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**Special Issue**

**Vol. 3, No. 16, December 2012**

**Guest Editors:**

**Jacinta A. Opara,PhD**

**Cenk Akbiyik,PhD**

**Austin N. Nosike,PhD**

**Fernando A. Ferreira,PhD**

**M.O.N. Obagah,PhD**

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**Introduction**

This is a collection of some selected papers presented at ICBER2012; ICASE2012 and ICSCS2012 held in Port Harcourt, Nigeria. Our conference series academic activities for interested scholars, scientists, technologists, policy makers, corporate bodies and graduate students. The aim of the conferences is to diffuse research findings and create a conductive environment for scholars to debate and exchange ideas that lead to sustainable development.

Following the call for papers by the International Scientific Commission, we received more than 200 proposals from 25 different countries from all continents. As a commitment to the vision and mission of academic excellence and integrity, each paper was anonymously reviewed by two members of the editorial sub-committee of the Commission. This Special Issue contains a selection of some best papers presented at the conferences now published as journal articles for wider readership.

We thank the Management and staff of Mediterranean Center of Social and Educational Research for their support and continued collaboration.

**Jacinta A. Opara,**PhD

*Visiting Associate Professor*,Universidad Azteca,Chalco-Mexico

and

President, African Association for Teaching and Learning

**Table Of Contents**

1. **Rethinking on Drug Abuse and Crime Relationship:**

**An Alternative Explanation for Intellectuals Criminologists ………………..……. 11**

*Usman Ahmad Karofi*

1. **Evaluation of Educational Reforms and**

**Human Capital Development in a Global Age …………………………..…………… 29**

*M.O.N Obagah*

1. **A Study on Women Empowerment in South-Asian Countries:**

**A Contemporary Analysis …………………………………………………………………… 37**

*Shobana Nelasco*

1. **Quality Deterioration of Tomatoes Using**

**Three Different Storage Methods ……………………………………………………...…. 47**

*Bankole, Yakubu and Abanigbe, Samuel*

1. **The Mobile Phones Consumers Protection …………………………………………….. 54**

*Csorba Luiela, Isac Florin, Cureteanu Radu and Rusu Sergiu*

1. **Entrepreneurship and Employability Among Nigerian Graduates ……………… 69**

*Chinyere T. Nwaoga and Faith C. Omeke*

1. **Cultural Heritage Concept, Genealogy and Contemporary Challenges ……….. 76**

*Juliana Forero and Liangping Hong*

1. **Investment in Education as a Means of Economic Development ………..…….. 87**

*Yusuf , M.O and Oyewole Oluwaseun*

1. **The Effects of International Trade on Macroeconomic**

**Stability in African Countries……………………………………………………………….. 93**

*Françoise Okah-Efogo*

1. **Active Learning: Creating Excitement and Enhancing Learning**

**in a Changing Environment of the 21st Century ............................................... 108**

*Grace A. Fayombo*

1. **The Paradox Of Economic Globalization:**

**The Case of the Niger Delta Region ………………………………………………..….. 130**

*Justina Adalikwu-Obiske and Ebere E. Obisike*

1. **The Impact of Climate Change in Nigeria: Implications for Schooling ……… 138**

*Kak’mena Audu Goteng,Hemba Emmanuel Census and Eyimoga Helen Alikeju*

1. **Impact of Climate Change on Grain Yield and Variability in Nigeria:**

**A Stochastic Production Model Approach ……………………………………………. 143**

*G. C. Aye and P.I. Ater*

1. **Agricultural Development and Land Use Pattern**

**in Nashik District of Maharastra, India ……………………………………………...… 152**

*Pagar Mansaram Pandit*

1. **Enhancing the Science, Technical and Vocational Skills**

**of Universal Basic Education Graduates in Nigeria ………………………………… 163**

*Joseph Egbezor Dike, Ray Nwakuche Otunne and Peter C. Echendu*

1. **Human Capital Development In Science,**

**Technology and Mathematics Education:**

**Implications for Sustainable Development in Africa …………………………...…. 170**

*Peter Ojimba Daso*

1. **Classroom Management as a Control Strategy for Promoting**

**Quality Education in Nigeria……………………………………………………………….175**

*Azubuike P. Idu*

1. **Toxicological Implications of Polluted Water from Makera Drain,**

**Kaduna on Some Cereals and Horticultural Crops…………..…………………….182**

*Dadi-Mamud N. J, Oniye, S.J, Balarabe M.L Auta J,Gudugi,I.A.S*

1. **Perception of Undergraduates About Agricultural Extension**

**Education and Agricultural Development Linkage in Nigeria ……….……...… 195**

*Abanigbe, Samuel, Orowole, Pauland Ishola, Jelili*

1. **The Economics of Environmental Protection in Nigeria:**

**Challenges and Prospects ……………………………………………….………………… 204**

*Benneth. K. Obioma*

Rethinking on Drug Abuse and Crime Relationship: An Alternative Explanation for Intellectuals Criminologists

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Abstract

According to the literature on the drug-crime link, there is relationship between abusing drugs and involvement criminal activities. A growing number of literature and empirical research have documented that relationships exists between drug abuse and criminal offences. Through studying a selected sample of three hundred institutionalised drug addicts [inmates] with and without criminal history from two government drug rehabilitation centres in Penang, Malaysia, findings from an empirical research affirmed that indeed relationships exist between drug abuse and involvement in criminal offences. The result of the study reveals that is not in all situation abusers of drugs get involved in criminal activities, even in situation where they do so, abusing the drug alone is inappropriate in justifying their attitudes. In addition to abusing drugs other micro and macro factors should be put in place for proper understanding of their criminal offences.

**Introduction**

In speaking about the drug-crime nexus, Inciardi *et al.* (as cited in Baron, 1999) argue that the drug and crime relationship is interactive. Crime, they point out, finances the use of drugs. Continuous usage of drugs encourages more use of drugs and more use of drugs encourages more crime. According to the literature on the drug-crime link, there is an association between the use of drugs and getting involved in criminal activities. Some social conditions seem applicable to cause both drug use and crime, and many young offenders commit a wide variety of crimes, which include drug use. Even if it is assumed that drug use is not a direct cause of crime, it is unquestionable that a large proportion of youth who get involved with criminal justice agencies (the police, the courts and custodian institutions) are usually regular drug users. Empirical data indicate a correlation between drug abuse and crime. However, drug abuse by itself does not sufficiently explain criminal behaviour (Ramsay and Percy, 1996; Parker, 1996; Ekpenyong 1989).

For instance, Clinard and Meier (1995) state that substance abuse involves violations of norms surrounding the use of alcohol and other drugs, whereas crime involves violation of legal norms of legislature and other government agencies.

According to a United Nation Report (1989), the use of illegal drugs and crime go hand in hand. In so many cases, drug users will literally do anything to obtain enough money to satisfy their drug use habits. The most frequently committed unwanted behaviours by drug abusers are criminal in nature. Drug abusers tend to gain most income by theft, prostitution and drug peddling. There are some apparent relationships between drug abuse and criminal behaviour. A number of these are: crimes committed under the influence of drugs; crimes committed in order to get money or goods to buy drugs and trafficking and a host of other crimes associated with drug distribution (Ibid p. 42). However, initially and as indicated by the literature regarding the occasional user phase, drug use and crime are spuriously related. During the continuous usage, drug use is facilitated, but not caused by, criminal income. Lastly, during the street addict phase, drug use appears to cause crime (See, for instance, Mernard 2001, Sommer and Bakin 1999 and Goldstein, 1985). Thus, although the causal relationship is not unidirectional, substance use in general appears to be a cause or at least a risk factor for criminal and other problem behaviours.

According to Bennett (1998 and 2000), there is clear evidence that as a person’s drug use increases his involvement in criminal activity tends to increase as well. However, it is not in all situations that drug abusers get involved in criminal activities. Even in those situations where they are engaged in criminal activities, it is not sufficient to justify drug abuse as the only attributing factor to their criminal behaviour. Some micro[[1]](#footnote-1)1 and macro[[2]](#footnote-2)2 factors predisposing drug abusers to criminal behaviours must be considered for an adequate understanding of crime as a dependent variable. Present research is meant to further explore the micro and macro factors that lead drug abusers into criminal activities.

**Statement of the Problem**

Bennett (2000) has identified five main explanations connecting drug abuse and criminal activities. The first one is the view that drug abuse causes crime. Goldstein *et al.* (1992), Inciardi *et al.* (cited in Baron, 1999), Mackesy-Amitir and Fendrick, (l999), offered some examples of this explanation. The second one is that crime causes drug use (Bennett, 1998 and 2000; Makkai, 1999). The third one is that both drug abuse and crime are caused by other factors (Becker, 1963; Stephens, 1992; Farrington, *et al.* 1986). The fourth one is that, the relationship between drug abuse and crime is reciprocal (Inciardi, *et al.* 1993). Finally, drugs and crime are not causally connected, but simply coexist within a complex setting of events that include both (Bennett, 2000: 54).

Similarly, Mernard, (2001) presents five explanations linking substance abuse and criminal activity. The explanations are: (a) substance use causes crime; (b) crime causes substance use; (c) substance use and crime directly influence one another in a pattern of mutual causation; and (d) the relationship between substance abuse and crime is spurious. What follows with this explanation is that there are causal variables that influence both substance use and illegal behaviours, and in controlling those variables there is no direct relationship between substance abuse and other criminal behaviours; (e) the final explanation is a blend of the third and fourth explanations stating that substance use and crime may be influenced by the same or similar set of causes, but may also exert some direct influence on each other.

There are a number of arguments that examine the causal relationship between drug abuse and crime. Some argue that most addicts commit economic-associated crimes[[3]](#footnote-3)3 to sustain their addictive behaviour. Others are of the opinion that drug users are more frequently involved in personal crimes like assault, family quarrels, violent crimes, and prostitution. For example, Goldstein (1985) argue that there is a causal relationship between drug use and violent behaviours in what they coin as the `Tripartite Conceptual Framework`. According to him, there are three situations that explain this term: (1) homicide is considered pharmacological when it is the consequence of a short-term injection of a substance that brings about aggression; (2) homicide is considered economically compulsive when a drug abuser feels compelled to engage in economic crimes in order to support his addiction; and (3) a systematic type of homicide (violence) is an outcome of traditionally aggressive patterns resulting from interaction with the system of drug use and distribution.

While the systemic linkage between substance use and crime actually involves illicit drug sales rather than substance use, illicit drug use is a necessary prerequisite to illicit drug sales. It therefore follows logically that the drug market is one mechanism by which substance abuse causes crime. Mernard’s (2001) findings fully support the Goldstein (1985) *Tripartite Conceptual Framework* for this connection with data he obtained from a national sample of teenagers in the United States. He adopts a developmental perspective from adolescence to adulthood. The results of the research in question show that psychopharmacological inducement to offending were evidently attributed to alcohol use and other illicit drug usage. Among street addicts, for instance, economic compulsive motivation played a great role in their participation in property offences. Finally, involvement in illicit drug sales leads to violence.

Again in accord with the Tripartite Conceptual Framework, Spunt and Goldstein (1994) in a sample of 268 homicide offenders incarcerated in New York, revealed four major findings: (1) 250 (96%) of the offenders had used alcohol at some time of their lives; (2) 89 respondents (33%) had experienced some type of effects related to their alcohol use at the time the homicide occurred. A total of 89 respondents (92%) self-reported that they were actually drunk, while a total of 52 (58%) said yes when asked whether their homicide was related to their drinking; 45 (86%) of the total homicides were classified as psychopharmacological and 3 of the 52 alcohol-related cases (6%) were classified as multidimensional.

In another study, Sommers and Baskin (1999) conducted interviews with 156 women from two New York City neighbourhoods with high concentrations of drug selling to find out if there is any relationship between situational or generalized violence with drug networks. They found that the respondents were engaged in a wide range of criminal activities, and almost all of them admitted to being experienced drug users: 70 per cent of them were regular crack users, 47 per cent used cocaine regularly, 41 per cent were addicted to heroin, 38 per cent reported involvement in robbery, 17 per cent were reported involved in burglary, 44 per cent were at some time involved in prostitution, 52 per cent had sold heroin, and 45 per cent had sold cocaine. Moreover, crack, cocaine and heroin addicts were reported to have engaged in criminal activities. Other substance abusers were reported to be involved in assaults. Thus, the researchers concluded that the drug distribution market is viewed as just another domain of community life that is troubled with violence. However, it is not just the drug business that makes sellers and buyers violent, but rather drug selling itself that provides the sub-context that sustains the use of violence within a large social setting, where violence is a general culture.

On the other hand, Bennet (1998), while doing research on a sample of 225 arrestees, found that 75 per cent of the subjects tested positive for at least one drug, including alcohol. The criminal offences that correlated with the use of drugs were income generating offences, such as multiple types of theft, many shopliftings and handling stolen goods, and supplying drugs. In another empirical study between drug use and delinquency, Otero-lopez, *et al.* (1994) established the relationship between delinquents who abuse drugs and their delinquent activities with the following hypotheses: (1) drug abuse causes delinquency; (2) delinquency causes drug abuse; and (3) delinquency and drug use are the outcomes of common causes. Their investigation on 2,022 subjects confirmed a correlation between these variables. However, they suggested that future studies in the area should focus on identifying etiological, psychological and social variables affecting both drug abuse and delinquent activities. Institutional actions against drug abuse and delinquency should not only be directed to individuals, but also to supra individual factors.

Furthermore, Hser, *et al.* (1992) acknowledged that the high level of criminal activity among addicts has raised considerable concern about the direction of causality between narcotics use and crime. Stressing this relationship, they identified three areas: (1) narcotics use leads to, or causes crime; (2) criminal orientation is a necessary antecedent of heroin use, which is an expression or consequence of the orientation; and (3) both crime and narcotics use are the results of a third factor or set of factors, ranging from inter-personal/psychological to environmental/sociological. In their research, Javis and Parker (1989) acknowledge that among their sample of 46 incarcerated hard heroin users, 83 per cent admitted that they resorted to illegal activities to finance their opiate use, 63 per cent had up to 10 offences, against their criminal records.

Another position that explains the relationship between drug abuse and other criminal activities is the learning/sub-culture point of view. The main argument presented by the Sub-culture Theories is that deviant behaviours in general are not only learned through interaction, but are also enhanced through career. In the first stage peer groups train the deviant how to deviate. The second stage is that he/she is rejected by his/her society. After the rejection he/she joins a deviant group in a form of a sub-culture. A beginner of marijuana use must first learn how to use it. Becker (1963), a prominent sub-culture theorist, in his study of how marijuana is used, found that beginners must learn three things: (1) how to smoke the drug in a way that will produce real effects; (2) how to recognize the effects and connect them with drug use (learning in other words, to get high); and finally (3) learning to enjoy the sensations he perceives and to interpret the sensations as pleasurable (Ibid: p. 58).

However, in relation to peer pressure as a correlate of drug abuse, Vicknasingam (1997) studying 400 AIDS and Intravenous Drug Users (IVDUs), found that the peer group influence seemed to be a significant factor in persuading a drug-user to practice risky behaviours. This influence is significant because a certain skill is required for the injection of drugs, and peers initially play an important role in helping a new recruit learn the technical skills. Goode (1989) views that there is a strong correlation between the use of marijuana by one’s friends and the frequency with which one uses the drug. The conclusion at which he arrives is that selective peer group interaction and socialization comprised the probability that the most powerful factors related to drug usage among adolescents are imitation and the social influence. They play a significant role in initiating and maintaining drug use among teenagers.

It is often hypothesized that in the process of their development from adolescent to adulthood, children learn patterns of behaviour, whether prosocial (social behaviour that is condoned) and or antisocial (behaviours which are accepted to be anti-social), from the socializing agents of family, school, religious and other community institutions, and their peers. Socialization then follows the same processes of learning whether it produces prosocial or antisocial behaviour. Children are socialized through processes involving four constructs: (a) perceived opportunities for involvement in activities and interactions with others, (b) the degree of involvement and interaction, (c) the skills to participate in these involvements and interactions, and (d) the reinforcement they perceive as forthcoming from performance in activities and interactions. When socializing processes are consistent, a social bond develops between the individual and the socializing agent. This social bond, once strongly established, has the power to affect behaviour independently by creating an informal control on future behaviour. This control inhibits deviant behaviours through the establishment of an individual's "stake" in conforming to the norms and values of the socializing unit (Mernard 2001: 6).

Catalano and Kosterman (1996) also observed that the social developmental models provided a great deal of knowledge regarding the effects of empirical predictors, or "risk factors," in the development of antisocial behaviour. They further empirically revealed that multiple biological, psychological, and social factors at different levels in different social domains (i.e., within the individual and in the family, school, peer group, and community) all contribute in some degree to the development of such problems as delinquency and drug use. Other empirical studies that further support peer pressure, learning and sub-culture as important yardsticks of associating drug use and criminal behaviour among others are: Farrington *et al.* (1986); Navaratnam and Foong (1988); Baron (1999); Acarid *et al.* (2000) and Miethe and Meier (1994).

Other researchers, however, consider socio-economic factors as the causal factors to both drug abuse and criminal offences. These factors include environment, poverty, broken homes, urbanization, and improper family socialization, among others. Ramsay and Percy, (1996), Johnson *et al.* (1995), Leslie (1989), Miller, *et al.* (1989), McCarthy & Hagan, (1991) and Farrington *et al.* (1986) are all in agreement that socio-economic factors are pertinent in any meaningful search for the reasons why individuals engage in drug abuse and other criminal offences.

