

## **CAPACITY DEVELOPMENT THROUGH OPEN AND DISTANCE LEARNING: A Case Study of National Open University of Nigeria's Environmental Science And Resource Management Programme**

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### **ABSTRACT**

This study revealed how environmental education was communicated to a variety of people through Open and Distance Learning (ODL through the programme environmental science and resource management offered at the degree level at the School of Science and Technology of the National Open University of Nigeria. This opportunity provided learners with the ability to continue their education build capacity and brought about social justice, with the aim of contributing to social awareness and create opportunities in social life. Questionnaires were administered on 150 learners who registered with the university across the six geo-political zones of Nigeria.

The aim of the study was to determine the accessibility and relevance of the programme to registered learners from various six geo-political locations using also their demographic characteristics. The results of the study indicated various benefits, including: the positive perceptions of open and distance learning by the respondents which resulted from their improved access to education; the availability of course materials, the open system of admission where students can register at any time of the year; at their convenience; the flexibility of study, the ability to develop skills and capacity and the potential of open learning to provide new employment opportunities, enhance career prospects and work place promotion were some of the benefits indicated by the respondents in their questionnaires. Through open learning, environmental awareness and accessibility to homes and communities is increased.

This would consequently encourage the management of natural resources for the future by the promotion of technological advancement in environmental management, sound data collection and analysis.

Thus, communication of environmental data would further improve the chances of mitigating future environmental challenges and encourage exchange of solutions between nations.

**Keywords:** Open and Distance Learning, environmental education, environmental application.

### **INTRODUCTION**

Open and Distant Learning (ODL) a non contiguous form of study, affords a learner the flexibility of study, independent of time and space (Jegede, Barry & Fisher 1995). It is a force which contributes to social and economic development and has therefore become an indispensable part of the mainstream of educational development in both developed and developing countries (Moore 2002).

This growth is especially stimulated by increasing interest in the internet and multimedia which has enabled learning to be realised among various groups including the disadvantaged, rural communities, illiterate populations and among student/learners

who can combine work and education. It also provides easier options for employers who can boost professional development of their employees through skills' development, increase work productivity and flexibility especially for training times. In view of these characteristics, ODL has the potential to promote higher education by bringing down the barriers that discourage socio-economic growth such as cultural, social, perceptual and economic hindrances and capable of providing skills as that of the conventional mode. National Open University of Nigeria (NOUN) has been a successful enterprise with an objective to address the educational needs of masses in the country. In view of the challenges of environmental degradation from human activities which are affecting the farmlands, women and children, localities, families, businesses etc, it has been shown that a greater environmental awareness is required to help people understand these changes so as to foster transformations that may occur in terms of policy institution, enforcement, management, resource use and attitudinal changes. The programme Environmental Science and Resource Management therefore comes at a period where more awareness and application is needed for the management of these problems and for future sustainability.

This paper addresses the benefits of this course to the current students enrolled with the university, their current employment state, and how the course could be applied in future. Furthermore, the course has been studied through the questionnaire to evaluate the effectiveness of the program to students from six geopolitical zones in Nigeria. Most of the respondents have found the program useful for their current careers, others have seen it as an opportunity to learn more about the environment given the current changes and so broaden their scope on applications. A few of the learners have seen the course as an avenue to further their studies in a chosen area.

#### **OBJECTIVE OF THE PAPER**

To determine the accessibility and relevance of the programme to registered learners from various six geo-political locations in Nigeria. To determine if this course contributes to capacity building in the management and sustainability of natural resources at workplaces

#### **ODL AND CAPACITY BUILDING**

Developing countries including Nigeria have large social, religious and cultural diversity, significant gaps in socio-economic standards of people and absence of equity in accessing quality education at a lower cost. Increased access, flexibility and the combination of work and education is what students/learners would understand as capacity building in open and distance learning. Thus, a well formulated ODL policy and efficient delivery system can serve as an effective instrument in promoting capacity by reaching target groups with limited access to conventional education and training. It would also ensure that these ODL institutions are connected with information resources that promote new changes to education and create opportunities for lifelong learning.

