For instance, Knussen et al. (2004) found that PBC predicted the intention to segregate waste, whereas other studies, such as Shi et al. (2017), reported that PBC did not consistently predict recycling behaviors. However, based on the TPB, this study assumes that a stronger intention to engage in a particular behavior increases the likelihood of taking corresponding action. The majority of studies have indicated that the intention to segregate waste serves as a reliable indicator of actual segregation behaviors (Zhang, 2015).

Methodology

The study employed a quasi-experimental design to conduct a field survey investigating the effects of environmental education on University of Benin students' knowledge and attitudes towards waste segregation. The target population comprised students from the Faculty of Education, categorized into two groups: those studying environmental education and those in unrelated fields, such as Human Kinetics. The total population included 219 students in the Environmental Education program and 108 in Human Kinetics during the 2018/2019 academic year.

Sample size determination: A total of 200 respondents were chosen using a simple random sampling technique. The sample was evenly divided, with 100 students from the HSE department and 100 from the Human Kinetics department, representing the experimental and control groups, respectively.

Randomization: Participants were randomly assigned to the experimental and control groups using a balloting method, ensuring an equal distribution from each department.

The research instrument for this study was a structured questionnaire with two sections: Section A gathered personal information including age, gender, academic class, and religion, while Section B evaluated respondents' knowledge and attitudes toward waste segregation. The questionnaire was created by the researchers based on a review of relevant literature and underwent validation by experts from the Department of Health, Safety, and Environmental Education at the University of Benin. Feedback from these experts was used to refine the instrument, ensuring it met the study's objectives. The reliability of the instrument was established through a test of internal consistency, resulting in a Cronbach alpha value of 0.82, which indicates high reliability. An independent sample t-test was used for hypothesis testing at a 0.05 significance level, as there were no significant differences in pretest results for the variables being examined.

Ethical Considerations: All participants were informed about the study's purpose, and their consent was obtained prior to participation. Confidentiality and anonymity were rigorously maintained throughout the research process. Considering the significant differences in waste segregation knowledge between students in environmental education and those in non-environmental departments, it is crucial to review and potentially enhance the environmental education curriculum in higher education institutions. There should be an emphasis on integrating comprehensive waste segregation modules to foster a deeper understanding among all students, beyond just those directly enrolled in environmental education.

Result

Hypothesis one: There is no significant difference in waste segregation knowledge between the experimental and control groups.

Table 3: Independent sample-test on difference in waste segregation knowledge between the experimental and control groups

	Group	Pre Mean	Post Mean	Std. Deviation	t-value	Sig.
knowledge	experimental group	11.24	17.78	1.31487	16.78	0.00
	control group	10.98	12.21	2.09617		

The table presents an analysis of mean performance scores, standard deviations, and estimated standard errors of the mean. In particular, the mean scores for waste segregation knowledge are compared between the experimental and control groups. The experimental group achieved an average score of 17.78, whereas the control group had an average score of 12.21. The table displays a t-value of 16.78 with a significance level of 0.00, which is below the alpha threshold of 0.05. Consequently, the null hypothesis, which suggested no significant difference in waste segregation knowledge between the experimental and control groups, is rejected. This result highlights a significant difference in knowledge between the groups, demonstrating that environmental education has effectively improved the understanding of waste segregation, as reflected by the higher mean score of the experimental group compared to the control group.

Hypothesis two: There is no significant difference in attitudes toward waste segregation between the experimental and control groups.

Table 6: Independent sample-test on difference in attitudes toward waste segregation between the experimental and control groups

	Grp	Pre Mean	Post Mean	Std. Deviation	t-value	Sig.
Attitude	experimental group	14.24	21.3000	2.72475	8.94	0.00
	control group	13.83	17.3000	3.54908		

The average score for the experimental group regarding their attitude toward waste segregation is 21.00, while the control group's average score is 17.30. However, relying solely on these figures is not sufficient for making valid conclusions. Thus, a t-test was performed to determine whether the observed difference is statistically significant or if it could be attributed to random variation. The results reveal a t-value of 8.94 with a significance level of 0.00, which is below the alpha level of 0.05. Consequently, the null hypothesis, which suggested no significant difference in attitudes toward waste segregation between the experimental and control groups, is rejected. This finding indicates a significant difference in attitudes, with environmental education having a positive effect on students' attitudes toward waste segregation. Therefore, the null hypothesis (Ho) of no significant differences in attitudes is rejected, while the alternate hypothesis (H1), which proposes a significant impact of environmental education on students' attitudes, is accepted.