Ramsay and Percy (1996), for instance, conducted a study to establish an association between drug use (which is treated as a dependent variable) and socio-economic factors such as unemployment, poverty and running away from home (seen as independent variables). Using a national representative sample of 14,500 household subjects in the United Kingdom, they found that: (1) cannabis is the most popular drug, one-third of the sample aged between 16 and 19 trying it; (2) 20 per cent of the same group reported as drug users in the last month; (3) drug use consumption is lower with the increase in age; (4) 22 per cent of males and females aged 30 - 59 had taken drugs some time or another; and (5) drug use was reported more by males than by females. However, like any other national household survey, that study had the following limitations: (1) it could not reach those on the fringe of society who did not live in households reachable by survey teams; (2) the age range it covered more than 16 and less than 60 for self - drug exercise was not broad, and could therefore not be used for generalisation purposes.

According to Johnson, *et al.* (1995), sales of crack were strongly associated with increased violence, property crimes, assault, and prostitution. This increased with the frequency of crack cocaine use, as the study on 1,003 drug abusers and sellers proved. The dependent variable was crack use, and drug-associated crimes as independent variables. However, the researchers noted, while discussing their results, that: (1) drug use, abuse and addiction were complex issues with multiple causes and effects, (2) a variety of factors, including personal psychological, family, peer group pressure, and environmental factors could be attributed to drug problems. A significant limitation of their study, however, as it is for the present one, was the exclusion of recreational users of drugs from the working, middle, and upper socio-economic classes.

In a study of strain, personality, and delinquency Robert, *et al.* (2002) found among the variables of their study that**,** most of the strains examined have a significant relationship with delinquency. In particular, they discovered that: (1) delinquency is higher among those who experience family, school, and neighbourhood strain; (2) it is higher among certain categories of juveniles experiencing peer abuse; and (3) the effect of the strain variables is particularly noteworthy, and Lastly four of the six strain variables have significant positive effects on delinquency: family strain; parents lost of control; school hatred, and neighbourhood strain.

The above mentioned empirical review prompted the conduct of this study, to make similar research in the drug crime nexus in Malaysia. This research is devoted to studying the relationship between drug abuse and criminal activities in Penang. Much has been researched and written about the epidemiology of drugs in Malaysia, but there was no single local study devoted to the understanding and explanation of the reasons as well as the causes for abusing drugs and getting involved in criminal activities among drug using populations. While the use of certain categories of drugs cannot be attributed to some kinds of criminal offences, literature suggests that those who abuse expensive drugs like marijuana, ganja, heroin, cocaine and other illicit drugs, often command funds to sustain their addictive behaviours, which, in turn lead them to a wide range of criminal behaviours in order to sustain their drug addictions. Other crimes associated with drug addiction of course include those crimes that result in the distribution and marketing of drugs and or crimes like corruption, fraud, embezzlement, money laundering that are linked to drug trade in general.

**Method and Participant**

The study is about three hundred drug addicts who were drawn from two Government Drug Rehabilitation Centres in Penang, by stratified and systematic sampling procedures. The population was one thousand drug inmates with and without criminal history. To begin with, an ideal sample size was made N=300. This figure was arrived at based on Blaikie’s (2000) sample determinant for varying populations. According to Blaikie, while large populations may need large samples than smaller populations, the ratio of population size to an appropriate sample size is not constant, for example: for population around 1,000, the ratio might be about 1:3 a sample of about 300 (P. 208). To obtain the sample elements, an inmate roster was used. The inmate roster was obtained from the authorities of the two Drug Rehabilitation Centres. The population distribution according to ethnicity was as follows; 483 were Malays, 305 were Chinese, 210 were Indians and only 2 respondents belonged to other ethnic groups.

The sampling process began with stratification of the population into four strata according to ethnicity. This was followed by a preparation of four specific lists. In order to obtain the sample elements, the selection techniques were that for every fourth person on the list, one was selected. The rationale for using the stratified sampling procedure in the selection of the study elements/respondents across the four ethnic groups was to ensure that the sample was as homogenous as the population from which it was drawn and was based on the guidelines drawn by Blaikie (2000) and Kish (1965). This was done to control for under and over representation of respondents from the four ethnic groups. In this way, it guaranteed the two respondents belonging to other ethnic group an equal opportunity of representation.

**Research Questions**

The study provided answers the following questions:

1. What is the relationship between drug abuse and criminal activities?
2. To what extent are drug abusers involved in criminal activities?
3. Why are drug abusers engaged in specific types of criminal offences?
4. Why are drug abusers involved in criminal activities?

**Results**

**Research Question 1**

A series of questions were asked to solicit information from the respondents based on self-report and on the relationship between their use of drugs and involvement in criminal activities. For example, “Did you commit crime to support your drug use habit?” Table 1 below describes the responses provided by the respondents.

***Table 1*** *Commit Crimes to Support Drug Use*

|  |  |  |
| --- | --- | --- |
| “Did you commit criminal acts to support your drug use habit?” | | |
|  | Frequency | Percentage |
| Yes | 113 | 39.1 |
| No | 158 | 54.7 |
| Missing | 18 | 6.2 |
| Total | 289 | 100.0 |

According to Table 1 above 113 respondents (39.1%) attributed their involvement in criminal activities to support their use of drugs, whereas 158 respondents (54.7%) do not commit criminal offences at all, or their involvement in criminal activities had nothing to do with their drug use habit. But beyond this, the big differences between the yes and no responses of the subjects’ indicate that abusing drugs might not in all situations predispose the drug abusers to commit crime. Concerning those who said yes, abusing drugs might thus be among a series of factors that lead addicts to be involved in criminal activities

Additionally, there were two other items that were added in the questionnaire (with five response categories ranging from Strongly Agree to Strongly Disagree) (1) “There is a relationship between your casual drug(s) use and your criminal activities” and (2) “There is causal relationship between your criminal activities and casual drug use”. The responses to the above two items are presented in Table 4.8 and 4.9 respectively.

***Table 2*** *Relationship between Your Drug Use and Criminal Activities*

|  |  |  |
| --- | --- | --- |
| “There is a causal relationship between your casual drug use and your criminal activities” | | |
|  | Frequency | Percentage |
| Strongly agree | 40 | 13.8 |
| Agree | 58 | 20.1 |
| Undecided | 63 | 21.8 |
| Disagree | 87 | 30.1 |
| Strongly disagree | 26 | 9.0 |
| Missing | 15 | 5.2 |
| Total | 289 | 100.0 |

***Table 3*** *Relationship between Your Criminal Activities and Drug Use*

|  |  |  |
| --- | --- | --- |
| “There is a causal relationship between your criminal activities and your casual drug use” | | |
|  | Frequency | Percentage |
| Strongly agree | 34 | 11.8 |
| Agree | 55 | 19.0 |
| Undecided | 71 | 24.6 |
| Disagree | 88 | 30.4 |
| Strongly disagree | 26 | 9.0 |
| Missing | 15 | 5.2 |
| Total | 289 | 100.0 |

In Tables 2 and 3 above 98 respondents (33.9%) and 89 respondents (30.8%) reported that indeed a relationship exists between their drug use and their engagement in criminal activities. However, in both cases 63 respondents (21.8%) and 71 respondents (24.6%) were undecided about the relationship. Putting together “Disagree” and “Strongly Disagree” 113 respondents (39.1%) and 114 respondents (39.4%) respectively might either not have had any criminal involvement or found no relationship between their drug use and criminal activities and vice versa.

From Tables 2 and 3 the results indicate that the respondents understood the two items[[4]](#footnote-4)4, because the percentages obtained in both the tables are quite similar. This interpretation shows acceptance of the view that there might be other factors[[5]](#footnote-5)5 rather than drugs could be responsible for causing drug users to commit crimes. Drug abuse might not be a major contributing factor but might be one among many factors.

**Research Question 2**

Furthermore, to ascertain the type of crime the respondents were involved in, with the primary aim of supporting their drug use habits, those who answered yes (n = 113) were further asked to state which offence type they had committed. Based on Table 4 below, 5 respondents (1.7%) reported personal crimes, 3 respondents reported petty crime, (1.0), with 5 (1.7%) who reported drug related offences, and finally a substantial number, 105 respondents (89.0%) reported being involved in property offences. This is an indication that drug addicts might resort to criminal activities which are income generating, i.e. economic-associated crimes in order to sustain their use of drugs.

***Table 4*** *Type of Offence N=118*

|  |  |  |
| --- | --- | --- |
| “If yes, which type of offence?” | | |
|  | Frequency | Percentage |
| Personal crimes | 5 | 4.2 |
| Property crimes | 105 | 89 |
| Petty crimes | 3 | 2.5 |
| Drug related crimes | 5 | 4.2 |
| Total | 118[[6]](#footnote-6)6 | 100.0 |

Moreover, the data above (Table 4) shows that the relationship does exist between drug use and involvement in criminal behaviours. Thus, it is further assumed that what is illustrated in the table above, is in accord with the theoretical arguments that involvements in criminal activities by the drug using population might be economic-compulsive. This is true especially among the street drug user population from which the majority of the drug inmates in Government Drug Rehabilitation Centres were drawn.

Another opinion item requested the respondents to inscribe which type of drug(s) is related to which kinds of criminal activities. About half of the research respondents who answered the question according to Table 5 below 132 (45.7%) said that heroin is related or may lead the user to commit property offences, 8 respondents (2.8%) documented personal offences, 4 subjects (1.4%) wrote petty offences, and only one respondent (.3%) wrote drug related offences. As far as whether cannabis is related to crime, 27 respondents (9.3%), said it is related to property kinds of offences, 14 respondents (4.8%) reported personal type of offences, 3 respondents (1.0%) wrote that it had to do with drug related offences and only one respondent (0.3%) wrote the use of cannabis is associated with petty offences. Thus, the table (4.14) offers evidence in favour of the conceptual position, which argues that drug use among a user population could be economic-compulsive. This means that drug abusers may be compelled to become involved in income - generating offences in order to support their drug use habits. The table explains that the independent analysis on heroin and ganja is associated with property kinds of offences.

***Table 5*** *Type of Drugs associated with Type of Crimes*

|  |  |  |  |
| --- | --- | --- | --- |
| Type of Drug | Type of crime | Frequency | Percentage |
| Heroin | Property offences | 132 | 45.7 |
|  | Personal offences | 8 | 2.8 |
|  | Petty offences | 4 | 1.4 |
|  | Drug related crimes | 1 | .3 |
|  | Missing values | 144 | 49.8 |
| Cannabis (Ganja) | Property offences | 27 | 9.3 |
|  | Personal offences | 14 | 4.8 |
|  | Petty offences | 1 | .3 |
|  | Drug related crimes | 3 | 1.0 |
|  | Missing values | 24 | 84.4 |

As presented above, it can be concluded that the evidence provided by the self-reported data combined with the opinions expressed by the respondents suggested the existence of a relationship between drug abuse and criminal activities.

**Research Question 3 and 4**

In order to answers the why questions # 3 and # 4 a regression analysis was conducted. The selected regression analysis was the binary logistic model. The remaining section presents the logit analysis results.

Logit analysis was selected in this study. Logit analysis was selected because it allows us to use a dichotomous dependent variable. The dependent variable of this study is dichotomous and measures whether or not the inmate was involved in criminal behaviour to support his drug use habit (It takes a value of 1 if the answer is yes and 0, if otherwise). To understand the effects of the independent variables more fully, Logit analysis allows us to estimate the probability of an event occurring, given a set of independent variables. Hair *et al.* (1995) argued that one of the advantage of the Logit analysis is that we need only to know whether an event (in the case of this research crime) occurred or not, this allows the use of dichotomous value as the dependent variable. From this dichotomous value, the procedure predicts its estimate of the probability that the event will occur or will not occur, if the predicted probability is greater than .50, then the prediction is yes, otherwise no (Ibid, p.131).

The logit model can be written as follows:

P

Log = ßo + ßi Xi + ß2 X2+…+ ßnXn + ε

1 - P

Where,

*P = the probability of committing crime to support drug use habit;*

*Xs = explanatory variables hypothesized to influence the above probability. These variables are Peer Group, Urbanization, Poverty, Environment, Marital Status, Ethnicity, No education/only Primary education, Broken Home and Age*

*ßs= estimated coefficients of the explanatory variables;*

*є = stochastic disturbance term.*

The formula is sourced from Hair, *et al.* (1995:131).

The criteria for including an independent variable into the logistic regression equation were the predictions drawn from theories. The logit model built in this study therefore includes the above-mentioned independent variables that were found to be theoretically important in explaining the inmates’ involvement in criminal activities to support their drug use habit. The programme used was SPSS for Widows Version 11.5.

***Table 6*** *Estimated Logit Model or Factors Determining the Decision to be involved in*

*Criminal Activities to support Drug use habits*

|  |  |  |  |
| --- | --- | --- | --- |
| Independent Variables | Estimated Coefficient | Std Error | Pro. Value |
| Presence of Peer Group Pressure | 4.1196 | 1.2218 | .0007\* |
| From Poverty Household | -.7275 | .5686 | .2007 |
| Having Urban Residence | 1.9301 | .9316 | .0383\*\* |
| Environmental Influence | 1.6113 | .7323 | .0278\*\* |
| Single | .3809 | .8139 | .6398 |
| Malay | 1.2284 | .8734 | .1596 |
| No/Primary Education | 1.9822 | .8148 | .0150\*\* |
| From Broken Home | .0692 | .6815 | .9191 |
| Age (21-30) | -.0222 | .7989 | .9778 |
| Constant | -3.2523 | 1.6414 | .0475 |

*Note:* ***\*\*****Significant at the 5 percent level or better,* ***\*****Significant at the 1 percent or better*

Results from the table can be interpreted as thus:

The results in the above Table 6 (column two) suggest that the log of odds of an inmate, (i.e. drug abuser) committing crime to sustain his addiction to drugs is significantly and positively affected by peer pressure, and if he had resided in an urban area and has attained only primary school or no education. In addition, his environment also influences him. The factors that significantly encourage involvement in criminal activities to support drug use habit are peer group pressure, urban residence, environmental influence and having primary or no education.

Other factors like age, being Malay and poor, and coming from a broken household were not significant. This invariably suggests that when all other factors are controlled for, these factors had no independent or significant impact on criminal activities which addicts of drugs are involved in. Nevertheless, the negative sign associated with age suggests that the older inmates are more prone and likely to be involved in criminal attitudes than those in the young category. More interesting is the fact that the coefficient of poverty, thought not significant, carries a negative sign. Those who attributed poverty as one of the causes of their criminal behaviour were found to be less involved in criminal activities. This again, suggests that poverty per se many not be an important predictor of criminal behaviour as far as the sample of this study is concerned.

***Table 7*** *Marginal Effect on the Odds to be involved in Criminal Activities to support Drug use habits*

|  |  |  |
| --- | --- | --- |
| Independent Variables | Estimated Coefficient ß | Change in Odds Exp ß |
| Constant | -3.2523 |  |
| Presence of Peer Group Pressure | 4.1196\* | 61.5331 |
| From Poverty Household | -.7275 | .4831 |
| Urban Residence | 1.9301\*\* | 6.8903 |
| Environmental Influence | 1.6113\*\* | 5.0094 |
| Single | .3809 | 1.4636 |
| Malay | 1.2284 | 3.4159 |
| No/Primary Education | 1.9822\*\* | 7.2588 |
| From Broken Home | .0692 | 1.0717 |
| Age (21-30) | -.0222 | .9780 |

*Note:* ***\*\*****Significant at the 5 percent level or better,* ***\*****Significant at the 1 percent or better*

The results in the above Table 7 above shows that out of the nine (9) explanatory variables, all with the exception of five (5) significantly affects the decision by the drug abuser to commit crime to support drug use habit. However, as predicted the result vividly confirms the early position adopted in this research, that not in all situations do drug abusers involve themselves in criminal activities. And even in those situations where they do so, drug abuse is insufficient to fully explain their decision. Other micro and macro factors should be considered. The results as obtained in the previous table attest to the foregoing.

By taking the antilog of the log of odds, in Table 7 we derive the impact of each variable, on the odds of an individual (here, inmate or the research respondent), resorting to crime to support his drug use habit (Column 3, Table 7). The strongest influence, on the odds of resorting to crime is peer group pressure. The odds of resorting to crime increase by 61.5 times, among those subjected to peer group pressure, relative to those who were not, other factors remaining constant.

Similarly, urban residence increases the odds of committing crime to support drug use habit by 6.9 times relative to those living in non-urban areas, holding other factors constant. Controlling other factors, the results also suggest that the likelihood of resorting to crime to support the drug habit is 7.3 times higher among poorly educated or non-educated inmates. And environmental influence raises the likelihood of crime by about 5 times.

In summary, the results of the above analysis suggest the following conclusion. Peer group pressure is the strongest predictor of inmates’ involvement in criminal behaviour, to support their drug use habits. The lack of education or just primary education comes close second important predictor. Urban residence and environmental influence are the next in importance. However, poverty, ethnicity, marital status and being from a broken home and age do not seem to be good predictors in the sample of this study. This position is justified in the literature review section in the dissertation, from which this paper was written.