The potential of Open and Distance learning (ODL) for sustainable learning and development provides the following advantages:

- **Access to education-Dfes (2002) defines "access" as a means of bypassing barriers to learning. Accessibility allows learners who would otherwise be denied educational opportunities to gain right to use courses and this has important implication for ODL policy (Campbell & Storo 1996). Equitable access to information would promotes capacity building and the sharing of knowledge (Moore, 2002) especially in a multidisciplinary area such as Environmental Science and Resource Management which would reflect regional, social and**

economic needs. It follows also that the access to learning materials materials; teaching, support services, academic and administrative systems, helps to alleviate capacity constraints for economics, human resources and rural development (Jegade, 2010).

- **Equitable opportunities:** Confidence is been developed in the ODL as new approach in both developing and developed countries to resolving the problems of equity, access and quality. For example, the UNESCO (2001a) report states that distance education in the nine high population countries including Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan, focus on expanding and developing teacher education and non-formal education for health and other related areas. Also, in some parts of Europe (Central and Eastern), distance education is seen as an important means of supporting transformation towards democracy and a market-oriented society. Thus strategic alliances are being formed between educational institutions and the private sectors. The existence of a wide range of programs in the ODL will enable individuals to enrol in the programs that are relevant to their context and situations and adapt if necessary to their various conditions. While ODL aims to provide equitable opportunities to learners, it also needs to meet the challenges to overcome barriers to higher education and create opportunities for participation in the knowledge development cycle. In developing countries, economic constraint is one of the major factors that affect access to education. ODL can breach this gap where poor students or those who are disadvantaged or are delayed due to early pregnancies can benefit equitably from high educational programmes without extra financial burden on households. This way, ODL will break economic barriers by providing education for students of lower social economic status, bring about the development of skills, and provide opportunities for building capacity that will facilitate upward social mobility.
- **Equality and integrity:** ODL promotes social inclusion and participation because learners from diverse social and educational backgrounds including girls, women, gypsies, those with disability and learning difficulties, the aged can receive similar education and qualification with the same integrity as those earned through the conventional mode. It brings about the development of equal rights and opportunities and the promotion of effective equality between men and women
- In tandem with the above characteristics of capacity building vis-a-vis the role of ODL, this the National Open University of Nigeria has introduced a programme which would help sustain development and at the same time, cater for the deprivation caused by environmental degradation in every area of Nigeria. NOUN as indicated above, introduced a programme at undergraduate i.e. Bachelor's Degree in Environmental Science and Resource Management with the intent of introducing a postgraduate diploma in Climate Change Adaptation in the coming year. This is an attempt to justify ODL's role in resolving the problem of equity, access to education and at the same time building capacity within the environment sector.

### **The Programme BSc. Environmental Science and Resource Management**

The BSc. Environmental Science and Resource Management is designed to equip the students with the basic skills necessary to work in a professional capacity in areas where environmental management and sustainability of natural resources are required. It is a science-based understanding of our environment which integrates social, economic and the legal aspects to it.

This comprehension is vital to ensure that human needs are met, in a sustainable way, so that everyone will have access to clean water, clean air, and the earth resources required for agriculture and industrial activity.

Since Nigeria is beset with problems from climate change, pollution, gas flaring and conflicts in the Niger Delta, waste management issues and resource control, this course comes at a time where more awareness needed to be created for the future professionals who will work in various organisations, which could include the government as regulators, town planners, policy makers, corporate organisations, industries or in research to bring about the needed changes that will transform the mindset and activities of people. Although this course not only trains the learners in the skills, it also opens up the minds of the learners to apply the course to their own day to day work.

These impacts will consequently and hopefully, lead to positive change in attitudes and trigger strong contributions to decision making especially as it concerns environmental protection.

The B.Sc. Environmental Science and Resource Management also aims to give the student a broad knowledge of the environment in terms of the concept, economics, and the applications of such knowledge for professional, academic and personal use.

In addition, it sets out to produce good scientists with an awareness of environmental problems and solutions and who can communicate with others.