Discussion of Findings

The study's findings, derived from the analyzed data, address the research questions as follows: A significant majority of respondents in the experimental group (students in environmental education)

exhibited high levels of knowledge regarding waste segregation. In contrast, a considerable proportion of respondents in the control group (Human Kinetics students) exhibited moderate knowledge of waste segregation. This contrasts with Arora and Agarwal's (2011) findings, which reported lower levels of knowledge in waste management. However, Barloa (2016) indicated that 73.4% of students found their knowledge of waste management satisfactory.

Hypothesis testing for the difference in waste segregation knowledge between the experimental and control groups revealed a significant disparity, demonstrating that environmental education had a substantial impact on students' knowledge of waste segregation. This result aligns with the findings of Erhabor and Don (2016), who highlighted the importance of developing environmentally literate students in tertiary institutions to promote Environmental Education in Nigeria.

A comparative analysis of the data revealed significant differences in respondents' opinions about the impact of environmental education on attitudes toward waste segregation. Notably, 100% of the experimental group agreed on the importance of waste segregation in solid waste management, whereas 80% of the control group shared this view, with 20% expressing disagreement. Additionally, 82% of the experimental group felt that solid waste segregation at the source improves waste minimization and resource maximization, compared to 65% of the control group. Moreover, 99% of the experimental group engaged in waste segregation before or during disposal for more effective collection and management, while 89% of the control group did the same. The findings also showed that 98% of the experimental group acknowledged that sorting garbage during collection and before disposal enhanced waste management efficiency, compared to 78% of the control group, with 22% disagreeing. Hypothesis testing confirmed a significant difference in attitudes toward waste segregation between the experimental and control groups, indicating that environmental education effectively promotes more positive attitudes, especially among students in environmental education programs.

Kagawa (2007) highlighted the substantial impact of environmental education on students' environmental knowledge, aiming to foster pro-environmental intentions and behaviors. Previous research has emphasized the role of environmental education in shaping environmental attitudes rather than just behavioral outcomes, consistent with UNESCO's 1978 assertion. This study's findings support the view that environmental education plays a crucial role in developing environmental knowledge, particularly among young students.

Conclusion

The data analysis revealed clear differences in knowledge about waste segregation between students in the experimental group (environmental education) and those in the control group (Human Kinetics). Students in the environmental education group showed significantly higher levels of knowledge, while HKS students exhibited a more moderate understanding of waste segregation. The study identified a significant disparity in waste segregation knowledge between the two groups, with environmental education being a key factor influencing students' understanding. This finding supports Erhabor and Don's (2016) emphasis on the need to cultivate environmentally literate students in tertiary institutions to further Environmental Education in Nigeria.

The comparative analysis of data from both groups revealed significant differences in their perceptions of the impact of environmental education on attitudes toward waste segregation. The experimental group demonstrated a stronger agreement on the significance of waste segregation in solid waste management and the benefits of source segregation compared to the control group. Additionally, a higher proportion of the experimental group engaged in waste segregation, indicating a more effective approach to waste management. Hypothesis testing confirmed a significant difference in attitudes toward waste segregation between the two groups, underscoring the role of environmental education in promoting more positive attitudes, especially among students in environmental education programs. The study's findings highlight the crucial role of environmental education in shaping students' understanding and attitudes toward waste

segregation, emphasizing its importance in fostering sustainable waste management practices among young people.

Recommendations

On the basis of the study findings, the following recommendations are proffered.

1. Given the substantial disparity in waste segregation knowledge between students in environmental education and non-environmental departments, it's imperative to review and potentially enrich the environmental education curriculum in tertiary institutions. There should be an emphasis on integrating comprehensive waste segregation modules to foster a deeper understanding among all students, beyond just those directly enrolled in environmental education.
2. Encourage interdisciplinary initiatives or collaborative programs within the university that involve both environmental education and non-environmental departments. This could promote cross-disciplinary knowledge exchange and better understanding of waste segregation practices among students from various academic backgrounds.
3. Implement awareness campaigns within the university, targeting all students, to highlight the significance of waste segregation in environmental sustainability. These campaigns could utilize various mediums such as seminars, workshops, and information sessions to foster a collective understanding of the importance of waste segregation practices.
4. Establish a framework for continuous monitoring and evaluation of waste segregation practices among students. This process could include periodic assessments and feedback mechanisms to gauge the effectiveness of educational efforts, enabling adjustments and improvements in the educational approaches to ensure sustained impact and understanding.
5. Providing facilities for demonstrating the waste segregation process in higher education institutions is essential for achieving the goals and benefits of environmental education.

