

Environmental Attitudes and Ecological Behaviour among Students: A Case Study of Kibera and Kasarani Division in Nairobi, Kenya

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Abstract: Environmental degradation poses a major threat to the existence of humanity today both in rural and urban settlements. In such a scenario, the importance and need for environmental education as a tool for environmental management and conservation cannot be overemphasized. This is because environmental literacy, attitude formation and participation in ecological behavior are the end products of environmental education. Kibera and Kasarani represent different settlements of Nairobi. The aim of this study was to establish the relationship between attitudes and level of participation in environmental activities amongst these two settlements in an urban area-Nairobi. The study involved a sample of three hundred and twenty secondary school students randomly selected from secondary schools in Kasarani and Kibera Divisions. Data was primarily collected using researcher developed questionnaires. Analysis of the data was done using SPSS. By calculating an Analysis of Variance (ANOVA) and a group statistic using $P=0.05$, the hypotheses postulated were tested and it was established that there is no significant difference, attitude and level of participation in environmental activities of secondary school students in Kasarani and Kibera Divisions. It was also found out that there is a positive relationship between attitude and ecological behavior.

Keywords: Environment, environmental Education, Environmental Attitude, Ecological Behavior and Environmental Participation.

1. INTRODUCTION

The level of global environmental challenges is now beyond serious scientific dispute. In cognizance of the role of an informed and educated citizenry in making appropriate environmental decisions and adopting behavioral approach in addressing environmental challenges, the concept of Environmental Education (EE) was born (Crompton and Kasser, 2009).

The importance of Environmental Education (EE) is recognized and emphasized as one of the most effective ways, if not the only way, to meet the complicated problems of the environment. The call for EE call to educational system that fosters or encourages the development of environmentally literate citizens who share concern for the environment in which they live and in which future generations will also have to live (Crompton and Kasser, 2009).

EE finds its formal root in the United Nations Conference on the Human Environment in Stockholm of 1972. This conference recommended establishment of an International Environmental Education Programme (UNEP, 1972). IEEP was launched in 1975. It recommended the primary categories of environmental education curriculum goals and objectives comprising of environmental attitudes, skills and participation and ecological behaviour, which comprise the subject of this study (UNESCO, 1999).

The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 reiterated, in Agenda 21, that through EE, school children are obliged to participate actively in guarding the quality of the environment.

In Kenya, whereas EE has existed in secondary schools since 1985, concern has been raised relating to students attitudes and ecological behavior. In 1991, for example, the Minister for Environment and Natural Resources voiced his concern for the lack of practical conservation principles in the students' daily activities (Kenya Times, 1991).

2. FINDINGS

Environmental Attitudes:

Environmental attitude of students was determined by considering personal roles and willingness to take action for or against environmental conservation. Under this section, respondents were given statements to respond to in lickert scale of five levels i.e. strongly agree (SA), agree (A), not sure (NS), disagree (D) and strongly disagree (SD).

Environmental Education is an important discipline aimed at shaping students attitudes and behavior. Respondents were asked whether EE is important in secondary schools and the results were as indicated in table 1.1 below

Table 1.1: Students' attitudes on the importance of EE in school

STATEMENT	LEVEL	DIVISION			
		KASARANI		KIBERA	
		N	%	N	%
EE is important in Secondary Schools	SD	12	9.3	13	9.9
	D	12	9.3	14	10.9
	NS	16	12.4	12	9.5
	A	32	24.8	30	22.9
	SA	57	44.2	61	46.6
Total		129	100	130	100

KEY: SD: Strongly Disagree D: Disagree NS: Not sure A: Agree SA: Strongly Agree

It was realized that 9.3% (n=12) and 9.9% (n=13) of the respondents in Kasarani and Kibera Divisions respectively strongly disagree that EE is important. On the other side, 44.2% (n=57) and 46.6% (n=61) of the respondents in Kasarani and Kibera Divisions respectively strongly agree with this statement.

The results imply some students do not consider EE as important. This is consistent with the findings made by Shivakumar on Environmental Attitude among the Secondary School Students. He found out that students in urban areas have better environmental attitudes (Shiyakumar, 2011).