**Discussions**

The findings of this study have revealed that there is a considerable relationship between drug abuse and involvement in criminal activities. This result is in accord with both national and international empirical studies. As documented by the research results, heroin and cannabis were the most popular drugs being abused by the respondents. At the national level, Navaratnam *et al.* (1990) also ascertain that heroin was the primary drug used by their respondent. In another study by Hj. Mustapha (1996), he discovered that the two main drugs abused in Malaysia were heroin and cannabis, with 88 per cent abusing heroin and 11 per cent abusing cannabis. Government data in Malaysia also documented that heroin and cannabis are the commonly abused drugs (see, for example, Dadah, 1992; National Drug Information System April 2000; January – December 1999; and January – December 2000).

At the international level, the National Drug Research Centre of University Science Malaysia (1996), in presenting the Patterns and Trends of Drug Abuse in Selected South Asian Cities, acknowledged that heroin was the main drug abused in Colombo, Dhaka and New Delhi. The findings of this research are also consistent with those found in the United States by Jones (1999). She reported that amongst 11,000 drug addicts who entered drug treatment programs between March and July 1995 the majority were heroin users, and were responsible in part for 700 crimes in the three months before treatment.

Bernholz (2002) presenting the drug abuse scenario in Africa found that cannabis was used extensively in all 10 countries, and reported by far as the most prevalent drug; cocaine, and heroin (used in all 10, but widely so in South Africa and infrequently in Ethiopia), synthetic drugs including LSD, and an "other" class that included solvent abuse. The linkage between local preferences and local drug production and distribution encompasses traditional uses and historical aspects, including the legal and centuries-old production of khat (Celastrus edulis) in Ethiopia and Kenya.

Makkai and Doak (2000) also indicated in their sample of police detainees in Australia whoare criminally active that: (1**)** 62.9 per cent had one charge against them, (property offences, 40.9 per cent, as the most common violent offences, 31.1 per cent, and offences against justice procedures 11.7 per cent), (2) trafficking charges, excluding drunk driving 9.4 per cent; (3) among the 28 violent offences, the largest proportion tested positive to cannabis, (46.4 per cent) to opiate 32.1 per cent, and to benzodiazepines, 17.9 per cent; (4) of the respondents charged with offences against justice procedures, 64.0 per cent tested positive to cannabis and 32.0 per cent tested positive to opiates. DUMA (Drug Use Monitoring in Australia) shows illicit drug use to be wide spread among detainees. Among the detainees who provided urine sample the results confirmed that 75.1 per cent tested positive to at least one type of drug. Participants were most frequently detained for property offences (40.9 per cent) almost similar to the findings of this research. The range of offences indicates that drug use is a factor predisposing persons to a variety of crimes. Makkai and Doak (2000) thus conclude that large numbers of police detainees, regardless of their offence type, are drug users. Policy wise, they suggest that the promotion of treatment diversion potions should be a priority of the government in order to break the drug - crime nexus.

The data of this research indicates that socio-economic factors (environment, urbanization) have influence on getting involved in criminal activities in order to support drug use habit by drug abusers. However, it is worth noting that, as was anticipated, these factors are crucial predictors of criminal behaviour in general. Controlling of other variables, poverty according to multivariate (logistic regression) results has emerged to have no link with criminal activities among and within the study sample. The result of the present study is not in agreement with Schinke *et al.* (Cited by Cabrera 1999), who found that poverty,had stronger influence on drug abuse and crime. Baron (1999) also found that those who were more active in robbery on streets were heavy marijuana users. He posits that homelessness and poverty are predictors of hard drug use. Consequently, constant need of funds to ensure availability of drugs and alcohol among youth necessitates the undertaking of criminal activities.

The results of Pfeffer and Cole (1998) are also not in accord with this present research. Their discovery attests that poverty is an important predictor of drug abuse and committing criminal offences. Making a comparison of youth crimes among British and Nigerian children, they discovered that the Nigerian students more frequently gave environmental explanations such as poverty, (33 per cent) and lack of home training (19 per cent) whereas, the British students, (37 per cent) used drugs for fun.

Over the course of the past century, criminological research in the ecological tradition has continually discovered that the concentration of interpersonal violence in certain neighbourhoods, especially those characterized by poverty, the racial segregation of minority groups, and single-parent families. A number of studies have used survey data from 5,302 Seattle residents nested within 100 census tracts (Miethe and Meier, 1994) to investigate the connection between social processes and crime. It should be noted that the data presented here indicated that ecological factors, like environment and living in urban centres had a great contribution towards drug abusers involvement in crime to support their drug use habits.

Environment has been correlated with criminal behaviour at 0.05, urbanization at 0.01 and peer group at 0.01 significant levels in the bivariate analysis and all the three had also emerged to be strong predicting factors in the logistic model as the most important reasons why drug abusers get involved in crime to support their drug use habit. Environments and neighbourhoods with strong collective efficacy may be more resilient and therefore not experience higher crime rates. However, in dwellings where there is persistent poverty as while as informal control is absent, these areas are bound to be crime-producing environments (Shaw and McKay 1942; Miethe and Meier, 1994). Robert *et al.* (2002) are of the opinion that gangs typically commit their crimes close to where they live and hang out, so these gangs also disproportionately affect their own ethnic communities, even if some tend not to victimize people in their own neighbourhoods.

Consistent with the findings in this study, in their classic work, Shaw and McKay (1942) argued that low economic status, ethnic heterogeneity, and residential instability led to community disorganization, which in turn accounted for delinquent subcultures and ultimately high rates of delinquency. Stephen, *et al.* (1999), observed that family structure of a child is an important factor in the development of early onset and serious offending. Moffitt (1993) claims that a weak family structure is one of the primary features of a disadvantaged environment.

As in the case of the findings in this research, most studies of community violence focus solely on relatively poor neighbourhoods, it seems apparent from the few comparative studies that economic disadvantage gives rise to increased exposure. Esbensen and Huizinga (1999), in a study of 11–15-year-olds in Denver, found that neighbourhood type specifically, neighbourhoods characterized by poverty and unemployment and such variables as ethnic diversity, high density, and mobility was related to rate of personal victimization. In another large study of 2248 Grades 6, 8, and 10 students in New Haven public schools, Schwab-Stone *et al.* (1995), reported that the poorest children (those enrolled in the free-lunch program) were more often witnesses of severe community violence. It seems more likely that community economic resources protect against exposure to violence in a variety of ways: such as providing attractive alternatives to hanging out on the street, after-school and summer programs; better policing and neighbourhood surveillance and law enforcement.

Two situational parameters, location and time, have been found associated with increased risk for exposure to community violence for youth. As in the case of the results of this study, Bell and Jenkins (1993) consider inner city and core metropolitan neighbourhoods as high-risk areas for violence, including both homicide and potentially lethal violence such as assault. Goldstein, *et al.* (1992), comparing 339 inner-city adolescents with 435 adolescents in a resort community, found that the former were more often victimized and witnesses to assaults, rapes, knifings, life-threatening events, and murders.

Furthermore, there are a number of studies, akin to this study, which have attributed the increase in crime to be environmental and neighbourhood factors (See for example Baron 1999; Ekpenyong, 1989; Ramsey and Percy, 1986; Van, 1996; Farrington, 1986; McCarthy and Hagan 1999). Bowen and Bowen (1999), for example, found in a national probability sample of 2099 middle and high school students that students' perceptions of school danger and of problem behaviour by youth in their neighbourhoods as well as self-reports of exposure in the preceding 30 days predicted school-related problems (e.g., suspensions and school complaints to parents).

In addition, like the discovery in this study, Sampson *et al*. (1997) have devoted extensive attention to measurement of neighbourhood-level social and physical variables and their relationship to crime in general and adolescent delinquency in particular. Sampson's construct of collective neighbourhood efficacy—"social cohesion among neighbours combined with their willingness to intervene on behalf of the common good" (Sampson *et al*., 1997) results in what he terms informal social control found to significantly inhibit delinquency even when prior neighbourhood crime was taken into account.

Appiahene-Gyamfi, (2003) also addressed environmental issue as predictors of criminal offence in a highly urban community in Accra Ghana, his findings are consistent with the present one, he discovered that: (1) the majority of victims of violent crimes were males, but 73 percent of the victims of swindling, extortion, and fraud were females; (2) (34) percent of the fraud, swindling, and extortion victims had come to Accra from the countryside, in some cases for the first time, to transact business or in search of job opportunities; and (3) crimes occur in response to complex interactions among social, economic, political, physical, and psychological conditions and environments, but ultimately, crimes are committed within specific geographic spaces and involve the convergence and interaction of motivated offenders, suitable targets, and the absence of capable guardians.

This research supported environment as a predisposing factor to criminal activities, especially, crime committed by addicts of drugs to support their drug use habits, Moffitt (1993:682) also stated: "It is now widely acknowledged that personality and behaviour are shaped in large measure by the interactions between the person and the environment.” In addition, Moffitt (1993:680-685) claims that important measures of this type of disadvantaged environment include socio-economic status and family structure. In fact, studies predicting early onset or persistent, serious, and violent offending, or both, have used both socio-economic status and poor familial environment (Sampson *et al.*1994) as indicators for disadvantaged environments. The findings in this study is also similar the findings of Stephen, *et al.* (1999), who attributed the relative proximity of blacks in racially segregated urban areas combines with weak social organization and limited access to labour markets to contribute to black interracial homicide offending, while isolating and protecting whites--spatially and economically--from black interracial homicide offending.

Findings from previous studies by Brantingham and Barantingham (1991) are consistent with the present one. It was reported in their findings "Crime does not occur in a vacuum, but is influenced by site design, location; by the social setting and situation; by the routine movement of victims and offenders" (P.240). Burgess, (1925) also argued that crime was concentrated at the centre and gradually decreased in concentration when moving further away from the city. Social disorganization theory proposes urban areas that have more poverty also tend to have high residential mobility and racial and ethnic diversity, and therefore, experience more crime. The higher crime rates likely result from residents' inability to maintain informal social control over each other Stephen, *et al.* (1999).

**Conclusion**

This paper is based on a research conducted to specifically study the relationship between drug abuse and criminal behaviour using drug addicts in government rehabilitation centre in Penang, Malaysia,. An attempt has been made to answer the following questions: What is the relationship between drug abuse and criminal behaviour? To what extent are drug abusers engaged in criminal behaviour? Why are drug abusers engaged in specific types of criminal behaviour? And why are they engaged in criminal behaviour?

The following objectives have been pursued: to understand the relationship between drug abuse and criminal activities; to identify, describe and explain the types of crimes committed by drug abusers; to understand the reasons why drug abusers are involved in specific types of criminal activities; and finally to explain the causes why drug abusers are engaged in criminal activities.

To answer the questions as well as to achieve the objectives, a quantitative methodology has been adopted. Drawing a sample from two Government Drug Rehabilitation Centres, in Penang Malaysia, the study has found support for the initial assumption that a relationship exists between drug abuse and criminal activities. The objectives of the research have also been achieved. The study respondents attributed their involvement in criminal activities to both micro factors and the macro factor. The findings suggest that major causes and reasons of criminal activities among the sample are peer group pressure, poor education or no education, living in an urban settlement and environmental influence. For a proper and ample understanding of crime as the dependent variable, some micro and macro factors must be put in place. As revealed in the research, drug abuse added to peer group pressure; urban living, environment and lower level of education were the reasons why abusers of drug get involved in criminal activities. This holds true of the sample of drug addict in Kampung Selamat and Bukit Mertajam in Penang. The results found are consistent with previous empirical studies (see for instance Becker, 1963; Baron, 1999; Otero-lopez, *et al.* 1994, Goldstein, *et al.* 1992 among others). Indeed, the findings of this study show that variables drawn from micro factors (learning theories) and macro factors (Strain/Anomie Theories) blended together to give better explanations with regards for the search for the reasons behind why drug abusers become involved in criminal activities.

The results have been discussed in the context of the Sociological Perspective, adopting the Integrative Theoretical Framework that merged micro and macro explanations attributes as causal model for problem behaviour, including abusing illicit drugs and getting involved in criminal activities. However, the findings have broader implications of Traditional Theories and the contemporary blending of them, as in the Integrative Perspectives in criminology. While, demanding to use the Social Control Theories, the results are encouraging to the adherents of Socialization Theories, such as, the Differential Association (Sutherland and Cressey, 1974 and the Social Learning Theory Akers, 1985).

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Evaluation of Educational Reforms and Human Capital Development in a Global Age

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Abstract

Our concern is lecture is basically an evaluation of the National 10 – year Development Plan on Educational Reforms and The part of NEEDS policy on the making of Millennium Development Goals. MDGs in 2005. The Policy provisions were critically evaluated as to what extent they have gone midway into the Targeted year 2015. It was found that by year 2010, the implementers of these 10 – years –Development plan have not gone near 45% of what should be 100% by 2015. The UBE and MDGs goals may end up as mere pipe dreams and a drain on the national resources if double Efforts are not made now to strengthen the resolve to achieve these set goals. It was recommended that all the policy options in all the section of our educational system must be vigorously pursued in order to attain these goals we have set for our nation Nigeria

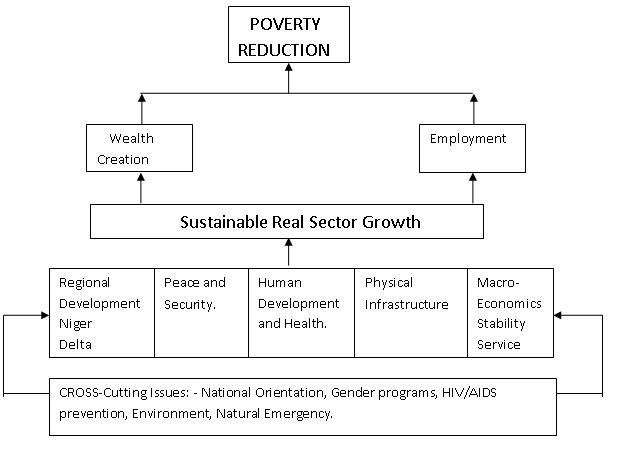
**Introduction**

The evaluation of Educational Reforms and Human Capital Development in Nigeria of our Vision in 2010 is to be based on the recent development plans which are linked to the 1999 Constitution. The current reform policy of the government revolves around the 10 – yearStrategic plan by the Federal Ministry of Education as well as the NEEDS document (2004). The Reform is intended to overhaul the entire education sector and to promote quality education For life - skills acquisition, Job creation and poverty eradication. It will put in place a sound Frame work that will enable implementing to widen access, increase equity and enhance the quality of educational provision.

The National Economic Empowerment and Development Strategy (2004) is not just a plan, it Defines a process of development anchored on a clear vision, sound values and enduring Principles. The most recent articulation of the vision of NEEDS is embodied in the 2001 Kuru Declaration as follows:

To build a truly great African Democratic country, politically united, integrated and stable, Economically prosperous, socially organized, with equal opportunity for all and responsibility from all, to become the catalyst of (African) Renaissance and making adequate all-embracing contributions, sub-regionally and globally (p.27).

The Strategic Framework For Policy Guidelines And Reformation:



***Figure1:*** *The strategic framework for policy Guideline for Reforms and Human Capital Development.*

*Source: Seven Point Agenda: The Nigerian Project on Human capital Development.*

*Siteresources. World Bank.org.pointpolicy Nigeria.pdf.*

Figure1: is highly instrumental to the guidelines the Nigeria Authorities are expected to follow in reaching some decisive goals on human capital development in our Educational system. As much as the government is fully abreast of the need to create Wealth and provide full employment in order to reduce poverty; the real sector growth Is underpinned by an array of other problems as shown in the schema. The Human Capital development and Health is seen central in the entire reformation process. The underground problems and issues are not to be neglected for they are equally very Important in the entire scheme. This strategic framework therefore gives the foundation On which the reformation in education and the human capital development was based. Therefore the final outcome of this evaluation process will take a full account of how The originating policy statements by the governments where achieved partly or wholly. The cross-cutting issues as shown in this schema are equally very important to the total Outcome of this exercise.

**The Projected Government Policies For Reformation & Human Capital Develpoment**

The main policy that guided the Nigerian government at the Federal, State and Local Levels given other challengers are as follows: It was envisaged by these tiers of Governments that when these policies were successfully implemented that sustainable and desirable changes were very feasible. These include:

* Provision of adequate resources for the entire education sector and improving the
* efficiency and effectiveness of the use of available funds for the implementation of
* The MDGs and UBE program, especially at the state level. The current levels of public
* Spending is insufficient to fill the financing gap to achieve UBE and improve the quality and relevance of post-basic education in Nigeria. Further increase in support to the educational sector through additional resources mobilization from domestic (including the private sector), development partners and other interventional agencies is required.
* Physical Rehabilitation of all secondary and primary schools in the country using additional 0.1% besides the 2% contribution to the Educational Tax Fund (ETF) and partnering with private sector.
* Develop at least 10% computer and internal access in all primary schools, at least 30% in all secondary schools and at least 70% in all tertiary institutions.
* Encourage local internet companies to sponsor connectivity to schools.
* Provision of free textbooks in primary and secondary schools.
* Strengthening the capacity of the ministry of education and its relevant institutions at all levels of government for planning and management and the operationalizing of the federal government 10-year Education Sector Plan.
* Design and implementation of the state education reforms based on the ongoing Federal Education reforms.
* Removing barriers to girl’s basic education especial; in the Northern regions and boys schools drop-out in the Southern region including community mobilization and advocacy, recruitment and development of woman teachers and improvement of physical facilities.
* Design and implement strategies to increase school enrolment, train, increase and retain the number of teacher at all levels of education. The currents efforts by the Federal Government to provide one meal per day for every pupil at the primary school level should be sustained.
* Preparation of a National Post Basic Education Strategy, focused on Science and Technology, quality innovation in line with the objective of NEEDS that will re-align education with needs of labour market.