References

Akinbote, O. (2007). Some Nigerian primary school pupils' knowledge, attitude and practices on water pollution. *The Social Science,* 2(1), 283-286.

Akoni, J. (2007). *Municipal Solid Waste Management in Abuja*. Abuja, Nigeria: Abuja Environmental Protection Board.

Allen, F., & Bassey, N. (2012). Making Policies Work: Between Environmental Policies and Environmental Protection. Nigeria: Oilwatch.

Ayodeji, I. (2010). Exploring secondary school students' understanding and practices of waste management in Ogun State, Nigeria. *International Journal of Environmental and Science Education,* 5(2), 201-215.

Ball, S. J., Bowe, R., & Gewirtz, S. (1996). School choice, social class and distinction: The realization of social advantage in education. *Journal of Education Policy, 11,* 89ñ112.

Ballarityne, R., Connell, S., & Fien, J. (2006). Students as catalysis of environmental change: A framework for researching intergenerational influence through environmental education. *Environment Education Research,* 12(3-4), 413-427.

Ballantyne, R., Fien, J., & Packer, J. (2001). School environmental education programme impacts upon student and family learning: A case study analysis. *Environmental Education Research, 7,* 23ñ37.

Baud, I., Grafakos, S., Hordijk, M., & Post, H. (2001). Quality of life and alliances in solid waste management: Contributions to urban sustainable development. *Cities, 18,* 3ñ12.

Best, H. & Mayerl, J. (2013). Values, beliefs, attitudes: An empirical study on the structure of environmental concern and recycling participation. *Social Science Quarterly, 94,* 691ñ714.

Boliver, V., & Swift, A. (2011). Do comprehensive schools reduce social mobility? *The British Journal of Sociology, 62,* 89ñ110.

Chi-Chung, K.A., & Chi-Kan, L.J. (2003). Teachers perceptions of teaching environmental issues within the science curriculum: A Hong Kong perspective. *Journal of Science Education and Technology*, 12(3), 187- 204.

Cribb, J., Jesson, D., Sibieta, L., Skipp, A., & Vignoles, A. (2013). *Poor grammar: Entry into grammar schools for disadvantaged pupils in England.* London: The Sutton Trust.

Crozier, G., Reay, D., James, D., Jamieson, F., Beedell, P., Hollingworth, S. & Williams, K. (2008). White middle-class parents, identities, educational choice and the urban comprehensive school: Dilemmas, ambivalence and moral ambiguity. *British Journal of Sociology of Education, 29,* 261ñ272.

Department for Environment, Food and Rural Affairs (DEFRA). (2006). *Evaluation of the household waste incentives pilot scheme* (Rep. No. AEAT/ED51362/Issue 1).

Department for Environment, Food and Rural Affairs (DEFRA). (2014). *Statistics on waste managed by local authorities in England in 2013ñ2014.* Retrieved January 17, 2015, from https://www.gov.uk/government/uploads/system/uploads/ attachment_data/file/375945/Statistics_

Ebong, R.D. (2002). Appraisal of knowledge and attitude of the 'Akwa Iboms' toward a sustainable environment in Nigeria. *Environmental Health Perspectives,* 110(4), 211-212.

Edgerton, E., McKechnie, J., & Dunleavy, K. (2009). Behavioral determinants of household participation in a home composting scheme. *Environment and Behavior, 41,* 151ñ169.

Eguabor, V.O. (2006). Some suggestions on resources for teaching environmental education in secondary schools. In: Nzewi, U., (Ed.), *47*th *Annual Conference Proceedings of the Science Teachers' Association of Nigeria*. Ibadan, Nigeria: Heinemann Educational Books (Nigeria) Plc. pp. 207-210.

Erol, G.H., & Gezer, K. (2006). Primary students' teachers' attitudes towards the environmental issues. *International Journal of Environmental Science Education*, 1(1), 65-77.