The attitude of students relating to cleanliness was as shown in the table 1.2 below:

Table 1.2: Students' attitudes towards cleanliness

STATEMENT	LEVEL	DIVISION			
		KASARANI		KIBERA	
		N	%	N	%
Cleanliness is the sole responsibility of City Council	SA	66	52.8	42	33.9
	A	19	15.2	25	20.2
	NS	5	4.0	8	6.5
	D	20	16.0	26	21.0
	SD	15	12.0	23	18.4
Total		135	100	124	100
All secondary schools should hire cleaners and not use students	SA	60	46.5	54	40.7
	A	21	16.6	21	15.8
	NS	6	4.7	6	4.5
	D	21	16.5	26	19.5
	SD	20	15.7	26	19.5
Total		128	100	133	100

KEY: SD: Strongly Disagree D: Disagree NS: Not sure A: Agree SA: Strongly Agree

From the results, it was observed that 52.8% (n=66) and 33.9% (n=42) in Kasarani and Kibera Divisions strongly agree that cleanliness in the responsibility of the city council. On the other hand, 12.0% (n=15) and 18.5% (n=23) of the respondents in Kasarani and Kibera Divisions strongly disagree with the statement that cleanliness in the city in the sole responsibility of City Council.

Regarding hiring of cleaners in secondary schools, 46.5% (n=60) and 40.7% (n=54) of the respondents from Kasarani and Kibera Divisions strongly agree that all secondary schools should hire cleaners and not make use of the students. On the other hand 15.7% (n=20) and 19.5% (n=26) of the respondents from Kasarani and Kibera Divisions respectively strongly disagree with the idea of hiring the cleaners.

From this result, it is evident that students in secondary schools have a negative attitude towards their participation in cleaning. The results suggest that other people should take responsibility of managing the environment around them. It can be suggested that students in secondary schools have poor attitude towards taking responsibility of ensuring cleanliness. The findings of this study are consistent with the conclusions made by Busted et al (2009) that students do not understand the implications of their individual actions.

This finding introduces major paradox that faces EE in secondary schools and the community at large. Majority of the students agree that EE has a great role to play in the society however they still believe that other people should take responsibility and not themselves in ensuring that the environment is taken care of. Majority of the students in both Kibera and Kasarani Divisions strongly agree that the cleanliness of the city is the responsibility of City Council. Respondents also strongly agree that secondary schools should hire cleaners and not make use of students.

Busted et al (2009) in his study concluded that despite the environmental knowledge that students have, they do not act on their personal obligations. It can be suggested that this is a probable explanation as to why majority of students in secondary believe that the can do something to make the environment better while on the other side they have a poor attitude towards taking responsibility like cleaning.

Attitude of students towards conservation of natural resources and economic development shows students mental predisposition towards one thing or the other. It also highlights attitudes towards competing priorities of sustainable development. Respondents were asked in these broad areas and the results were as shown in Table 1.3.

Table 1.3: Attitudes on conservation of natural resources

STATEMENT	LEVEL	DIVISION			
		KASARANI		KIBERA	
Economic growth is more important than environmental protection	SA	8	6.3	8	6.3
	A	14	10.9	15	11.4
	NS	17	13.5	14	10.3
	D	44	34.1	44	33.3
	SD	45	35.2	51	38.6
Total		128	100	132	100
Mau forest should be cleared for settlement	SA	5	3.8	3	2.3
	A	11	8.4	8	6.1
	NS	4	3.1	7	5.3
	D	22	16.8	23	17.6
	SD	89	67.9	90	68.7
Total		131	100	132	100

KEY: SD: Strongly Disagree **D:** Disagree **NS:** Not sure **A:** Agree **SA:** Strongly Agree

Regarding the clearing of forests for settlement, 67.9% (n=89) and 68.7% (n=90) of the respondents in Kasarani and Kibera Divisions strongly disagree. In the same statement, a minimal 3.8% (n=5) and 2.3% (n=3) of the respondents in

Kasarani and Kibera respectively strongly agree to the statement that Mau forest should be cleared for settlement. These results are a clear indication that the majority of secondary school students are aware of the role of forests.

On matters of sustainable development, taking into consideration environmental conservation and economic development, it was realized that 6.3% (n=8) both in Kasarani and Kibera Divisions strongly agree to the statement that maintaining economic growth is more important than environmental conservation. On the other hand 35.2% (n=45) and 38.6% (n=51) of the respondents in Kasarani and Kibera consecutively strongly disagree with this statement. Because attitudes and values often agree, these factors are likely to correlate with each other, as positive attitudes towards environmental responsibility correlated with nature-centric attitudes.

In their study, Kaiser, Wölfling and Fuhrer (1999) found that environmental knowledge, environmental values and intention of ecological action behavior to be the three main factors predicting actual ecological behavior of adult people. This is a probable explanation to the observed favorable attitudes towards conservation among students.