The Environmental Science and Resource Management Unit include subjects such as: the Nigerian Environment (*which introduces the learner to the basic concepts of the environment, outlines essential features and characteristics of the Nigerian environment, discusses common environmental problems in Nigeria and recommends strategies for ameliorating some environmental problems*); Introduction to Environmental Science; Environmental Resource Management; Geographical aspects; Social aspects such as Community Participation; Introduction to Conflict and Peace Resolution; Pollution, Laws and Policies, Environmental Politics among other courses.

The study of Community Participation in Environmental Management is basically concerned with the involvement of individuals, groups and communities in the affairs of managing the environment where they live in and how these communities can make congruent decisions that will positively affect their environment.

Since commencement in 2003, the programme is offered in the main cities of Nigeria. The study centres are established at more than 36 states of the Federation in the six geopolitical zones in Nigeria- i.e. the North East, North West, North Central South East, South West, and South regions of the country.

In addition to these centres, special centres have been created such as in the military barracks and in the prisons.

The BSc. Environmental Science and Resource Management programme is spread over four semesters and with a total credit of 120. Student enrolment has increased over the years.

Course materials and course guides are prepared written by peer collaborators and made available for learners, online or via hardcopies.

Students have access to the materials as well as their facilitators and are released to the public domain by the institution. However, the courses are open to modification by the various course facilitators who might wish to tailor the contents to their local surroundings. Case studies are also provided for the learners in courses such as the environmental impact assessment and Environment protection agencies.

This way, learners can readily identify with issues that border on their own environment and could apply such knowledge.

### **METHODOLOGY**

150 samples consisting of students of Environmental Science and Resource Management were randomly selected from the six geo-political zones in Nigeria i.e. the North West (Borno); North East (Jigawa and Kano) North Central (Lokoja and Minna), South East (Abia State and Enugu), South West (Ekiti and Lagos) and South South Regions (Akwa Ibom and Port Harcourt).

The instrument used was the questionnaire and these were distributed to the students through the Centre Managers and their staff. Of the selected regions and the questionnaires distributed, 117 answered questionnaires were received.

### **Sample locations**



**Figure 1:**  
Map of Nigeria showing sample locations, adapted from Google images for blank map with Nigerian States  
**Figure 2:** Map of Africa, insert Nigeria, adapted from visual cultures on Google images

**DATA ANALYSIS**

**Demographic Characteristics**

A demographic profile of age, gender, marital and employment status were collected through a questionnaire.

Of these results, 53 of the respondents were males while 64 were females selected from the 6 geo-political zones in Nigeria as tabulated in Tables 1 and 2 below:

**Table: 1**  
**Distribution of questionnaire within six geo-political regions in Nigeria To whom Administered**

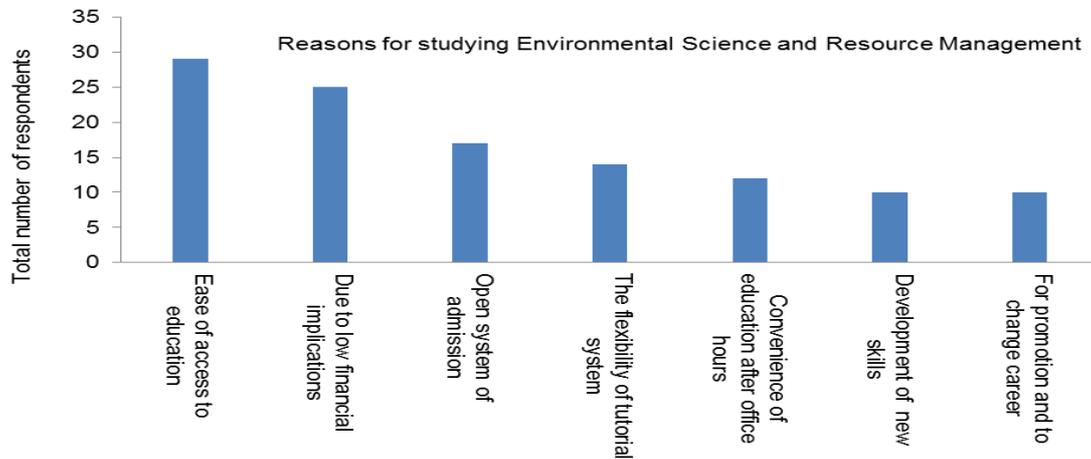
	Number	Males	Females	Percentage (%) Males	Percentage (%) Female
<b>North Central</b>					
Lokoja	10 (5males, 5 females)	8	11	15.09	17.19
Minna	9 (3 males, 6 females)				
<b>North East</b>					
Jigawa	10 (10 females)	7	13	13.21	20.31
Kano	10 (7 males, 3 females)				
<b>North West</b>					
Kastina	10 (5 males, 5 females)	9	11	16.98	17.19
Damaturu	10 (4 males, 6 females)				
<b>South East</b>					
Umuahia	20(10males,10 females)	10	10	18.87	15.63
<b>South West</b>					
Ekiti	10 (6 males, 4 females)	11	9	20.75	14.06
Lagos (Ikeja Study Centre)	10 (5 males, 5 females)				
<b>South South</b>					
Port Harcourt	10 (5 males 5 females)	8	10	15.09	15.63
Akwa Ibom	8 ( 3 males, 5 females)				
Total Samples		53	64	100	100
	117				