European Commission (EC). (2011). *Sustainable development in the European Union. 2011 monitoring report of the EU sustainable development strategy.* Luxembourg: Publications Office of the European Union.

European Commission (EC). (2012). *Guidance on the interpretation of key provisions of directive 2008/98/EC on waste.* Brussels: Directorate-General Environment.

European Parliament and European Council. (2008). *Directive 2008/98/EC on waste (Waste Framework Directive)*. Retrieved December 12, 2014, from ec.europa.eu/environment/waste/framework/

Eurostat. (2015). *Municipal waste.* Retrieved January 1, 2015, from http://epp.eurostat. ec.europa.eu/portal/page/portal/waste/data/database

Ezeah, C. (2010). *Design of a Municipal Solid Waste Management Strategy for the City of Wolverhampton* (M.Sc. Thesis, University of Wolverhampton). Available from: http:/www.w1v.ac.uk. [Last accessed on 2017 Jun 19].

Farmer, J., Knapp, D., & Benton, G. M. (2007). An elementary school environmental education field trip: Long-term effects on ecological and environmental knowledge and attitude development. *The Journal of Environmental Education, 38,* 33ñ42.

Gordon, P., & Lawton, D. (2003). *Dictionary of British education*. London: Woburn Press.

Hanushek, E. A., & Woessmann, L. (2006). Does educational tracking affect performance and inequality? Differences-in-differences evidence across countries. *The EconomicJournal, 116,* C63ñC76.

Harris, R. & Rose, S. (2013). Who benefits from grammar schools? A case study of Buckinghamshire, England. *Oxford Review of Education, 39,* 151ñ171.

Ibrahim, F.M., & Babayemi, O.F. (2010). Knowledge and attitude of a group of Nigerian undergraduates towards environmentalism. *Global Journal of Environmental Research,* 4(1), 47-53

Iannelli, C. (2013). The role of the school curriculum in social mobility. *British Journal of Sociology of Education, 34,* 907ñ928

Jerry, A.N. (2015). *Solid Waste Management*. New York: Encyclopedia Britannica, Inc.

Kaciak, E. & Kushner, J. (2009). Determinants of residentsí recycling behaviour. *International Business & Economics Research Journal, 8,* 1ñ12.

Kazdin, A.E., (Ed.), (2003). Methodology: Why is it so important. *Methodological Issues and Strategies in Clinical Research.* Washington, D.C: American Psychological Association.

Kibert, N.C. (2000). *An Analysis of the Correlations between the Attitudes, behavior and Knowledge Components of Environmental Literacy in Undergraduate University Students.* (M.Sc. Dissertation, University of Florida). Available from: http://www.cce.ufl. Edu/Nicole-kibert-thesisformatted.Pdf. [Last accessed on 2017 Jun 19].

Kofoworola, O.F. (2007). Recovery and recycling practices in municipal solid waste management in Lagos, Nigeria. *Waste Management,* 27(9), 1139-143.

Lee, J.C.K., & Williams, M. (2001). Researching environmental education in the school curriculum: An introduction for students and teacher researchers. *International Journal of Research in Geographical and Environmental Education,* 4(10), 218-244.

Leton, T.G., & Omotosho, O. (2004). Landfill operations in the Niger Delta region of Nigeria. Engineering Geology, 73(1-2), 171-177.

Lima, M. L. (2004). On the influence of risk perception on mental health: Living near an incinerator. *Journal of Environmental Psychology, 24,* 71ñ84.

Lima, M. L. (2006). Predictors of attitudes towards the construction of a waste incinerator: Two case studies. *Journal of Applied Social Psychology, 36,* 441ñ466.

Magda, M.S., Hesham, M.N. & Rim, A.H. (2009). Environmental education and its effect on the knowledge and attitudes of preparatory school students. *Journal of Egyptian Public Health Association,* 84(3-4), 344-367.

Manning, A., & Pischke, J. S. (2006). *Comprehensive versus selective schooling in England and Wales: What do we know?* London: Centre for the Economics of Education.

Momoh, J.J., & Oladebeye, D.H. (2010). Assessment of awareness of attitude and willingness of people to participate in household solid waste recycling programme in Abo-Eketi, Nigeria. *Journal of Applied Science in Environmental Sanitation*, 14, 1-12.