These were the basic policy thrust to guide the implementation of the modern reforms in education and ensure that there is complete improvements in the development of human capital in Nigeria at all fronts. In addition to the educational sector reforms’, there is other initiatives that have been introduced by the current government for the implementation of Government’s 10-year Strategic Plan (2006 – 2015). These are what we shall term as structural and institutional reforms. (The Seven Point Agenda: - The Nigeria project (2006). These new areas focused on the following:-

**Structural And Institutional Reforms**

It is instructive to remark that in July 2006, the Federal Government lunched a major restructuring of the Federal Ministry of Education and a reform packaged for the entire ducation sector. One of the outcomes of the restructuring exercise is the drafting of a Federal 10 - year Sector Plan with a re-classification of Education system as follows:

**Basic Education**

This incorporates early childhood care and development and primary and junior Secondary Education anchored on the UBE program. The Federal Government through The UBE program aims to tackle gender disparities in enrolment, attendance and low completion rates. The current primary net enrolment is about 61% and 7.8 million children are currently still out of school. An estimated 35% of the relevant age group attends junior secondary schools.

**Senior Secdonary Education**

The objective is to develop a framework for implementing the public/private partnership model for management of unity schools. Other goals include reforming Sciences, technology, technical and vocational education to increase its relevance to the economy and labour market. It also aims to attract and retain teachers, encourage Private Sector participation and encourage student enrolment at senior secondary school levels.

**Special Education**

The aim of the Federal Government is to develop a formula for funding adult and non-formal special needs and nomadic education.

**Tertiary Education**

The vision is to advance Nigeria’s economic growth and global competiveness through the provision of accessible, affordable, relevant and high quality education in tertiary Institutions.

**Universal Basic Education Programme**

The current government introduced the UBE program in 1999, making it compulsory for every child to receive nine years of “free” education. The Child Right of 2003 also provides a Legislature framework to protect children and secure their basic rights, including the right to Education. The introduction of the UBE program is in line with the Federal Governments effort to achieve education –related. Millennium Development Goals (MDGs.) Concerned with the achievement of education related MDGs, the Federal Government established the assessment and monitoring committee on the MDGs Chaired by the President to fast-track decision making and guide and monitor the implementation of MDGs related Policies and Programs in all sectors of the economy.

**Post-Basic Education Initiatives**

At the post basic education level, Nigeria has adopted a strategic vision for tertiary Education with emphasis on science and technology. Current Education policies call for increased enrolment in Science and Technology program. Improved research and technology infrastructure and strong quality assurance mechanism.

**Performance Analysis of Past Educational Operation(2001-2005)**

There have been remarkable improvements in education sector with adult literacy rate rising from 57% in 2001 to 62% in 2005 primary school enrolment rose from nineteen Million in 2001 to over 26 million in 2005 as shown in figure 1.

*Source: The Nigeria Project Agenda (pg. 63)*

In the primary school category, the percentage of females in educational institution rose to 53% in 2005 from 51% in 2001. However there was a decline in the percentage of female in both the secondary and tertiary institution from 44% in 2005. The tertiary institution also witnessed a decline in the number of females from 45% in 2001 to 43% in 2005 with the implementation of the UBE program, the number of primary school rose from slightly over Forty-nine thousand in 2001 to over fifty-nine thousand schools in 2005. (See figure 2)

***Fig.2*** *Number of Primary Educational Institution:*

The Federal Government total Expenditure on education from 2001 to 2005 averaged 6% of the overall budget with the exception of 2002 which had a percent of almost 11% see figure 3 this is well below the UNESCO bench mark that recommends budgetary expenditure on Education of at least 20% of the overall total budget.

**Other Major Challenges Facing Human Capital Development**:

**The Equity and Access to education**:

Despite significant efforts since the lunch of the UBE program, Nigeria is falling behind In its progress towards achieving the education related MDGs and Education for all (EFA) Goals. Nation – wide, 64% of school – age boys and 53% of school – age girls attend Primary school. There are large gender income and regional disparities in enrolment Rates. Enrolment rate of girls in some Northern States are only around 20%. The cost of Schooling both direct and indirect opportunity costs remains the key reason for low enrolment and for dropping out of school.

**Quality and Relevance of Education**

The quality of education in Nigeria is very weak for obvious reasons. These Weaknesses also vary from one state to another and within the states. There is Inadequate systematic and reliable information on students learning outcomes the (World Bank Policy –DFID-USAID on Nigeria Education policy notes) remarks that the Learning outcomes in primary schools are weak. And vary considerably across the different states.

It remarked that the main contributory factors to low learning outcomes are:

1. The poor condition of learning environment to support effective teaching and
2. learning e.g. poor condition of physical facilities, shortage of textbooks and essential
3. Instructional materials.
4. Ineffective pre and in-service teachers training.
5. Outdated curricula

**Inadequate funding**

Inadequate funding is the bane of Nigerian Educational system. Whereas, the UNESCO prescription for countries to spend between 20 – 26% of their annual budget on Education. Nigeria can hardly go beyond 3 – 6%. The 2010 Budget also reflects this dismally low level of funding education in Nigeria. The figures shown earlier on the three tables reflects that the funding of education in Nigeria is grossly inadequate to meet the MDGs requirement on Education. Not to tack of Human capital development needs at whatever level in Nigeria.

**Monitoring and Evaluation**

It is evidently clear and glaring that the work of monitoring and evaluation of the educational administration is further hampered due to shortage of needed quality data for information dissemination and make appropriate decisions in government cycles.

**Conclusion**

It is here concluded that the much talked about reformation in education in other to achieve the desired human capital development is yet to be fully pursued with vigor. The school enrolment of students and pupils at the secondary and pre – basic educational offering are yet to go near the MDGs targets. The claim that meeting MDGs goals are attainable in 2015 is a mere pipe dream. Too many challenges are now acting as barriers to make the achievement of the MDGs goals a reality. We can simply highlight problems of poor funding, shortage of educational facilities, government indebtedness to foreign lenders and internal debt over – hang which they service even now in 2010.

We would like to conclude that due to constant reports of corruption and capital flight to other developed countries from Nigeria, achieving Human Capital Development within the remaining period before 2015 is a mere wishful thinking.

**Recommendations**

1. The existing policy on the provision of adequate resources for the entire education Section as well as the utilization of the available funds for true implementation of the MDGs and UBE program should now be done with more vigor than before.
2. The physical rehabilitation of all primary and secondary school facilities should be Stepped up more than before.
3. The (ETF) Educational Tax Fund should learn to give more funds that their use is institutionally supervised, so that the money is not unduly diverted to other uses by individuals.
4. The ICT education at all levels must now be pursued with more vigor. The use of computers should be made compulsory at all levels of our school system.
5. The provision of the appropriate textbooks in all schools must be made mandatory.
6. The condition of the school library must seriously be tackled now more than ever before.
7. The general management of Education must be left in the hands of the professional educators not the ordinary civil servants who know little to nothing about what to do with our educational system.
8. The girl – child education in the entire school system must be seriously handled.
9. The Drop – out syndrome must be made a thing of the past.
10. The provision of qualified and efficient teachers is a sine-qua-non if our educational system is to grow above what it is now.
11. The development of post – basic education that emphasizes science and technology must be vigorously pursued now more than the mere lip service educational offering we have had in the past.

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A Study on Women Empowerment in South-Asian Countries: A Contemporary Analysis

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Abstract

Women are marginalized in the human society from the day of its origin in all parts of the world. Like any other region of the world, south Asia is not a region, with this major problem. This paper is an attempt to make a comparative analysis on Women empowerment in seven South Asian countries. Since international comparison provides us a better comparison of status, ranking is compared mainly. This comparison can be done effectively by comparing few indices like Gender Related Development index, Gender empowerment measure, Gender inequality in Education, Gender Inequality in Economic activity, Political Empowerment Measure etc. This paper is a small piece of a major research done over this area. This paper has compared only the comparative women empowerment indicators like Gender Related Development index and Gender empowerment measure for a point of time and found that women are not in equal status throught this South Asian Region. Again Gender Development index ranking and Human Development Ranking alone are compared over a period of time ie. from 1994 to 2011. The overall analysis has brought a conclusion that South Asia is a region that need special attention from the world and international agencies for its gender empowerment and human development as they are ranked beyond 134th Rank in Human Development Index and are placed beyond 98th rank in case of Gender Development Index except in case of Sri lanka and Maldives where there are continuous crisis.

**Keywords:** Marginalization-Empowerment - Gender Related Development index - Gender empowerment measure –ranking of countries

**Introduction**

The women's advancement is a process, by which women achieve increased control over their own and public decision making. Empowerment means moving from a position of Powerlessness to the one of power. Women Empowerment is a broader concept including economic empowerment assessed by earning capacity, economic status, type of employment, etc., Social empowerment is calculated by health, education etc. Political empowerment is assessed by the percentage of women in parliament, percentage of women in legislature etc. The crimes against women are also an indicator to assess the level of women empowerment. It needs no research to say that women are marginalized in the human society.

**Marginalization of Women**

It needs no research to say that women are marginalized in the human society from the day of its origin. Women bear almost all responsibility for meeting basic needs of the family, yet are systematically denied the resources, information and freedom of action they need to fulfill this responsibility. The vast majority of the world's poor are women. Two-thirds of the world's illiterates are female. Of the millions of school age children not in school, the majority are girls. And today, HIV/AIDS is rapidly becoming a woman's disease. In several southern African countries, more than three-quarters of all young people living with HIV are women.

Whenever the world food price prices rise, it has significant and severe impact on women and their consumption. While, millions of people eat two or three times a day, a significant percentage of women eat only once. To ensure that their children are fed, they deny themselves even that one meal in many cases. These women are already suffering the effects of even more severe malnutrition, which inevitably will be their children's fate as well. Like any other region of the world, south Asia is not a region, with this major problem.

Whenever the women are supported and empowered, the remaining society is benefitted. They give birth to healthy children, they support their family productively in all possible better ways and they help the forthcoming generation to make the world a better place for everyone to live.

**Area of study-Asia**

Asia is the largest continent in the world. Based on the regions, Asian Developing countries[[7]](#footnote-7) are divided into South-East Asian countries, the South Asian countries, Central Asian Economies and Pacific DMCs. Southern Asia, is the southern region of the Asian continent, which comprises the sub-Himalayan countries. South Asia is surrounded (clockwise, from west to east) by Western Asia, Central Asia, Eastern Asia, Southeastern Asia and the Indian ocean. *South Asia consists of* Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

Some definitions may include Afghanistan, Burma, Tibet, and the British Indian Ocean Territories. Some definitions may exclude Pakistan. South Asia is home to over one fifth of the world's population, making it both the most populous and most densely populated geographical region in the world.

**Methodology and Problem of Study**

Comparative analysis on Women empowerment in seven South Asian countries is carried out in this paper. International comparison provides us a better comparison. It helps us to gain better knowledge about the Women empowerment among nations. This comparison can be done effectively by comparing few indices like Gender Related Development index, Gender empowerment measure, Gender inequality in Education, Gender Inequality in Economic activity, Political Empowerment Measure etc. This paper is a small piece of a major research done over this area. This paper is concentrating only on the comparative women empowerment indicators like Gender Related Development index and Gender empowerment measure for a point of time only. Gender Development index ranking and Human Development Ranking alone are compared over a period of time ie. from 1994 to 2011.

*Source: UNDP Human Development Report*

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Gender Related Development Index - 2007 a comparison** | | | | | | | | | | | |
| Countries | GDI | | HDI | Life expectancy rate at birth | | Adult literacy rate % 15 & above | | Combined gross enrolment ratio% | | Estimated earned income*%* | |
|  | *Rank* | *Value* | *Rank* | *Female* | *Male* | *Female* | *Male* | *Female* | *Male* | *Female* | *Male* |
| *Bangladesh* | *123* | *.536* | *146* | *66.7* | *64.7* | *48.0* | *58.7* | *52.5* | *51.8* | *830* | *1633* |
| *Bhutan* | *113* | *.605* | *132* | *67.6* | *64.0* | *38.7* | *65.0* | *53.7* | *54.6* | *2636* | *6817* |
| *India* | *114* | *.594* | *134* | *64.9* | *62.0* | *54.5* | *76.9* | *57.4* | *64.3* | *1304* | *4102* |
| *Maldives* | *94* | *.600* | *111* | *61.5* | *64.2* | *92.9* | *93.1* | *70.0* | *70.0* | *35.4* | *64.6* |
| *Nepal* | *119* | *.545* | *144* | *66.9* | *65.6* | *43.6* | *70.3* | *58.1* | *63.4* | *794* | *1309* |
| *Pakistan* | *124* | *.532* | *141* | *66.5* | *65.9* | *39.6* | *67.7* | *34.4* | *43.9* | *760* | *4135* |
| *Sri lanka* | *83* | *.756* | *102* | *77.9* | *70.3* | *89.1* | *92.7* | *69.9* | *67.5* | *3064* | *5450* |

**A Comparison of Gender Related Development Index in South Asia**

The following table attempts to compare the Gender Related Development Index and its components like Life expectancy rate at birth for female to male, Adult literacy rate of age 15 & above the % of female to male, Combined gross enrolment ratio% of female to male and Estimated earned income*%* of female to male*.*

The data above shows the gender related development index of 7 south-east Asian countries in 2007.

The parameters of gender related development index, like GDI rank and its value, HDI rank, Life expectancy rate at birth for female and male, Adult literacy rate in percentage, aged 15 & above, Combined gross enrolment ratio in education percentage for male and female, Estimated earned income for male and female at ppp US $ and difference between GDI and HDI.

**Gender Related Development Index-GDI**

GDI value is calculated using Life expectancy rate at birth for female and male, Adult literacy rate in percentage, aged 15 & above, Combined gross enrollment ratio in education percentage for male and female and Estimated earned income for male and female at ppp US$ I In 2007, Sri Lanka was in the top of GDI among south-east Asian countries with 83rd rank. Maldives was second with 94th rank. Bhutan holds 113th and India holds 114th rank. Nepal got 119th rank. Bangladesh got 123rd rank and Pakistan was in the last with 124th rank. When comparing with the world countries, over all south east countries rank is poor. Highest rank hold by it is 83rd only.

**Human Development Index - HDI**

In HDI rank also, Sri Lanka was in the top among south-east Asian countries with 102nd rank. Maldives was second with 111th rank. Bhutan holds 132th and India holds 134th rank. Pakistan got 141st rank, Nepal got 144 and Bangladesh was in the least with 146th rank.

**Life expectancy rate at birth**

Life expectancy rate at birth is one of the indicators in GDI. Sri Lanka has higher rte with 77.9 for female and 70.3 for male. Bhutan has 67 for female and 64 for male. Three countries, Bangladesh, Nepal and Pakistan has almost same rate with 66.7, 66.9, 66.5 for females and 64.7, 65.6, 65.9 for males respectively. India has 64.9 and 62.6 for female and male respectively which is comparatively low.

**Adult literacy rate**

Adult literacy rate is the best way to understand the women empowerment. Adult literacy rate was higher in Maldives with 92.9 for female and 93.1 for male. Sri Lanka has 89.1 for female and 92.7 for male. In India it was 54.5 for female and 76.9 for male. Other countries have literacy rate less than 50 in female literacy. In Bangladesh, literacy rate was 48.0 for female and 58.7 for male. In Nepal it was 43.6 for female and 70.1 for male respectively. Pakistan has 39.6 and 67.7 respectively. Bhutan has least literacy rate with 38.7 and 65.0 for female and male respectively.

**Combined Gross Enrolment Ratio in Education**

This was used to show how many children were engaged in education (elementary, primary, and higher education). It was higher in Maldives with 70 for both. Sri Lanka has 69.9 and 67.5 female and male respectively. Nepal has 58.1 for female and 63.4 male. In India, it was 57.7 and 63.4 for female and male respectively. It was 53.7 for female and 54.6 for male in Bhutan and 52.5 for female and 51.8 for male in Bangladesh. Pakistan has the least rate with 34.4 for female and 43.9 for male.

**Estimated Earned Income**

Estimated earned income is highest for female in Sri Lanka with 3,064 and least as 760 in Pakistan. Considering the male estimated earned income it was highest in Sri Lanka with 5450 and least as1309 in Nepal.

**Difference in GDI and HDI rank value**

Difference between GDI and HDI rank value was 2 in Sri Lanka, Maldives and Nepal. In Bangladesh and India it was 0. In Bhutan it was -1 and in Pakistan it was -5.