Social issues and social responsibility play a key role in determining people's environmental attitudes. Asked as to whether Shops and supermarkets should be stopped from issuing free plastics bags to customers and use of contraceptives to control births in Kenya, the results were as shown below in Table 1.3.

From Table 1.3, it was realized that 16.2% (n=21) and 17.4% (n=23) of the respondents in Kasarani and Kibera Divisions respectively strongly agree that shops should not issue free plastic bags to customers. On the other hand, 40.7% (n=53) and 34.2% (n=45) of the respondents in Kasarani and Kibera respectively strongly disagree with this.

Table 1.3: Attitude on environment and social responsibility

STATEMENT	LEVEL	DIVISION			
		KASARANI		KIBERA	
Shops should not issue free plastics bags to customers	SA	21	16.2	23	17.4
	A	22	16.9	24	18.2
	NS	8	6.2	4	3.0
	D	26	20.0	36	27.2
	SD	53	40.7	45	34.2
Total		132	100	131	100

KEY: SD: Strongly Disagree D: Disagree NS: Not sure A: Agree SA: Strongly Agree

The results suggest that majority of students in secondary schools still prefer the issuance of plastic bags by shops. Plastic bags constitute a substantial quantity of solid waste in Nairobi. The results obtained clearly indicates attitude towards lifestyle and culture. This implies that students in urban secondary schools both Kasarani and Kibera are not receptive to ecological behavior. In a study done by Miller (2011), in United Kingdom, he found out that only 3.9% of the students indicated a ban as the only option supported for reducing plastic bag numbers. Students who chose a ban only or a ban in combination with other options were 13.6%. A substantially higher number of UK shoppers reported that they would support a ban on free plastic bags at 61%.

Despite, students' positive attitudes towards environmental conservation, the attitude towards plastic bags introduces a set of negative relationship. This finding is consistent with the conclusion made by Shivakumar, (2011) that locality and type of school have interaction effect on environmental attitude. Urban set up has greatly affected the attitude of the use of plastic bags. There is need to work on practical knowledge that solves environmental problems by providing alternatives within the school curriculum that are environmental sound.

Participation in Environmental Activities:

One of the primary goals of EE is to empower the world population to maintain and enhance environmental quality through ecological behavior. Solid waste management is one of the major environmental problems facing urban centers The researcher sought to find out students participation in areas surrounding management of waste and the results were as shown in Table 1.4.

Table 1.4: Students participation in waste management

ACTIVITY	LEVEL	DIVISION			
		KASARANI		KIBERA	
		F	%	F	%
Use of Dustbins	Never	12	9.4	17	12.7
	Sometimes	47	36.7	52	38.8
	Always	69	53.9	65	48.5
Total		128	100	134	100
Picking litter in the compound	Never	29	22.8	26	20.0
	Sometimes	71	55.9	60	46.2
	Always	27	21.3	44	33.8
Total		127	100	130	100
Recycle and Reuse of waste	Never	74	60.2	69	52.7
	Sometimes	33	26.8	42	32.1
	Always	16	13.0	20	15.3
Total		123	100	131	100

From the results obtained in Table 1.4, it was realized that 9.4% (n=12) and 12.7% (n=17) of the respondents in Kasarani and Kibera Divisions respectively indicated that they do not dispose their litter in dustbins. On the other hand, 36.7% (n=47) and 38.8% (n=52) respectively indicated that they sometimes dispose their litter in the dust bins while 53.9% (n=69) and 48.5% (n=65) respectively noted that they always dispose their litter in the dust bins. Waste recycling and reuse is another efficient way of managing solid waste. In this case, 60.2% (n=74) and 52.7% (n=69) of the respondents in Kasarani and Kibera Divisions indicated that they neither re-use nor recycle their waste paper, 26.8% (n=33) and 32.1% (n=42) respectively does this sometimes while only 13.0% (n=16) and 15.3% (n=20) do this always. It was also found out that 21.3% (n=27) and 33.8% (n=44) of respondents in Kasarani and Kibera Divisions always voluntarily pick litter around their homes and school compounds, 55.9% (n=71) and 46.2% (n=60) do this sometimes while 22.8% (n=29) and 20.0% (n=26) do not do this voluntarily.

It is evident that there is a challenge in students' participation in waste management. The findings from this study have great implications for waste management practices in secondary schools and the need to increase students' awareness of waste management issues and practices. The study has revealed the need for behavioral and attitudinal change which is essential in effective participation in waste reduction, reuse and recycling. This is evident since in the previous section it was found the majority of the students had a negative attitude towards taking personal responsibility in addressing environmental challenges.