Table: 1 shows the distribution of the questionnaire among male and female respondents within six geo-political zones in Nigeria. The results indicate that more women were registered and are interested in this programme compared to their male counterparts.

**Data Analysis**

Questionnaires used to collect data from the study samples on the role of ODL on the environmental science and resource management course considering the equity, access and its other social benefits to the citizens and the environment were analysed for the purpose of confirming the perception, opinion and adequacy of ODL system of education

in building capacity in higher education. The responses under each section of questionnaire were analysed on the basis of modal results and the responses having the maximum frequency were arranged in descending order. The following findings were recorded as follows:



**Figure: 3**  
 Reasons provided by respondents for for registering for the ESM programme at NOUN

Figure: 3 shows the main reasons why some of the respondents registered for the ESM programme at NOUN. The graph shows there are a decreasing number of respondents as the reasons drifted to application/need of the course. Majority of the respondents had registered because of the ease of access and the low cost of education.

**Table: 2**  
 Assessment of course curriculum and delivery

Course Contents of ESM	%	Grade
Relevance of assignments	73	Very good
Course outline and syllabus	65	Good
Course Materials and their subject	57	satisfactory
Availability of Course materials	52	satisfactory
<b>Delivery</b>		
Study Centre environment	65	good
Relevance of course to job	62	good
Facilitators' knowledge of courses	69	good
Study guidelines	58	satisfactory
<b>Assesment</b>		
Assignment Marking	65	good
Field work	47	fair
Examination and Evaluation	68	good

Table: 2 lists the how the learners rated the course curriculum and delivery. The results show that the course was relevant while the field work was rated as fair with 47%.

Availability of course materials, study guidelines and the study materials were was rated as satisfactory.

**Table: 3**  
**Employment status of students studying**  
**BSc. Environmental Science and Resource Management**

Occupation	Number of respondents	%
Teaching	20	11.3
Public Offices	15	8.47
Corporate/Private Organisations	12	6.78
Self employed	13	7.34
Total employed	60	33.9
Unemployed	57	32.2
Total Number	177	

Table: 3 shows the employment status of some of learners who completed the questionnaires. About half of the learners in the ESM programme were employed while the others were unemployed.

**Table: 4**  
**Age range of respondents**

Age ( years )	Number of respondents	Percentage (%)
<25	47	40%
25-35	50	43%
35-45	17	14.5%
>45	3	2.5%

Table: 4 show the age group of respondents. While 43% of the group was within the age group of 25-35 years, it was noted that there were people who were above the age of 45 years (2.5%).

## **DISCUSSION**

Developing capacity in all spheres of life including social and economic development can be built if there is access to information. Such access through ODL can reach the unreached and promote growth and development in any community/nation. Various authors have made clear that if education through ODL is open, flexible and accessible, willing learners can develop skills that will take them to the next levels in the society. As such, the results of this analysis indicated that while 34% of the learners where unemployed, they were still able to access the degree programme.