**Comparative study on the gender empowerment measure 2007**

The gender empowerment measure in South Asian countries is the major indicator for comparing the political empowerment of different countries. This is decided by the Gender empowerment measure rank, Percentage of seats held by women in parliament, Percentage of female legislators, senior officials and managers, Percentage of female professional and technical workers and the estimated ratio of female to male earned income.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Comparative study on the gender empowerment measure 2007** | | | | | |
| Countries | Gender Empowerment Measure Rank | % Seats held by women In Parliament | % Female Legislators Senior Officials & Managers | %Female Prof & Tech Workers | Ratio Estimated Female To Male Earned Income |
| *BANGLADESH* | 108 | 6 | 10 | 22 | .51 |
| *BHUTAN* | - | 14 | - | - | .39 |
| *INDIA* | - | 9 | - | - | .32 |
| *1997* | 95 |  | 2.3 | 20.5 | .38 |
| *MALDIVES* | 90 | 12 | 14 | 49 | .54 |
| *NEPAL* | *83* | 33 | 14 | 20 | .61 |
| *PAKISTAN* | 99 | 14 | 21 | 3 | .25 |
| *SRI LANKA* | 98 | 6 | 24 | 46 | .56 |

**Comparative Gender empowerment measure Ranking**

In gender empowerment measure rank Nepal stands at the top rank with 83. Second was occupied by Maldives with 90th rank. Sri Lanka got 98 and Pakistan got 99th ranks respectively. Last is with Bangladesh and its rank was 108. Thus gender empowerment measure is very low in Bangladesh. Looking at Indian position with 1997 data, India is ranked Third among the seven countries.

**Percentage of seats held by women in parliament**

Nepal has the highest percentage with 33 held by women in parliament. In Pakistan and Bhutan women held 14%. In Maldives women held 12% seats. In India it was 9. Both in Bangladesh and Sri Lanka it was 6. India Ranks fifth among the Seven South Asian Countries. It is presented in the following bar diagram, where Nepal tops the list.



Percentage of Female Legislators, Senior Officials and Managers

The Percentage of Female Legislators, Senior Officials and Managers was highest in Sri Lanka with 24%. Pakistan stands second with 21%. Maldives and Nepal has 14 and Bangladesh has 10 percent. Considering the status of India based on the 1997 data, it stands last. And hence Indian government needs to consider this area for women empowerment.

**Percentage of Female Professional and Technical Workers**

The Percentage of Female Professional and Technical Workers was highest in Maldives with 49% and next comes Sri Lanka with 46%. In Bangladesh it was 22% and in Nepal it was 20%. And last rank goes to Pakistan with 3%. For India and Bhutan data are not available.

**Estimated Ratio of female to male earned income**

Estimated Ratio of female to male earned income was highest in Nepal with 0.61. In Sri Lanka it was 0.56 and in Maldives it was 0.54. Bangladesh has the ratio of 0.51. In Bhutan it was 0.39 and in India it was 0.32. Since data for 1997 is also given it is seen the ratio has come down from 0.38 to 0.32. Least was in Pakistan with 0.25. These figures are presented in bar diagram.



Trend of HDI, GDI /GII in South Asia

Human Development Index (HDI) and Gender Related Development Index (GDI) is compared in this analysis. In 2011 Report, instead of the Gender Development Index, Gender Inequality Index is used. Gender Inequality Index is a composite measure reflecting inequality in achievements between women and men in three dimensions: reproductive health, empowerment and the labour market.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gender Development Index and Human Development Index of South Asian Countries | | | | | | | | | | | | | | |
|  | Bangladesh | | Bhutan | | India | | Maldives | | Nepal | | Pakistan | | Sri Lanka | |
| YEAR | GDI | HDI | GDI | HDI | GDI | HDI | GDI | HDI | GDI | HDI | GDI | HDI | GDI | HDI |
| 1994 | 128 | 144 |  | 155 | 118 | 138 | 94 | 111 | 131 | 154 | 120 | 139 | 70 | 91 |
| 1995 | 140 | 147 | 147 | 147 | 128 | 139 | 77 | 95 | 148 | 152 | 131 | 138 | 70 | 90 |
| 1997 | 123 | 150 | 119 | 145 | 112 | 132 | 77 | 93 | 121 | 144 | 116 | 138 | 76 | 90 |
| 1998 | 121 | 121 | - | 142 | 108 | 128 | 72 | 89 | 119 | 144 | 115 | 135 | 68 | 84 |
| 1999 | 121 | 121 | - | - | 105 | 115 | 69 | 77 | 120 | 129 | 117 | 127 | 70 | 81 |
| 2000 | 121 | 145 | - | 140 | 105 | 124 | 68 | 84 | 119 | 142 | 120 | 138 | 70 | 89 |
| 2001 | 112 | 139 | - | 136 | 103 | 127 | - | 86 | 119 | 144 | 120 | 144 | 80 | 99 |
| 2002 | 110 | 138 | - | 134 | 103 | 127 | - | 84 | 116 | 142 | 120 | 142 | 73 | 96 |
| 2003 | 105 | 139 | - | 134 | 98 | 127 | - | 96 | 106 | 136 | 107 | 135 | 66 | 93 |
| 2004 | 102 | 137 | - | 135 | 96 | 126 | - | 98 | 106 | 138 | 105 | 134 | - | 93 |
| 2005 | 121 | 140 | - | 133 | 113 | 128 | 85 | 100 | 128 | 142 | 125 | 136 | 89 | 99 |
| 2007 | 123 | 146 | 113 | 132 | 114 | 134 | 77 | 95 | 119 | 144 | 124 | 141 | 83 | 102 |
| 2008 | 116 | 129 | - | - | 122 | 119 | 59 | 107 | 110 | 716 | 112 | 125 | 72 | 91 |
| 2011 | 112 | 146 | 98 | 141 | 129 | 134 | 52 | 109 | 113 | 157 | 115 | 145 | 74 | 97 |
| Rvalue | 0.213 | | 0.292 | | 0.499 | | - 0.189 | | - 0.235 | | 0.357 | | 0.450 | |

*Source: UNDP Human Development Reports*

In case of both Human Development Index and Gender Development Index, Maldives and Sri lanka are placed in a better position. There is a great gap over these two countries and the remaining countries, though they are in the same region. While analysing the reason few major reasons are assigned. There has been clan clash in Sri lanka over many years, due to the suppression of minority clan. And the women alone stay at home and they are forced to earn for their survival and this crisis has helped them to elevate the position of their women and in turn the human development in this country. Again Maldives, though associated with Asian region, is excluded more from this region. And this island state faces continuous risk for life. And as everyone is aware of the fact that this group of small islands face the crisis of its existence itself, due to the raising of global warming and the subsequent rise in sea water level. This fear is accentuated by the establishment of nuclear plants by nearby countries and the resultant sea water warming. The fight for the survival and living has helped these countries to raise their standard and are ranked in a better position. The other four countries have invariably in same lower position with high ranks.

Again Karl Pearson’s correlation co-efficient is worked out between GDI and HDI for all countries. The result shows that except in case of Nepal and Maldives, in all other countries, high human development is directly related to high Gender development index and hence efforts to raise the HDI will directly increase the raise in GDI.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Changes in GDI and HDI over 2007 and 2011** | | | | | | | | |
|  | GDI 2007 | | HDI 2007 | | GII 2011 | | HDI 2011 | |
| Rank | Position | Rank | Position | Rank | Position | Rank | Position |
| Bangladesh | 123.0 | 6 | 146.0 | 7 | 112 | 4 | 146 | 6 |
| Bhutan | 113.0 | 3 | 132.0 | 3 | 98 | 3 | 141 | 4 |
| *India* | 114.0 | 4 | 134.0 | 4 | 129 | 7 | 134 | 3 |
| *Maldives* | 77.0 | 1 | 95.0 | 1 | 52 | 1 | 109 | 2 |
| *Nepal* | 119.0 | 5 | 144.0 | 6 | 113 | 5 | 157 | 7 |
| *Pakistan* | 124.0 | 7 | 141.0 | 5 | 115 | 6 | 145 | 5 |
| *Sri lanka* | 83.0 | 2 | 102.0 | 2 | 74 | 2 | 97 | 1 |

While glancing at the Human Development Index, Bangladesh ranks the last 146 and Nepal the next with 144th rank, Pakistan stands in the 141st position, then comes India with 134th rank. Bhutan stands in the third position in South Asia. Maldives and Sri Lanka stands in the first and second position as in the case of GDI. In both the cases Maldives and Sri Lanka are in a better of position. Bangladesh and Nepal are in worst position. This analysis has brought to the light that countries with high Human Development Index will have Gender Development Index.

There are lot of changes in 2011 over these two indices. There are shifts in positions among themselves. Maldives lost the first position in HDI and Sri Lanka got the first position, while their GDI rank remains the same. In case of HDI calculations, India has got third position in HDI in South Asian Region, while Bhutan leaves the third and goes to fourth position of India. While looking at the Gender Development Index, India goes to the last position in the region. Nepal, Bangladesh and Pakistan are under the Low Human Development Index, whereas the other four countries come under the medium human development index in both 2007 and 2011.

**Findings and Conclusions**

First an analysis is done to compare the Gender Related Development Index and its components like Life expectancy rate at birth for female to male, Adult literacy rate of age 15 & above the % of female to male, Combined gross enrolment ratio% of female to male and Estimated earned income% of female to male for all South Asian Countries and found that women are not in equal status.

Then Gender empowerment measure is compared. The GEM rank, Percentage of seats held by women in parliament, Percentage of female legislators, senior officials and managers, Percentage of female professional and technical workers and the estimated ratio of female to male earned income etc are compared and found that in all the South Asian countries women are in a far worst position when compared to men.

In the next analysis, the Human Development Index (HDI) and Gender Related Development Index (GDI) were compared. Karl Pearson’s correlation co-efficient is worked out between GDI and HDI for all countries. The result shows that except in case of Nepal and Maldives, in all other countries, high human development is directly related to high Gender development index and hence efforts to raise the HDI will directly increase the raise in GDI.

The overall analysis has brought a conclusion that South Asia is a region that need special attention from the world and international agencies for its gender empowerment and human development as they are ranked beyond 134th Rank in Human Development Index and are placed beyond 98th rank in case of Gender Development Index except in case of Sri lanka and Maldives where there are continuous crisis.

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Quality Deterioration Of Tomatoes Using Three

Different Storage Methods

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Abstract

Study was conducted at the Microbiology laboratory of Lagos State Polytechnic, Ikorodu to determine quality deterioration of tomatoes sample using plastic, carton and basket storage method for period of 7 and 14 days respectively. 1000g matured tomatoes sample were taken from a farm settlement at Odogunyan-Ikorodu, Lagos to determine the physiochemical properties; moisture content (MC), protein (P), fat (FT), fibre (FB), ash (A) and vitamin ‘C’ (VC) of the produce before and after storage, also, microbial count and pathogenic presence after 24 and 48 hours of storage. Result obtained showed 95.00%MC, 2.21%P, 0.30%FT, 0.81%FB, 2.34%A and 67.50mgVC before storage. Tomatoes stored in the carton had the highest nutritional values in terms of quality; 55.48%MC, 0.85%P, 0.18%FT, 0.58%FB, 1.00%A and 2.50mgVC after 14 days. Penicillium, green fungi which grows in ripening fruit was found in the plastic after 48 hours with about 2.89 \* 106 colony count while, sample stored in the carton were more susceptible to less colony count (1.52 \* 106) of fungi after 48 hours. The carton gave better results when compared to basket and plastic methods of storage in the study area as far as these quality attributes assessed are concerned.

**Keywords:** Quality, deterioration, plastic, carton, basket.

**Introduction**

Vegetables are of great nutritional value, because they represent a source of vitamins and minerals, essential for human diet. Its production can be adopted as a strategy for improving livelihood and alleviating the nutritional status of the people. It is the answer to the perpetual problems of hunger and malnutrition in the country. In Nigeria, many children suffer from vitamin “A” deficiency, a nutritional problem that can be reduced by regularly eating of fruits and green leafy vegetables (Olaniyi, Akanbi, Adejumo & Akande, 2010). Vegetable production forms about 25% of the major food crops cultivated in the tropics as a means of livelihood for some section of the population (Kra & Bani, 1998). Vegetables in their fresh forms contain high percentage of water; they are living and hence carry their physiological function of respiration. They absorb and release gases and other materials from their environment. These activities lead to their deterioration in transit and storage which is more rapid in conditions of high temperature and humidity, which leads to heavy losses.

Tomatoes (*Lycopersicon esculentum*), a fleshy berry regarded as very popular perishable fruit as well as vegetable grown throughout the tropical and temperate regions of the world. (Okorie, Nwanekezi & Okoro, 2004). Olaniyi *et al* (2010) reported that tomato is one of the most important vegetable crops grown all over Nigeria. It is the world’s largest vegetable crop after potato and sweet potato. In Nigeria, tomato is regarded as the most important vegetable after onions and pepper. Mongabay (2011) revealed that tomatoes are planted by an estimated 85% of the gardens each year and yield as at 2009 is 59,790 Fc in Nigeria. (calculated data). If well managed, tomato is highly productive. Cropping of tomatoes during the wet and dry seasons contributes immensely to the national requirement but the bulk of production is from the dry season. Olaniyi *et al*, (2010) reported that the yield of tomato in Nigeria is low; the average in Western part of the country being only about 5 tones per hectare and in growing areas of Northern Nigeria is 20 tones per hectare. One of the reasons for this low yield in Nigeria is poor fruit set resulting from temperatures that are generally above optimum range for good fruit set. Adelana (1975) as cited by Olaniyi *et al*, (2010) attributed poor tomato yield to non-development of flowers into fruits. He found that only 50% of the flowers produced developed into fruits. Thus sink size was a limiting factor to fruit production in tomato. Ripe tomatoes contain about 94% water as well as vitamins A; B and C. whole red, ripe tomato contains nearly all the vitamin C activity in the reduced ascorbic form (Okorie, Nwanekezi & Okoro, 2004).

Tomato is currently a popular fruit vegetable in Nigeria, however, its production in Nigeria is low compared with those of the temperate zones due to differences in crop environmental conditions, lack of high yielding varieties and cultural practices applied to the crop on the field. It is possible to alter tomatoes’ storage environment to suit the moisture, air and heat requirements and the extent to which changes take place in fruits during heat treatment depends upon the type and quality of the fruit and condition of processing (Okorie *et al*, 2004). The purpose of the study is to examine the rate of deterioration in terms of qualities of tomatoes during storage, while specific objectives are:

1. To determine the rate of deterioration of harvested tomatoes using different storage materials such as baskets, plastic, carton and ambient condition.
2. To determine the physiochemical attributes; moisture content, protein, fat, fibre, ash and vitamin ‘C’ before and after storage.
3. To determine the extent of mechanical and microbial damages in stored tomatoes.

**Methods and Procedure**

Wholesome tomatoes were picked from a farm settlement beside Lagos State Polytechnic, Ikorodu. These samples were taken to the laboratory to carry out both physiochemical properties and microbial analysis. Physiochemical attributes carried out were the determination of the moisture content, protein, fats, fibre, ash and vitamin C content while he microbial load using saboraud agar was also done. The weights of the sample from the farm were taken before storage using digital weighing balance. 1000g of tomatoes were stored in storage containers such as plastic bowl, basket and carton. These samples were eventually picked for laboratory analysis after 7th and 14th days. Samples were analyzed chemically according to official method of analysis described by the Association of Official Analytical Chemist (A.O.A.C, 1970,1984, 1990, 1998). All analyses were carried out in duplicates.

**Determination of moisture content**

Moisture content was determine by the following apparatus; oven (Gallen kamp, England), crucibles, balance and desiccators. 2g of the samples were weighed into a previously weighed crucible. The crucible plus samples taken were then transferred into the oven set at 105oC to dry to a constant weight for one hour. At the end of the one hour, the crucible plus samples were removed from the oven and transferred to desiccators, cooled for ten minutes and weighed. Thus:

The weight of empty crucible W0

Weight of crucible plus samples W1

Weight of crucible plus oven-dried sample W2

% Moisture = W1 - W3 x 100

W1 - W0 1

**Determinations of vitamin C:**

5ml of tomatoes sample was pipette into a 100ml volumetric flask, 1ml of acetic acid was added plus 1ml of chloroform before titrate to known volume and get a distinct end point. It was titrated with dye in the burette until a faint pink color was obtained and titrate value was recorded. The procedure was repeated, that is, titration with blank using 3ml of distilled water and 1ml of acetic acid, were titrated against dye. Titter value was recorded as blank.

**Determination of protein in tomatoes**

10ml of the samples were pipette into 500ml of conical flask, 0.5ml of phenol, 0.4ml of saturated potassium oxylate, 2ml of formaldehyde was added respectively. It was titrated with sodium hydroxide into the burette until a faint pink color was obtained.