Taking personal responsibility of environmental concerns requires individual effort and personal drive. In this section, the researcher sought to find out the level of taking responsibility and participation and the results were as shown in Table 1.5

Table 1.5: Personal responsibility and environmental participation

ENVIRONMENTAL ACTIVITY	LEVEL OF PARTICIPATION	DIVISION			
		KASARANI		KIBERA	
		N	%	N	%
Turn off running water taps	Never	10	7.9	13	9.8
	Sometimes	29	22.8	39	29.3
	Always	88	69.3	86	60.9
Total		127	100	138	100
I don't wait for authority to pick litter	Never	29	23.0	30	22.9
	Sometimes	61	48.4	55	42.0
	Always	36	28.6	46	35.1
Total		126	100	131	100

From the results obtained in Table 4.17, it was found out that in case of running water tap 7.9% (n=10) and 9.8% (n=13) of the respondents in Kasarani and Kibera Divisions respectively will not turn it off. On the other hand, 22.8% (n=29) and 29.3% (n=39) of the respondents in Kasarani and Kibera respectively noted that they do this sometimes while 69.3% (n=88) and 60.9% (n=86) do this always. It was also found out that, 28.6% (n=36) and 35.5% (n=46) of the respondents in Kasarani and Kibera Divisions do not wait for authority i.e. teachers or prefects to take environmental responsibility e.g. pick litter while 48.4% (n=61) and 42.0% (n=55) respectively do this sometimes and 23.0% (n=29) and 22.9% (n=30) will only do this in the presence of authority.

This study reveals that students in secondary school will act on recognition of authority. Besides this, it also revealed that majority of students will endeavor to turn off running water. In this category, more students in Kasarani will turn off running water taps at 69.3% (n=88) while 60.9% (n=86) of the respondents in Kibera will do the same. This implies slightly higher level of responsibility among Students in Kasarani than in Kibera as far as turning off running water taps is concerned.

According to the findings made by Mergler, and Spooner (2011), the results revealed high levels of personal responsibility and emotional intelligence for all adolescents, indicating that the public and private high schools surveyed appear successful in supporting their students in these areas. This finding is inconsistent with the findings of the current study. The study is however consistent with the findings that no significant differences were found between school sector on emotional intelligence or personal responsibility

This finding is consistent with the conclusions of the study done by Toili, which concluded that environmental action in secondary schools was mainly realized through punishment, routine manual work and assignments. (Toili, 2007). In his study, he notes that this is as a result of deficiency of dynamic qualities which facilitate environmental action among some students. He categorized the qualities into basic and integrated dynamic qualities which include showing sensitivity to environmental quality; monitoring one's action in relation to environmental quality; showing concern for environmental quality; and showing interest in environmental management. The integrated qualities included: Accepting and seeking responsibility for environmental action; Exercising initiative in conserving environmental quality; showing commitment to environmental conservation; and showing independence of thought and action in environmental action.

Tree Planting and Clean Up Initiatives:

Secondary school students play a key role in tree planting and clean up exercises. During the study, the researcher sought to know the level of students' participation in tree planting and clean up initiatives and the results were as shown in table 1.6.

Table 1.6: Participation in tree planting and clean up initiatives

ACTIVITY	LEVEL	DIVISION			
		KASARANI		KIBERA	
		N	%	N	%
Clean up and Tree planting Initiatives	Never	19	14.8%	21	15.7%
	Sometimes	58	45.3%	64	47.8%
	Always	51	39.8%	49	36.6%

From the results obtained, it was realized that 39.8% (n=51) and 36.6% (n=49) of the respondents in Kasarani and Kibera Divisions respectively always participate in organized clean up and tree planting initiatives, 45.3% (n=58) and 47.8% (n=64) of the respondents respectively do this sometimes while 14.8% (n=19) and 15.7% (n=21) of the respondents in Kasarani and Kibera Divisions respectively have never participated in the activities.

The results obtained imply that students in secondary schools are not very responsive to the cleanup and tree planting initiatives. By far and large this implies that students' participation in community service and community affairs is limited. The study thus indicates that secondary school students do not get enough community exposure sufficient to help them play a meaningful role in addressing community service. They are also not able to develop a character of getting

committed in issues of community good. This is evident as the study shows that young people rarely participate in volunteering activities.