Morris, J. R., Phillips, P. S., & Read, A. D. (1998). The UK landfill tax: An analysis of its contribution to sustainable waste management. *Resources, Conservation and Recycling, 23,* 259ñ270.

Morrissey, A. J., & Browne, J. (2004). Waste management models and their application to sustainable waste management. *Waste Management, 24,* 297ñ308.

Nabegu, A.B. (2010). An analysis of municipal solid waste in Kano Metropolis, Nigeria. *Journal of Human Ecology*, 31(2), 11-119.

National Population Commission (NPC). (2008). *2007 Population Census Figures*. Abuja. Available from: http://www.population.gov.ng. [Last accessed on 2017 Jun 19].

Pires, A., Martinho, G., & Chang, N. B. (2011). Solid waste management in European countries: A review of systems analysis techniques. *Journal of Environmental Management, 92,* 1033ñ1050.

Popplewell, M., Gostick, J., Mills, P., Cleghorn, D., Marks, H., Munro, A., Moorton, E. (2006). *Reducing the reliance of landfill in England.* London: Department for Environment, Food and Rural Affairs.

Price, J. L. (2001). The landfill directive and the challenge ahead: Demands and pressures on the UK householder. *Resources, Conservation and Recycling, 32,* 333ñ348.

Pulkkinen, K. (2006). *Teacher Thinking and Practice in Environmental Education: Finnish Northcaselian Primary School Teachers as Environmental Educations. Sustainable Development through Education*. Proceeding of the International Conference on Environmental Education, Helsinki. U.S.A: McGraw-Hill Publishing Company. pp. 143-154.

Rinmak, R.H.L. (2010). *Attitudes of Women Towards Environmental Degradation in Plateau State: Implication for Environmental Education*. (Unpublished Ph.D. Thesis, University of Jos. Available from: http:// www.unijos.edu.ng. [Last accessed on 2017 Jun 19].

Robottom, I., Malone, K., & Walker, R. (2000). *Case Studies in Environmental Education: Policy and Practice.* Geelong: Deakin University Press.

Sama, E. (2003). Teacher candidates' attitudes towards environmental issues. *Gazi University Journal of Education,* 23(2), 99-110.

Schratz, M. (2016). Austria: Overcoming a bureaucratic heritage as a trigger for research on leadership in Austria. In: Anlesing, H., Day, C., & Johansson, O., editors. *A Decade of Research on School Principals: Cases from 24 Countries*. Dordrecht, Netherlands: Springer. pp. 307- 329.

Schmidt, J. H., Holm, P., Merrild, A., & Christensen, P. (2007). Life cycle assessment of the waste hierarchy ñ a Danish case study on waste paper. *Waste Management,27,* 1519ñ1530.

Steedman, J. (2012). Longitudinal survey research into progress in secondary schools, based on the national child development study. In G.Walford (Ed.), *Doing sociology of education* (pp. 177ñ206). Oxon, New York: Routledge.

Sullivan, A., Parsons, S., Wiggins, R., Heath, A., & Green, F. (2014). Social origins, school type and higher education destinations. *Oxford Review of Education, 40,*739ñ763.

The Sutton Trust. (2005). *Rates of eligibility for free school meals at the top state schools.* Retrieved January 17, 2015, from http://www.suttontrust.com/wp-content/uploads/2005/10/

United Kingdom Without Incineration Network (UKWIN). (2014). *Incinerators in the UK.* Retrieved January 20, 2015, from http://ukwin.org.uk/

United Nations Environmental Programme (UNEP). (2011). Towards a green economy. *Pathway to Sustainable Development and Poverty Eradication.* Nairobi: United Nations.

Walford, G. (1994). A return to selection? *Westminster Studies in Education, 17,* 19ñ30.

Waste Watch. (2015). *Recyclezone: Education resources from waste watch.* Retrieved January 17, 2015, from http://www.recyclezone.org.uk/home_iz.aspx.html

World Bank. (2000). *Infrastructure-urban development.* In: The Proceedings of African Regional Conference of Cop Grading Urban Slums Held from October, 3rd, 5th, 2000, Johannesburg, South African. Available from: http://www.worldbank.org. [Last accessed on 2017 Jun 19].

Zhang, N., Williams, I. D., Kemp, S., & Smith, N. F. (2011). Greening academia:Developing sustainable waste management at Higher Education Institutions. *Waste Management, 31,* 1606ñ1616