**Determination of fat in tomatoes**

The following apparatus were used to determined fat in tomatoes samples; Sox-let apparatus and accessories, oven, desiccators and analytical balance. Petroleum spirit at (40 – 60oC b.pt) was used as reagent. 1gm of tomatoes samples were weighed into fat free extraction thimble and plugged lightly with cotton wool. The thimble was placed in the extractor and fitted up with reflux condenser and a 250ml sox-let flask which has been previously dried in oven was cooled in the desiccators and weighed. The sox-let flask was then filled to ¾ of its volume with petroleum ether at boiling point between 40o – 60o, extractor plus condenser set was placed on the heater for six hours with constant running water from the tap for condensation of ether vapor. The set is constantly watched for ether leaks and the heat source is adjusted appropriately for the ether to boil gently. The ether is left to siphon over several times, at least 10 – 12 times until it is short of siphoning. It was after this, it was noticed that any ether content of the extractor is carefully drained into the ether stock bottle. The thimble containing samples were then removed and dried on a clock glass on the bench top. The extractor flask and condenser was replaced and distillation continues until the flask is practically dry. The flask which now contains the fat or oil is detached, it exterior cleaned and dried to a constant weight in the oven. Thus, if the initial weight of dry sox-let flask is Wo and the final weight of oven dried flask + fat is W1, percentage fat is obtained by the formula:

W1 - W0 x 100

Weight of sample 1

**Determination of ash**

Porcelain Crucible, desiccators, analytical balances and a Furnace were the apparatus used to determine ash content of tomatoes sample. 2.0gm of the sample were weighed into a porcelain crucible then transferred into the muffle furnace set at 550oC and left for about 4 hours (sample turned to ash). The crucible and its content were air dried at 100oC; room temperature in a desiccators and weighed. This experiment was replicated and percentage ash was calculated using the formula below:

Weight of ash x 100

Original weight of sample 1

**Determination of fibre**

Apparatus used were: Heating mantle, crucibles, furnace, sieve cloth, fibre flask, funnel, analytical weighing balance, desiccators and 0.255N H2SO4, 0.313N NaOH and Acetone as reagents. 2.0gm of the sample was accurately measured into fibre flask and 100ml of 0.255N H2SO4 added. The mixture was heated under reflux for 1 hour with the heating mantle. The hot mixture was filtered through a fibre sieve cloth. The filtrate obtained was thrown off and the residue was returned to the fibre flask to which 100ml of (0.313N NaOH) was added and heated under reflux for another 1 hour. The mixture was filtered through a fibre sieve cloth and 10ml of acetone added to dissolve any organic constituent. The residue was washed with about 50ml hot water on the sieve cloth before it was finally transferred into the crucible. The crucible and the residue were oven – dried at 105oC overnight to drive off moisture. The oven-dried crucible containing the residue was cooled in desiccators and later weighed to obtain the weight W1. The crucible with weight W1 was transferred to the muffle furnace for ash at 550oC for 4 hours. The crucible containing white or grey ash (free of carbonaceous material) was cooled in the desiccators and weigh to obtain W2. The difference W1 – W2 gives the weight of fibre.

The percentage fibre was obtained by the formula:

W1 – W2 x 100

Weight of sample 1

**Determination of mechanical injury**

The tomato fruits were determined by visual observation whether they were susceptible to injury because of the shape, size and structure and their relatively soft texture, high moisture content and the need for relatively handling during storage.

**Determination of microbial damage:**

10g of tomatoes was weigh using digital weighing balance into mortar, the sample were crushed with distill water and mixed thoroughly to give a homogenous final concentration of 1gm. Microbial population count was carried out after 24 and 48 hours respectively using a sterile test tube.

**Results**

Data in Table 1 shows the initial level of physiochemical properties of tomatoes sample before storage; moisture content (MC) =95%, protein=2.21%, fat=0.30%, fibre=0.81%, ash=2.34% and vitamin C=67.50mg. This level of physiochemical properties defer from physiochemical properties that were obtained from two varieties of tomatoes, Ogbomosho local and Ibadan local: 42.55% and 29.39% protein content, 3.72% and 3.86% fat content and 6.94% and 7.42% fibre as reported by (Olaniyi *et al* 2010). These deviation could be attributed to differences in ecological distribution of the tomato varieties and genetic differences among the varieties. However, the moisture content of 95% for this study is close to the work of Okorie *et al* (2004) that reported 93%MC and Idah & Aderibigbe (2005) 92.2%MC of harvested sample of tomatoes before storage.

***Table 1:*** *Physiochemical properties of tomatoes before storage*

|  |  |
| --- | --- |
| Properties | Scale |
| Moisture | 95% |
| Protein | 2.21% |
| Fat | 0.30% |
| Fibre | 0.81% |
| Ash | 2.34% |
| Vitamin C | 67.50mg |

During the process of storage, it was observed that, the rate of deterioration in plastic storage method was higher than the other three method used, where the color of tomatoes changed from red to yellow. Skin texture was very soft and produced offensive odors. Deterioration in basket is next to plastic while sample stored in the carton were more susceptible than the other two storage method used. Table 2 shows variance in level of deterioration between 7 days and 14 days of storage in the three methods used. Materials stored in the carton absorbed water from the tomatoes which made the tomatoes to dry to some extent. But at 14 days of storage there were rapid rate of spoilage in all the storage method used and loss of qualities of nutritional value during the process of storage, though in the carton storage material, the rate of deterioration is not as high as other storage materials.

***Table 2:*** *Physiochemical properties of tomatoes after 7th and 14th days of storage*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Storage containers | Protein | | Moisture content | | Ash | | Fibre | | Fat | | Vitamin C | |
| Days | 7 | 14 | 7 | 14 | 7 | 14 | 7 | 14 | 7 | 14 | 7 | 14 |
| Basket | 1.04 | 0.51 | 89.88 | 55.91 | 1.39 | 0.85 | 0.65 | 0.35 | 0.23 | 0.16 | 4.83 | 2.25 |
| Carton | 1.12 | 0.85 | 92.13 | 55.48 | 1.42 | 1.00 | 0.67 | 0.58 | 0.29 | 0.18 | 5.00 | 2.50 |
| Plastic | 0.96 | 0.35 | 89.56 | 50.65 | 1.33 | 0.55 | 0.55 | 0.32 | 0.18 | 0.13 | 4.50 | 2.10 |

It was observed that within 24 hours microbial count in plastic method of storage had the highest microbial load (2.00 x 10-6 cfu) while storage of tomatoes sample in carton and basket were 0.50 x 10-6 and 0.10 x 10-6 respectively. Also, the plastic storage method of tomatoes sample showed the highest microbial load of 2.89 x 10-6 cfu within 48 hours of microbial analysis than carton storage method (1.52 x 10-6cfu) and basket storage method of tomatoes sample (2.51 x 10-6 cfu). This study therefore, shows a distinction from the study of Idah & Aderibigbe (2005) that reported a microbial count of 3.6\*103 after 24 hours for sealed high density polythene film and traditional open storage method. Also, the report of okorie *et al* (2004) also showed a discrepancy in microbial count of fungi (38 \* 102). Table 3 and 4 shows the colony count, color change and pathogens present in the sample of tomatoes studied. A white color was significantly observed for both carton and basket storage method after 24 hours and white color of tomatoes sample after 48 hours in carton storage method.

***Table 3:*** *Microbial analysis and pathogenic of tomatoes after 24 hours (cfu)*

|  |  |  |  |
| --- | --- | --- | --- |
| Storage containers | Colony count | Color change | Pathogenic (fungi) |
| Plastic | 2.00 \* 106 | Brown | Alternaria spp. |
| Carton | 0.50 \* 106 | White | Serratia spp. |
| Basket | 0.10 \* 106 | White | Serratia spp. |

***Table 4:*** *Microbial analysis and pathogenic of tomatoes after 48 hours (cfu)*

|  |  |  |  |
| --- | --- | --- | --- |
| Storage containers | Colony count | Color change | Pathogenic (fungi) |
| Plastic | 2.89 \* 106 | Green | Penicillium |
| Carton | 1.52 \* 106 | White | Serratia spp. |
| Basket | 2.51 \* 106 | Brown | Alternaria spp. |

The most predominant moulds isolated in this study were penicillium, alternaria spp. and serratia spp. The genus penicillium spp. isolated shows one of the three major myxotoxins producing fungi, bluish green fungi that grow in ripening fruit. The discoloration coupled with the off flavor of the tomatoes sample are due to the activities of the infecting mould species, moulds are generously endowed with extracellular proteolysis or lipolytic enzymes and so can cause softening of food products. Moulds growth also causes off flavor in foods. Changes in appearance of food have been related to mould growth spores of various species which are heavily suspended in air especially in an untidy and unhygienic environment. These copulating moulds therefore easily get in contact with foods that are openly displaced in basket. Most of the mechanical injuries are inherently susceptible because of their size, shape and structure, their relatively soft texture, high moisture content and the need for relatively frequent handling during harvesting. Various type of mechanical injury (surface injury and impact bruising) can occur at any point in the time of harvest to consumption.

|  |
| --- |
|  |

**Conclusion**

Tomatoes in the carton had the most extended shelf-life due to the most conducive environment for storage as observed in the result of this study. It also had the highest nutritional values. Tomatoes in basket take the next in term of shelf-life to carton; this is due to the design and shape of the materials. The tomatoes in plastic had the lowest storage life due to the heat being generated from the environment, hence, leads to rapid rate of deterioration of tomatoes in the storage method and lowest nutritional value. Therefore, it is recommended from this study in order to improve the post harvest handling of tomatoes that carton containers should be design to help the handlers and storage of tomatoes for at least few days before it gets to processing or final users.

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The Mobile Phones Consumers Protection

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Abstract

This paper analyzes the issue of promoting the interests of mobile consumers, from two perspectives. The first is designed to evaluate and highlight the awareness, knowledge and education of the Romanian consumers regarding the impact of the mobile phone use on the health and body integrity, and the second analyzes the behavior which the same consumer takes in environmental problems that the use of conventional mobiles may generate.For a pertinent analysis, a survey questionnaire was developed, that includes three sections. The first consists of questions that test consumer awareness about the impact that mobile phone has on their health. Sections two and three examine the ecological behavior of mobile phones consumers.

**Keywords:** consumer protection, environmental mobile phones, conventional mobile phones

**Introduction**

Mobile telephony has revolutionized how we communicate and has become the mainstay of the daily life of the people. For this reason, one of the most requested types of entities in the contemporary period are that of the companies providing mobile products, because the mobile phone is one of the most used durable good offered by our society. With the expansion of the range of mobile phones, with the mobile communication services development, the consumer concern is increasing, because of the effects which these goods could have on the consumer health, as well as on the environmental balance (Csorba, 2010).

The purpose of this paper is - based on an extensive research of the mobile telephony market, given the assortment of the mobile phones and consumer behavior of such products - to assess consumer awareness of the risks they are exposed when using mobile phones and to educate them regarding the necessity of using green phones, the only ones able to provide the necessary conditions of a real protection of the environment.

1. **The mobile telephony services consumers’ protection**

Consumer protection is part of social policy pursued by any modern state. The consumer became a real partner of the market, whose position occupied within it is strengthened with the development of the society. His buying behavior affects increasingly more entities, organizations, bodies and institutions. Therefore, the consumer is given increasing attention. The complex relationship between businesses and consumers generate various issues that may be the subject of the consumer protection programs in an efficient manner (Patriche, 1998).

In the business of buying and using goods and services, consumers must be assured by the appropriate framework for unbundled access to products and services they need. In this context have been set the basic consumer rights: consumer freedom to choose products and services as it deems best suited to consumer needs, the right of protection against the risk of buying a product or a service, the right to be informed fully, fairly and precisely regarding the essential characteristics of products and services, the right of free access to markets, shops, suppliers that assure a wide range of products and services, the right to compensation for damage caused by poor quality of products and/or services; the right to organize themselves in various associative forms, such as associations, foundations, unions, federations, etc. (Dinu, 2001)

Two of these are essential for the modern man, as a consumer: the right to be informed fully, fairly and accurately about the features of products they buy and the right to be protected against the risk of purchasing a product or providing a service. Implemented in mobile telephony, these rights can raise the following questions: Are harmful for the consumers’ health, the use of mobile phones? At what kind of risks is exposed a person which uses mobile phones? Are consumers informed about the insecurity use of mobile services? What impact does the mobile phone production and consumption have upon the environment? We seek answers to these questions in this analysis.

**1.1. Security of mobile phones and GSM antennas - pros and cons**

We are surrounded by electromagnetic fields. These can be divided into two categories: fields generated by natural phenomena and those caused by man-made electronics (Bandar, 2009). For many years, the International scientific community studies the effects of electromagnetic fields on human health. Frequency fields are under study by researchers about 70 years, and studies on mobile phone are done a few decades. Some scientific studies have shown a direct link between using mobile phones or radio stations near the mobile network and their impact on human health. Other studies deny the existence of negative effects on consumer health. For a complete and accurate information of the mobile consumers, is good to know the functioning of the mobile networks, which are the safety standards and which are the results of the scientific research in that field. (Pascu, 2006)

In our country, the limits of the intensity of electromagnetic field emitted by mobile phones and mobile network antennas are set by government standards developed by The Ministry of Health, Ministry of Labor and Ministry of Communications and Information Technology. They must be in accordance with the European standards, harmonized with the international limits. Radio activities are supervised and controlled the by the General Inspectorate for Communications and Information Technology (IGCTI), public institution subordinated to the Romanian Government, which manages the radio electric spectrum. In the case of mobile phones, exposure standards for radio frequency fields is based on measuring the Specific Absorption Rate (SAR), which is the amount of energy absorbed by the body, relative to 1 kilogram. The limit recommended by the International Commission on Non-Ionizing Radiation Protection and exposure to electromagnetic radiation is 0.08 W/kg. Maximum permissible SAR EU Council is 2w/kg (http://studentpenet.ro/stiri/ radiatii-telefoane-mobile-lista-indice-sar/).

In the table below are some examples of cell models together with the SAR certification. In the left column we show models with the lowest, and in the right column with the maximum SAR index.

***Table no 1.*** *Top 10 mobile phones based on SAR certification*

|  |  |
| --- | --- |
| **Top 10 phone minim SAR index** | **Top 10 phone maxim SAR index** |
| 1. Beyond E-Tech Duet D8 0.109 2. Samsung Eternity SGH-A867 0.194 3. Samsung Blue Earth 0.196 4. Samsung SGH-G800 0.23 5. Samsung Soul 0.24 6. Samsung Impression A877 0.27 7. Samsung Innov8 0.287 8. Samsung A107 GoPhone 0.3 9. Beyond E-Tech Duet D888 0.32 10. Samsung SGH-T229 0.383 | 1. Motorola V195s 1.6 2. (equality) Motorola Zine ZN5 1.59 2. (equality) Motorola Rival 1.59 4. Sony Ericsson Satio (Idou) 1.56 5. (equality) Kyocera Jax s1300 1.55 5. (equality) Motorola VU204 1.55 7. (equality) BlackBerry Curve 8330 1.54 7. (equality) BlackBerry Curve 8330 1.54 7. (equality) BlackBerry Curve 8330 1.54 10. (equality) Motorola Crush 1.53 10. (equality) Nokia E71x 1.53 |

*Source: http://www.mobbi.ro/valori-sar/*

Specialists say that mobile phones sold legally on the Romanian market comply with the existing SAR standards. In these circumstances, involves risks to human health or not, using a mobile phone? What effects does have on consumer safety, the GSM antennas installed on buildings? What is the impact of mobile phone use upon the environment? The answers given to those questions are contradictory.

Local and central authorities, research institutes and mobile companies in Romania, always receive complaints from consumers, as well as a series of questions about how to respect the rules of protection against electromagnetic radiation. Consumer Protection Association from Romania made an analyze of the possible impact the GSM antennas have on human health, due to the increasing number of complaints it has received from people living in areas where GSM antennas are located. Consumers complained most often: the location of antennas on residential buildings without the consent of tenants, the location of relays in rural areas without the consent of owners in their neighborhood, the people's health is threatened because of the radiation emitted by antennas placed near the buildings (cardiovascular disease, back pain, headaches, insomnia, fatigue, depression, temporary memory loss, hair loss, endocrine dysfunction, discomfort, etc.). Survey results were not positive for consumers. Following these findings, APC municipalities sent an open letter that called for stopping the aggression of mobile telephony operators in central areas, near schools, kindergartens and hospitals (Csorba, 2010). Municipalities responded to the efforts of the association, developing in recent years hundreds of permits to build communications networks. Thus, some recommendations have been implemented. This provides: (Csorba, 2009)

* the existence of barriers that prevent access to the areas of exposure;
* up to 30 meters in front of the antenna there is another high building;
* to have an environmental and building permit for installing the antennas;
* the level of radiation is measured by accredited companies;
* to avoid placement of antennas in areas with schools, kindergartens, hospitals;
* tenants to obtain consent (and the neighbors) before installing the antennas.

The National Environmental Protection Agency confirms the results of investigations made by APC Romania and states in turn (in letter no. 3445/IG/1.05.2006) that: "The main action of electromagnetic fields on the human body aggravated or accelerated the heart, vascular, neurological and psychological disease". This affirmation attends a tacit recognition that, the radiation emitted by GSM antennas and generated by mobile phones are harmful to human health.

Around five billion people currently use mobile phones, almost three quarters of the world population. The world market of mobile phones increased by 17% in the first quarter of 2011, supported by strong demand for smart phone devices, especially iPhones Apple products, say market research companies. (Reuters, according to Mediafax). But, the fear that machines could cause cancer dates from the 70s, when first phones appeared. Since then, researchers try to find a link with the increased incidence of cancer.