It goes to show that irrespective of their age groups and employment status, there was no limit to education and opportunities. Also, following the age range of learners from less than 25 years to more than 45 years, Bourlova's (2005) study showed that adult students were seeking educational opportunities that were more appropriate for their circumstances so that they can reconcile their work life with family obligations.

In Nigeria, when ODL is compared with the conventional mode of learning, it has been noted to provide educational equity as primary access of an individual. NOUN provides education to Nigerian learners directly through her own unique admission system and not through the Joint Admissions Matriculation Board (JAMB). In Nigeria, JAMB is a unified method of tertiary examinations by which potential students would have to sit for and pass before they are given a choice of study in their selected higher institutions. It was designed to test higher cognitive objectives such as analysis, synthesis and evaluation (Badmus and Odor 1996), which could be to a disadvantage for certain, groups of people. Thus, in support of the open admission in NOUN, Campbell and Storo (1996) have stated that it enables students to register at any time of the year, thus creating opportunities and building capacity for more people

The number of female respondents who studied Environmental Science and Resource management outnumbered the males. Through this, we agree with the study of Abdelmuhdi et.al, (2010) that when education contributes to the development of women, it has far-reaching and positive consequences for the societies in which they live. Also, the World Bank study (2007) shows that women in the continent of Asia use distance learning to improve their income and to create jobs through which they can help their families and educate their children and in addition to developing their skills, strengthen their self-confidence and learning new things. From the response, this study confirms that ODL is creating access to women, allowing equity between men and women unlike before as in the cases cited above.

The opportunity of Environmental Science and Resource Management in ODL has further broadened the minds of existing workers who work in corporate organisations to have a chance of upward or horizontal mobility, improve their lot and allow for a change of career. This is in line with the assertion of Cano et. al, 2010 who observed that ODL's mode of education guarantees equal opportunities, educational inclusion and the avoidance of discrimination and acts as a compensating element for personal, cultural, economic and social justice, with special attention to those that are disabled. The challenge of this course is that of course material availability. Although most of the course materials have been provided online and in print form for students' use, there is still the challenge of accessibility especially where various internet service providers are slow, or not connecting when they are needed, challenge of electricity. And, learners that are based in the rural areas might find this method discouraging. But, to resolve this problem, the university is improving the I.T service provided at the universities' study centres.

Respondents have rated the course content of Environmental Science and Resource Management delivery and assessment as either good or satisfactory. However, field work had been rated as fair. The study of Vassala (2006) on this area has shown that the possibility of field study as an educational technique in ODL is still a challenge and being developed. For a course such as this, difficulties might exist in terms of time consumed in the preparation and implementation of the field work among diverse learners in various locations/regions. However, NOUN is currently working with tutors at the various study centres to explore field studies which are peculiar to the geographic locations of the learners.

It is hoped that field study will make the education process more active, enable the learners to understand their local environment, develop more skills and competencies and also encourage team work (Vassala, 2006).

### **CONCLUSION AND RECOMMENDATION**

Following the analysis and discussions in this paper, I can conclude that capacity building in environmental management through the course offered at NOUN-Environmental Science and Resource Management is an important area especially in the sustenance of natural and human resources for the present and the future. Through an integrated course such as this and offered through the ODL, skills in environmental monitoring, regulation, management, impact assessment, resource control among could be learnt which will help to protect local environments where learners reside. Through the flexibility of the tutorial and teaching system of ODL adopted by NOUN, the convenience of teaching time and low charges of the course has continued to attract a lot of students and most of the students look forward to a better future in life. In spite of all these however, more work needs to be done in terms of bringing to light the intended purpose of understanding the nature of the environment from the basics especially to people who are not inclined to the science subjects, but who are eager to receive education. Furthermore, as more and more people adopt ODL as a means of achieving higher environmental education, it is believed that the literacy base of the country will advance and the skilled capacity will be boosted. This will consequently bring about increase in equity and equality in terms of employment levels and boost socio-economic development in the country and beyond.

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