The study also points to the failure to integrate service learning in secondary school curriculum. According to the study done by Markus et al (1993), it was concluded that integrating service learning through students' participation in community service with classroom instruction can have significant effect upon their personal values and orientations towards their community. If preparing students to assume responsibilities of citizenship is part of the mission of education then such effects are important and ought not to be disparaged. The study also found out that student, academic learning was significantly enhanced by participation in course relevant community service

Club Activities:

Club and club activities are important and effective opportunities for student participation in environmental activities. The respondents were asked on the status of their membership in clubs and the results were as shown in table 1.7.

Table 1.7: Club membership

STATEMENT	RESPONSE	DIVISION			
		KASARANI		KIBERA	
Are you a member of a club/society		N	%	N	%
	Yes	89	73.6	87	65.9%
	No	32	26.4	45	34.1%
Total		121	100	132	100

From results obtained in table 4.19, it was found out that on club membership, 73.6% (n=89) and 65.9% (n=87) of the respondents in Kasarani and Kibera Divisions respectively are members of a club or society.

The results clearly indicate that majority of secondary school students both in Kibera and Kasarani Divisions are members of clubs. This implies that majority of the students in secondary school are motivated to join clubs. It thus indicates that clubs are very important tools in achieving both curricula and co-curricular objectives in secondary schools. It also indicates that clubs are very powerful avenues of engaging and equipping students. This is because more than 50% of the students both in Kibera and Kasarani Divisions are in a club

Club membership is not enough, it is important to find out the level of students participation in club activities. The researcher sought to find out this and the results were as shown in Table 1.8.

Table 1.8: Participation in club activities

ACTIVITY	LEVEL	DIVISION			
		KASARANI		KIBERA	
Participation in Club Activities		N	%	N	%
	Never	48	37.8	52	39.1
	Sometimes	33	26.0	26	19.5
	Always	46	36.2	55	41.4
Total		127	100	133	100

It was found out that 37.8% (n=48) and 39.1% (n=52) of the students in Kasarani and Kibera Divisions never participate in club activities. 26.0% (n=33) and 19.5% (n=26) does this sometimes while 36.2% (n=46) and 41.4% (n=55) do this always.

With less than 50% active members, the results indicate that the club members in secondary schools are not active. According to the study done by Schultz et al (2005), it was found out that the involvement of students in Civics Clubs and

their understanding of environmental concepts showed that the pupils performed very well in the knowledge test. In addition, pupils who are club members do attend meetings and workshops on environmental related issues where their knowledge on environmental issues is widened, deepened as well updated. The implication of this finding is that though students are members of clubs, the low level of participation will make achievement of club and individual goals challenging.

Several important observations are apparent about the manner in which the students participated in protecting and improving the quality of their local environments. First, the students participated majorly because they were coerced into environmental action particularly in their school environment. If the objective of the school authorities was to achieve a quality environment, this strategy was admissible. But it was not admissible if the students were also expected to develop a positive commitment to the protection and enhancement of environmental quality.

Secondly, while a very low rate of students' participation was experienced, the role of clubs in this process, particularly at community level, is worth noting. The current view as posted by Hart (1997) that environmental clubs have the potential of positively involving more students in the process of conserving the quality of their local environments than the regular school program is thus supported. This is an area that needs good focus since the membership and participation levels is low.

3. RECOMMENDATIONS

Though from the responses obtained from the study, it was noted that majority of the students exhibited a positive environmental attitude; it was found out that the attitude of students on taking personal responsibility in addressing environmental problems was not pro-environmental conservation. As far as student will wish to see a conserved and well taken care of environment, the study showed that they will prefer other people do the work and not themselves

It was also observed that students exhibited some ecological behavior by participating in environmental management. It was however observed that most of this participation was under coercion and established rules and regulations. Likewise, despite being members of clubs and society which are voluntary, their active participants are less than 50%. In this regard, the researcher notes that there is need to ensure that the classroom practices not only improve awareness about environmental concerns but also develop understanding of ecological principles, arouse concern for environmental problems, stimulate commitment for environmental protection and demand action to promote conservation of natural resources. In order to achieve this, all teachers handling EE content should consider using methodologies that can help students in all the three domains of learning i.e. cognitive, affective and psychomotor. These are methodologies that are more active teaching including trips, projects, community service and academic excursions.

It is also recommended that the school management should consider building the capacity of clubs to enhance member participation. This involves funding, technical support and creating time for students to engage in club activities. Furthermore, it is necessary to enshrine the role of clubs is made relevant within the curriculum

Finally, there is need for policy review to give room for a policy paradigm that will enhance cooperation among stakeholders which is key in building more vibrant curricula as well as responsive teaching and evaluation approaches.

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