Types of radiation emitted by mobile phones are called non-ionized. They are not similar to the radiations emitted by radiography, but rather to those emitted by microwave ovens, but to a lower intensity. Radiations of microwave ovens have the same effects on the body as the food, which means they "cook" brain. So, in addition to contributing to cancer and tumors, mobile phone can have negative effects on the cognitive function of the brain.

The European Environment Agency supported in turn making more research, saying that mobile phones are as dangerous as smoking, asbestos and leaded gasoline. A prominent member of the University of Pittsburgh, which deals with the study of cancer, sent a memo to all employees of this institution, advising them to reduce cell phone use because of the risk of contracting cancer.

If until recently there were only suspicions, there is already official the confirmation made by The World Health Organization which, on 1st June 2011 said: "Mobile phones can us get sick of brain cancer." 30 WHO experts from 14 countries analyzed for 8 days in Lyon, the harmful effects of mobile phones. Experts concluded: "Evidence continues to accumulate that are quite strong to say that mobile phone use can lead to cancer." It is a high risk of glioma, a form of brain cancer. More specifically, the risk increase by 40% in people who spoke an average 30 minutes per day phone. What were the reactions to mobile phone companies warning issued by WHO?

The first who reacted were U.S. mobile companies. Some manufacturers warn their customers to keep devices away from the body. Apple - for example – wrote the safety manual of the iPhone 4, that when calls are made or data is transmitted wirelessly, the device must be held "at least 15 millimeters away from the body". The Blackberry Company warns its customers to take the device "at least 25 millimeters from the body when the phone transmits data".

The WHO makes the following two main recommendations for the consumers of mobile services:

1. To take precautions in the use of mobile phones and hands-free devices, such as: do not talk long on the phone; do not carry the device nor the neck nor in the pockets of pants; not to speak in the car, in the absence of an external antenna connected properly; do not use mobile phone when traveling by train; do not sleep with the phone near the head; children and pregnant women to give up its use.
2. To avoid the radiation emitted by GSM antennas mobile operators

Even the support of the national and international bodies dealing with conducting research in that field, it is obvious that anyone who uses mobile phones is exposed to radiation with effects on human health, even if they are not immediate. European Commission's recommendations come to support a better protection of the mobile consumers, noting that when there are sufficient specific elements, even in the absence of absolute certainty or evidence, the authorities must protect above all the citizens against the risk and damage caused by the exposure to electromagnetic fields. Member States should implement protective measures according to the duration of exposure, body parts that are exposed, age and health of the public. EU states are able to provide a superior level of protection laid down in the European Commission's recommendations.

**1.2. The mobile telephony market in Romania and the consumers complaints**

Despite these problems, the mobile telephony market in Romania - as well as globally - has known an explosion in recent years. Years 2005 and 2006 were - in telecommunications - years of great changes. In the mobile segment, there were two new players: Cosmote and Connex Vodafone. The brand Cosmorom was extracted brutal from the market, not doing practically any commercial relation with the new company Cosmote; Vodafone choose to "recycle" the Connex brand, to use it until exhaustion, in a process to change brand identity, which lasted almost a year. Vodafone directly took over after its launch, more than 5 million customers, while Cosmote only about 80.000.

In Romania are four mobile operators, who had more than 29.3 million users at the end of 2010. Related to population, mobile penetration has exceeded 130%. Orange Romania is the largest, with 10.5 million customers at the end of 2010, followed by Vodafone Romania with 9.8 million users, 6.9 million customers Cosmote Romania, RCS & RDS (Digi Mobile) with over 2.1 million customers. Orange claims that in 2010 were the leader in terms of net new subscribers, thanks to new tariff plans launched in 2009. Also, in 2010 recorded a total of 78.000 net new subscribers - compared to 34.000 for Vodafone - and a loss of 32.000 at Cosmote - a company that was concerned with integrating Zapp. (Seceleanu, 2011)

On the other hand, in 2010, only rivals Vodafone and RCS & RDS have increased their market shares, calculated in terms of number of clients. Orange is number one with a 36.7% share, down from 37.5% in 2009.

At this point, every company on the Romanian market is trying to identify themselves in a certain way. Vodafone and Orange have the largest part of the Romanian mobile users, stating that Orange started in 2006 as the market leader. Orange and Vodafone compete on all levels, attacking all segments and have similar offers, sometimes complementary.

With the expansion of the mobile telephony market in Romania, there are a number of consumer complaints of mobile services. Consumer demands refers mainly to: aggressive advertising by SMS (also known as SPAM), frequent interruptions of the signal, incorrect invoices, coding of a particular mobile network and - last but not least - mobile consumer health safety.

Headaches, memory loss, problems of rest, increased blood pressure, cancer (especially leukemia) or increased traffic accidents caused by drivers talking on the phone while driving, are the harmful effects of the mobile phone use and realities that can be seen as a result of their continuous use.

If, as a consumer you are faced with problems arising from failure of the legislation by vendors, operators or manufacturers of such services, the complaint should be addressed directly to those who should solve the problem occurred, i.e., the three categories already mentioned. If they do not solve the request, complaints are made at the Regional Commissariat for Consumer Protection and at The Consumer Protection Associations.

**1.3. Conventional mobile phones VS ecological mobile phones**

Producing goods from environmentally friendly materials must be the purpose of any modern business. In the mobile sector, much of the conventional phones are already recycled in advanced countries, the process generating profits. In this way, each year is recovered over 3.000 kilograms of silver and hundreds of kilograms of gold.

More and more, greener technologies make their way in the world of telecommunications, from equipment to terminals. The same thing happens in mobile telephony, where he began to focus on organic products from recycled materials. Many mobile phone models that are offered for sale to consumers on the world market are made from a special plastic that has the ability to decompose quickly, when it left the ground. So, even if cell phones would likely be thrown in the forest, for example, they do not have a negative impact upon the environment. With a special design, small and lightweight, recyclable materials phones have become a true marketing strategy to be taken by more and more external experts in the field of mobile telephony.

Samsung is the mobile phones company that introduced on the market in Europe the first ecological phone made from bio-plastic extracted from plants, such as corn. Samsung E200 Eco invention is a true eco gadget. It is delivered to consumers in a green paper box. Samsung SCH-W510 and F268 mobile phones are all green, there are on the market by summer 2008 and, besides being made from recyclable materials, are equipped with complex functions, being built under Energy Star standards for efficient energy. Another green phone model is S3030 Eco, which is produced together with the mobile operator T-Mobile. This new terminal is made of "bio-plastic", for whose production have not been use heavy metals, but the product coating is soluble. This model accessory - charger and headset - are also environmentally friendly, as packaging is. (http://www.acasa.ro/telefoane-ecologice)

"Blue Earth" is the world's first solar phone launched by Samsung Electronics. It comes with touch-screen and is loaded from the sun using photovoltaic panel located on the bottom of the phone, which generates enough energy to achieve a call at any time. Blue Earth is made from recycled plastic called PCM, who is extracted from plastic bottles. Neither the device, nor its charger does contain environmentally harmful substances such as beryllium and bromine.

Ecological range of Nokia mobile phones delight in performance and design. 3110 Evolve eco-phone is the first on the list developed by Nokia. This is a candy bar type phone (it is less than 1 cm thick), a true eco handset (has bio case of recycled materials). 3110 Evolve mobile phone looks good, excellent battery life comes with MP3 player, Bluetooth connectivity, memory card slot, FM radio and automatic accumulator stop when the battery is fully charged.

Motorola Mobile Phone Company launched the Motorola Renew, 100% recyclable is considered to be the first carbon-neutral phone in the world. This phone has the basic functions of any device, but has no camera, nor 3G or even EDGE data access. But, the company will invest in the future more “green” in the production of mobile phones. Wood-Touch phone prototypes, with wooden case - obtained not by deforestation, but by cleaning the branches of trees or the removal of vegetation unnecessary suffering - was the idea of Japanese mobile operator NTT DoCoMo. These ingenious devices are more durable than plastic, are not artificially colored, have immunity from water and insects, due to careful treatment of wood.

Greenheart concept is created by Sony Ericsson phone based on Sony Ericsson W880i model, with a nice design and a content of biodegradable materials.

Researchers at Good Guide - publication that provides information about energy efficiency and performance of products and companies - have conducted a study about the impact of mobile phones upon the environment. They analyzed nearly 600 phones, having regard in their research the energy consumption of appliances, the materials used, the working conditions of the employees and what will happen with the devices, after being removed from use.

Thus, Nokia C6 has been declared the greenest phone, while at the other end of the scale lays BlackBerry Bold 9650 Smartphone, believed to be the most harmful phone for the environment. The study also shows that consumers are interested in appearance and phone options, not in its impact upon the environment. Ranking of the greenest phone is: Nokia Cell Phone C6 (is the most environmentally friendly), Blue Earth Samsung Mobile, Motorola Cell Phone Citrus, Palm Pixi Smartphone, Sony Ericsson Cell Phone, Naite Greenheart. Phones with the harmful environmental impact are (in order): BlackBerry Bold 9650 Smartphone, LG 160Cell Phone, Garmin, Asus Garminfone, Casino G'zOne Cell Brigade, STX-2 Sharp Smartphone.

In early 2011, Greenpeace rated the most environmentally friendly electronic products worldwide, from 18 manufacturers. The research results show significant progress, such as manufacturers have eliminated the most dangerous chemicals from electronic devices and products have higher energy efficiency and a design that makes them easier to reuse or recycle. Representatives of Greenpeace state that "the next challenge for industry is to create organic products that last longer and can be repaired rather than replaced every few years." Top mobile ecological view Greenpeace representatives are, as follows: Samsung GT-S7550 - Blue Earth Mobile, Sony Ericsson Elm J10i, LG Electronics GD510, Nokia X3-02, MotorolaA45-Eco.

This year was made a top ten Mobile phones sold worldwide. The ranking is as follows (Dancu, 2011):

1. Nokia 1100 (over 250 million copies, launched in 2003)
2. Nokia 3210 (over 160 million copies, launched in 1999)
3. Motorola RAZR VR (over 130 million copies, launched in 2004)
4. Nokia 3310 (over 126 million copies)
5. iPhone 3GS (over 30 million copies)
6. Nokia 2100 (over 20 million copies)
7. iPhone 3G (over 15 million copies)
8. LG Chocolate (over 15 million copies, launched in 2006)
9. Nokia 5800 Xpress Music (over 13 million copies, launched in 2008)
10. BlackBerry Perl (over 10 million copies, launched in 2006)

By comparison we deduce that, unfortunately, global consumption of mobile phones is not in ecological Top 10 rankings.

Mobile phone of recyclable materials meets all performance requirements and design. Also, they are environmentally friendly. They are made of very small quantities of substances harmful to the environment, such as lead, mercury, cadmium, brominates. Their batteries are more durable than non-ecological mobiles, saving energy. The production process is similar to conventional phones; there are no significant differences in price between the two types. Plastics and metals in the composition of conventional phones are harmless when using them, but if not processed correctly after their removal from service, can be dangerous for both, the environment and the consumers’ health. For this reason, the recycling of these devices by purchasing green mobile phones, we can generate a considerable reduction of global pollution. However, the problem of radiation emitted by mobile phones is not solved by increasing market share of green phones. Their harmful impact is felt not only in the health of the consumer, but also balance the world fauna. For example, from studies conducted in Switzerland to determine the cause of significant reduction of bee populations has been established that cell phones carry a large part of the blame. Mobile signal disorients the insects, which eventually die; research has shown in Lausanne, where more than 83 experiments had similar results, write Inhabitat publication cited by www.green-report.ro.

According to a study by researcher Daniel Favre, when mobile phones were placed near hives in dial mode, bees felt signals and produce a powerful hum. They were perceived as a warning signal to leave the hive; they were confused because of the frequency, flew erratically, and then died. Study results also show that bee’s buzz 10 times stronger when a phone is used, or when signals are transmitted. In the U.S. and Britain, bee populations have dropped to almost half in the last 30 years; range coincides with the explosive multiplication of mobile devices. Reducing bee population has significant effects on ecosystems, since they are vital in the ecological systems and agriculture, because they have essential role in pollination of plants and crop.

1. **Analysis of the education and consumer awareness of mobile phones. Case Study**

To check empirically awareness and education of the users of mobile phones and their attitude towards the environment or regarding the impact that their use has on human health, a survey was conducted on a representative sample of consumers in Arad County.

**Research objectives**

* the evidence of the sources of information and of the factors underlying the decision to purchase a mobile phone;
* the analyze of the information and education level of the consumers regarding the effects of the mobile phones upon their health;
* to evaluate the ecological behavior of the consumers.

**Methodology**

Quantitative research was conducted and used as a working tool the questionnaire of inquiry. It took place between February to August 2011 in the municipality of Arad and in cities like: Curtici, Pecica, Lipova, Ineu and Sebiş.

The method of questionnaire was face to face, using for this six interviewers. Were distributed a total number of 1000 questionnaires from which have been validated a number of 820 questionnaires. Elimination of the questionnaires was based on objective criteria (lack of answers, mismatch between answers and questions). The number of persons investigated corresponding to the sample is calculated using the formula:



where,

t= corresponding theoretical probability value with which we are working (we took P=95.5%, and z=2)

p= percentage of the investigated population possess sample feature

q= 1-p

e= allowed representativeness error limit



=816.32

As a result of the calculations, the sample is 817 people.

**Results**

From the investigated consumers, 54% have two mobile phones, 37% have one phone, and 9% more than two mobile phones. 37% of the respondents speak daily an average between 60-90 minutes, 34% speak between 90-120 minutes, and 21% speak between 30-60 minutes. In table no. 1 or chart. 1, we present the factors which influence the purchase decision of the consumers, when planning to buy a mobile phone.

***Table no. 1.*** *Factors influencing the purchase decision*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Criteria | 1: Not at all important | 2: Less important | 3: Indifferent | 4:Important | 5:Very important | Weighted arithmetic mean |
| Price | 5 | 6 | 7 | 234 | 568 | 4.6512195 |
| Access to latest technology | 17 | 45 | 222 | 224 | 312 | 3.9378049 |
| Brand | 14 | 38 | 66 | 605 | 97 | 3.8939024 |
| Call quality | 10 | 132 | 359 | 194 | 125 | 3.3560976 |
| Phone design | 17 | 48 | 413 | 125 | 217 | 3.5817073 |
| Desire to have a product "environmentally friendly" | 327 | 103 | 371 | 13 | 6 | 2.1073171 |
| Entertainment and multimedia | 10 | 123 | 368 | 157 | 162 | 3.4121951 |
| Internet, e-mail and docs | 17 | 116 | 360 | 165 | 162 | 3.4134146 |

***Chart no. 1***



A percentage of 59% of the consumers use the services of Orange network, closely followed by Vodafone with 56%. Cosmote and DigiMobil networks are 17% and 11%.

In table no 2 and chart 2, sources of information are captured and their importance for consumers of mobile phones.

*Table no. 2. Sources of information for the consumers*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Information source | Do not use | 1: Not at all important | 2: Less important | 3: Indifferent | 4:Important | 5:Very important | Weighted arithmetic mean |
| 1.Publicity through media | 18 | 9 | 11 | 3 | 182 | 597 | 4.679551 |
| 2.Mobile companies site | 228 | 89 | 74 | 231 | 116 | 82 | 3.047297 |
| 3. Friends advice and knowledge | 198 | 12 | 46 | 254 | 231 | 79 | 3.512862 |
| 4. Magazines | 547 | 178 | 24 | 30 | 25 | 16 | 1.81685 |
| 5. Specialized consumers forums on Internet | 369 | 37 | 59 | 38 | 136 | 181 | 3.809313 |

***Chart no. 2***



68% of the consumers surveyed inform themselves before buying a cell phone about the SAR value index, which indicates a concern of consumers for their own health. A 12% do not know the significance of this index.

In table and chart no. 3 we present investigated consumer views about the influence of the mobile phones on their health.

***Table no. 3.*** *Influence of phone use on health*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Affirmation | SD | D | NAND | A | SA | DK/DA | Weighted arithmetic mean |
| Mobile phones radiation negative influence on health | 4 | 11 | 32 | 80 | 693 |  | 4.764634 |
| Mobile phones sold in Romania respect SAR rules in effect | 31 | 85 | 563 | 67 | 74 |  | 3.082927 |
| GSM antennas mounted on blocks of flats/offices adversely affect health | 46 | 49 | 25 | 352 | 348 |  | 4.106098 |
| Long and frequent calls to mobile adversely affect health | 31 | 54 | 43 | 327 | 365 |  | 4.147561 |
| Consumer protection associations frequently and correctly inform about the health dangers of mobile phone use | 284 | 339 | 127 | 25 | 45 |  | 2.034146 |
| Using your mobile phone in personal car or trains adversely affect the health | 52 | 74 | 564 | 81 | 49 |  | 3.00122 |
| Children and pregnant women should not speak on mobile | 2 | 5 | 8 | 16 | 789 |  | 4.932927 |

*Where: SA -Strongly agree, A – Agree, NAND - Neither agree nor disagree, D – Disagree, SD - Strongly disagree, DK/DA don’t know, don’t answer*

***Chart no. 3***



Question number I watched consumer awareness regarding the health effects of mobile phone. In first place (54% of respondents), consumers complain headaches as negative effect, followed by traffic accidents increased by 34%. It is worth noting that although the other choices were negative, they were not known by consumers, comprising less than 5% percent. An 8% did not know the answer or have not answer.

We measured the ecological behavior of the consumers in the sample with a multiitem construct. (Fraj, Martinez, 2006). The results are summarized in table 4.

***Table no. 4.*** *The consumers’ ecological behavior*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Affirmation | SD | D | NAND | A | SA | Weighted arithmetic mean |
| I think I bought any product because the may have a lower pollutant | 8 | 15 | 14 | 234 | 549 | 4.5865854 |
| Keep records of parliamentary votes that I sympathize because they involved in environmental issues | 818 | 2 | 0 | 0 | 0 | 1.002439 |
| I contacted or the Environment Agency or at least an NGO whose main activity is environmental protection, to see what I can do to combat pollution | 748 | 5 | 12 | 23 | 32 | 1.2756098 |
| Make special efforts to buy products only in recyclable containers | 736 | 11 | 19 | 13 | 41 | 1.3073171 |
| I attended meetings of organizations specifically concerned about improving the environment | 250 | 361 | 73 | 78 | 58 | 2.1865854 |
| I gave up the consumption of products for environmental reasons | 778 | 14 | 6 | 8 | 14 | 1.1292683 |
| I have never attended a meeting on topics related to ecology | 28 | 96 | 176 | 163 | 357 | 3.8841463 |
| I subscribed to publications focused on ecology | 813 | 3 | 2 | 1 | 1 | 1.0170732 |

7.93% of the respondents had heard of the existence of ecological phones and a percentage overwhelmingly of 92.07% is not aware of their existence. From the 65 consumers who have heard of the existence of green phones, 72% mention the Nokia green mobile phone maker and a 64% the Samsung Company. The same hierarchy is respected for holding such a phone.

Next, we wanted to find out the ecological mobile phone brands held by consumers surveyed. Of all those who have heard of the existence of ecological phones, only 11 people have such a phone: 7 have the Nokia brand and 4 Samsung brand. It is worth noting that all the 11 consumers who own a green mobile phone have purchased it abroad, none of them buying it from a shop in Romania.

***Chart no. 4***



The last table presents a view of the green mobile phone consumers, regarding the benefits they bring to the owners and to the society.

***Table or. 5.*** *Environmental benefits of the mobile phones*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Affirmation | SD | D | NAND | A | SA | DK/DA | Weighted arithmetic mean |
| By using environmentally friendly phone, I save energy | 1 | 1 | 1 | 61 | 22 | 734 | 4.186047 |
| I would pay more for environmentally friendly phone if I know that no pollute the environment | 705 | 67 | 16 | 2 | 2 | 28 | 1.142677 |
| The fact that I have a phone from recyclable materials increases my wellbeing | 281 | 47 | 21 | 8 | 5 | 458 | 1.367403 |
| I recommend often to acquaintances to purchase green phones | 803 | 11 | 2 | 3 | 1 |  | 1.034146 |
| Buying green to the detriment of conventional telephones would increase the general welfare over time | 798 | 12 | 5 | 3 | 2 |  | 1.047561 |

***Chart nr. 5***

**Environmental benefits of mobile phone**

0

100

200

300

400

500

600

700

800

900

SD

D

NAND

A

SA

By using environmentally

friendly phone, I save energy

I would pay more for

environmentally friendly phone if

I know that no pollute the

environment

The fact that I have a phone

from recyclable materials

increases my wellbeing

I recommend often to

acquaintances to purchase

green phones

Buying green to the detriment of

conventional telephones would

increase the general welfare

over time

**Discussions and recommendations**

From the analysis of the questionnaire we concluded that in our country, consumers are not aware of the existence of the green mobile phones.

From the analysis of the ecological consumer behavior using a scale validated in another research context, we noted lower scores in almost all dimensions that characterize this construct. Thus, we can appreciate the existence of a low environmental awareness of consumers in the sample investigated. If we correlate this finding with the low number of consumers who have heard and, respectively, hold a green phone, we can assume that efforts should be made towards improving environmental awareness. Studying the link between the environmental behavior and the purchase/consumption of the organic products, we have to note that this may be a future research direction.

Moreover, the fact that the 11 consumers who hold green phones have purchased them abroad, leads to the assumption that these products are missing from the trader. This happens because of the lack of information regarding the utility and the role of these phones, the lack of demand, and also the indifference exhibited by the consumers for these products. Based on these findings, we propose the creation of a partnership among the Consumers Associations, The National Authority for Consumer Protection, ANCOM (The National Authority for Management and Regulation in Communications), the mobile phone manufacturers and the major operators in this market, for the design of the communication campaigns and consumer information on the advantages of the mobile ecological ownership

Surprising was the fact that a large number of consumers know the meaning of the SAR index. Given these realities, we believe that the implementation of the survey questionnaire had a dual role: to test the mobile telephony market in Romania, the mobile phone consumers’ behavior regarding the environmental protection and to inform the consumers/traders about the benefits of the green phones existing on the Romanian market, but too less known.

Consumers may have a green behavior, even in the conventional mobile phone use. Therefore, even if we have a conventional phone, we can save energy, as follows:

* pulling from the outlet the phone charger when not in use. While not put the phone on charge, but the charger is left plugged in, it consumes electricity, without a specific purpose.
* limiting the illumination period of the screen.
* hanging up, when not in use. At film, theater, on the plane or in an important meeting, you don’t answer, therefore, it makes no sense to leave it open. This only serves to waste the battery. Calls and messages are received after opening the phone.
* if the mobile has the option, use its GPS guidance, especially when driving. It saves time and fuel.
* replace the phone only when necessary. Do not buy a new mobile, if the old one is functional. When buying a new one, recycle the old one.
* use phone alarm to awaken in the morning. In this way, you save the electricity used by the clock meant for this purpose.
* using light from the screen or camera to illuminate the road at night, instead of flashlight. It makes no sense to still have another device at you, if your phone already has this capability.
* charge the phone only when necessary. To save electricity, load it only when the battery is completely discharged.
* read news on your phone. If your phone model permits, you can read newspapers and magazines directly, saving the paper consumed.
* instead of using sheets of paper to make your various notes, write directly to your mobile phone, most of them having calendar function.

Energy consumer, but also a source of pollution, the mobile phone is essential for the modern man. Over time, increasingly more manufacturers will gain significant market share in selling “green” mobiles.

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Entrepreneurship and Employability Among Nigerian Graduates

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Abstract

Over 80% of graduates in Nigeria are unemployed, in spite of their qualifications, they are employable yet they are not employed. The inability of the higher educational institutions to meet the needs of these graduates as well as promotion of economic self reliance and self sufficiency has resulted into youths joblessness (unemployment). These have added to increase in restiveness among Nigerian youths. This research is therefore undergone to investigate the relationship between entrepreneurship and employability among Nigerian graduates. The paper, discussed the concept of entrepreneurship and employability. Since employability is the act of having qualification that enables someone to employ you, the research also looked at the basic skills that can make one employable and at the same time becoming self reliant. Also discussed are ways forward in promoting entrepreneurship among Nigerian youths and how teaching of creativity and problem solving skills can help reposition Nigerian graduates.

**Keywords:** Entrepreneurship, Employability, Unemployment, Poverty

**Introduction**

This research is about the relationship between entrepreneurship and employability among Nigerian graduates.Nigeria like most developing nations of the world is faced with myriad of problems and harsh realities which include poverty, unemployment, conflicts and diseases. These situations pose great challenges to the very existence of individuals in most developing nations thereby calling for the training of educated men and women who can function effectively in the society in which they live in. available information by National Universities Commission (2004) reiterate the massive unemployment of Nigerian universities graduates in the country. This problem is said to be traceable to the disequilibrium between labour market requirements and lack of essential employable skills by the graduates (Diajomal and Orimolade, (1991); Dabelen and Adekola, (2000). This obvious critical skill gaps inhibits the development of youths and the entire development of the nation.

The world is facing a very hard time and Nigeria as a nation cannot runaway from it, rather we are to provide solutions to some of these problems facing us. Some of the major problems facing Nigeria today as a developing country include unemployment, poverty, poor healthcare services, youth restiveness, insecurity, etc. Nigeria cannot easily make headway, when we neglect or have not developed capacity for entrepreneurship which will help in the employability of our youths. An idle soul is a devils workshop.

This paper addresses the mass graduate unemployment in Nigeria, and also the inability of graduates to use tacit and explicit knowledge gained from their studies in an entrepreneurial way. The ideas in the paper are expected to help reduce unemployment among Nigeria graduates and foster ways of improving Nigeria’s economy since youths are the bedrock of every country’s economy.Apart from the objectives of reducing unemployment among Nigerian graduates, entrepreneurship has many potential benefits, as it plays a crucial role in development and growth of the economy. It also helps to promote innovation which encourages graduates to find new ways of doing things through experience based learning.

More than half of the Nigerian populations are under the age of 30 according to the National Population Commission (2001). Therefore it can be asserted that the economy of Nigeria is a youth economy. Expectedly, today’s youth will become in a short decade tomorrow’s parents, leaders, labour force and armies. However, the Nigerian youths are said to be confronted with poverty, unemployment, urbanization, lack of capacity and skills needed to move the economy forward. Poverty which is a force for HIV/AIDS is very common. This is because the youth faces unemployment and lack of necessary productive skills to keep body and soul together. This reality leaves them without any meaningful means of sustainable livelihood. To make ends meet, they simply indulge in prostitution (both male and female).

Okoro (1998:11) quotes Cicero as saying that “Any systematic treatment of a subject should begin with a definition that everyone may understand the subject of enquiry”. Therefore, the beginning of any discussion or argument lies the clarification of definition of relevant terms.

**Concept of Entrepreneurship**

The term entrepreneurship is difficult to define. Review of available literature shows that there are no generic definitions. This creates a problem of conceptual clarity. However, over the years scholars from different background have tried to offer a working definition of this complex phenomenon.Anugwom (2002) says, Entrepreneurship is concerned with innovation and management. He sees entrepreneurship as either a creative innovator that is creating something new that is capable of satisfying consumer’s wants or an adaptive innovator who can modify an existing or similar products or services for better performance while also engaged in managerial activities of planning, controlling, organizing, directing and co-ordinating his business to achieve the objectives of the enterprise.

Entrepreneurship, according to Timmons in Onu and Ikeme (2008) is the process of creating or seizing an opportunity and pursuing it regardless of the resources currently controlled. Onuoha (2007) defined entrepreneurship as the practice of starting new organizations or revitalizing mature organizations particularly, new businesses in response to identified opportunities. Richard Brason (2008), defined entrepreneurship as something we are born with because it is about turning what excites us in life into capital. So that we can enjoy it even more. Suleiman (2006) defined entrepreneurship as the willingness and ability of an individual to seek investment opportunities to establish and run an enterprise successfully. From the above, we can deduce that entrepreneurship deals with transformation of ideas which is economic goods. The most critical of entrepreneurship is creation of new business. Creation of new business is the force behind the introduction of certain entrepreneurial skills in the university.

Entrepreneurship is a developmental or creative process. That is development of something new and value to both the entrepreneur and the audience (market). Entrepreneurship involves risk taking. This is predicated upon the fact that the future is often unseen, and unpredictable. There is no comprehensiveness in reasoning and decision making rather the entrepreneur operates under self bounded rationality in dynamic environment with so many key players. The risk may be financial, social or psychic or combination of them.

However, in a way of summary entrepreneurship refers to the process of creating or developing wealth through such investment of resources and assuring psychic and financial risk and reward, associated with the investment, a process of taking advantage of need gap to create and assuring the associated psychic and financial risk and reward in such an investment. The correct application of these numerous skills makes someone an entrepreneur. |Therefore who actually is an entrepreneur?

According to Anyanwu (2008), Entrepreneurs are people who search out the needs of the society and device ways of meeting those needs.

Psychologists see entrepreneurs as innovative creators occasioned by need to obtain or attain something, need to experiment, need to accomplish or perhaps need to escape the authority of others for a businessman. With an itinerant knowledge of the concept, an entrepreneur appears as a threat, an aggressive competitor or an ally, a source of supply, a customer of someone who creates wealth for others, who finds better ways to utilize resources and reduces waste and who produces jobs others are glad to get (Vester, 1980:2).

Hope Eno (2005:31) observed that put an entrepreneur in a desert, he will create water out of sand dunes, give him a mountain, he will create tunnel, give him forest, he will turn it into a city, give him a vast land, he will turn it into an estate, give him a swamp, he will build sky scraper, give him dumping site he will turn it into a garden, push him into a river, instead of drowning he will come out with fishes.

Onu and Ikeme (2008) noted that Entrepreneurs are those who bring ideas from the world of forms to the world of reality. They are those who dream and never go back to sleep until their dreams become real. They are people who give life to ideas and create wealth from nothing. They are people who put everything they have in order to get everything they desire. Entrepreneurs are those who can easily discover the talent in others and harness it to the maximum. They are those who employ the best heads even when they did not even see the four walls of the university. They pay professors salaries and keep a lot of graduates on the pay roll.

Employability is being capable of getting and keeping fulfilling work. Employability refers to a person’s capability of gaining initial employment, maintaining employment and obtaining new employment if required (Hillage and Poland, 1988). In simple terms, employability is about being capable of getting and keeping fulfilling work. More comprehensively, employability is the capacity to being more self-sufficiency within the labour market to realize potential through sustainable employment. For individuals, employability depends on the knowledge, skills and abilities they possess, the way they use those assets and present them to employers and the context (e.g. personal circumstances and labour market environment) within which they seek work.

Furthermore, Arukwe (1990) explained that graduates employability depends on the knowledge, skills and attitude they possess, the way they use those assets and present them to employers, and the context (e.g. Personal circumstances and labour market environment) within which they seek work.

Employability is a two-sided equation and many individuals need various forms of support to overcome the physical and mental barriers to learning and personal development (i.e. updating their assets). Employability is not just about vocational and academic skills. Individuals need relevant and usable labour market information to help them make informed decisions about the labour market options available to them. They may also need support to realize when such information would be useful, and interpret that information and turn it into intelligence.

**Graduate Employability**

Skills shortage remains a serious constraint in Nigeria. Over 80% of graduates in Nigeria are unemployed, yet they have the qualifications. Unemployment in Nigeria appears to be a labour market paradox, and is attributed to prevailing skills deficit and skills mismatch. The skills deficit among graduates (from higher education) is considered to be constraint to long run economic growth and a contributing factor to incidence of graduate unemployment. Graduates lack generic competencies and are not work place ready.

University students require stronger and more creative linkages between student life and world of work in regard to the nature of the higher education curriculum in Nigeria. There is a calling for greater application and practice in conjunction with a clear emphasis on economic and social relevance. An individual’s employability asset comprises their knowledge (i.e. what they know) skills (what they do with what they know and attitudes (how they do it).There are a number of detailed categorizations in the literature which, for instance, distinguish between:

1. Baseline assets such as basic skills and essential personal attributes (such as reliability and integrity).
2. Intermediate assets such as occupational specific skills (at all levels) generic or key skills (such as communication and problem solving) and key personal attribute (such as motivation and initiative) and
3. High level assets involving skills which help contribute to organizational performance (such as team working, self management, commercial awareness etc).

Apart from the objective of reducing unemployment among graduates, youth entrepreneurship has many potential benefits example:

1. Youth run enterprises have a direct effect on employment if new young entrepreneurs hire fellow youths which could help address some of the social psychological problems and delinquency that arise from joblessness.
2. The enterprises may also create linkage between youth entrepreneurs and other economic factors, such as those sub-contracting and so on.
3. In addition, youth entrepreneurship promotes innovation and resilience as it encourages young people to find new solutions, ideas and ways of doing things through experience based learning.

Moreover, one of the aims of this research is to inculcate a new orientation of excellence that will empower the graduates to become men and women of influence not only in educational pursuits but also in the field of work.

Only this shift can effectively lead to a moral rearmament and a society free from job seekers, poverty, anarchy, tyranny and profligacy. A society where opportunities exist for the forthcoming generation, where a long awaited African Intellectual Rebirths can be midwifed.

**Roles of Educational Institutions to Employability**

The world of business is fast moving and perfectionist-oriented. The masses are sharp and quick to judge, hence an entrepreneur must be calculating and deliberate. The market place where the entrepreneur operates has little tolerance for miscalculation, lack of commitment or incompetence. The foregoing make the education of a youth who is a would-be entrepreneur an essential ingredient for success.

Educational institutions have carefully planned process that eventuates into the acquisition of entrepreneurial competencies. They have entrepreneurship education in the curricular, which will help equip the learners with skills on decision making, acquisition of new ideas, methods of raising and maintaining conversations and establishing business relationships. Through this entrepreneurship education, qualitative ability that facilitates computation and record keeping are further learnt.

Entrepreneurship education is the type of education where the learner is exposed to cognitive affective and psychomotor abilities that will enable the learner be self sufficient, self reliant and sustainable. Entrepreneurship education offers a solution. It seeks to prepare people, particularly youths, to be responsible and enterprising individuals who will become entrepreneurs or entrepreneurial thinkers by immersing themselves in real life learning experiences where they can take risks, manage the results, and learn from the outcomes.

These educational institutions have centres where people are trained to develop and acquire skills. E.g. Centre for Entrepreneurship and Development Research, University of Nigeria, Nsukka. These youths are equally given opportunities to gain experiences as they are linked with mentors, get access to information and are given opportunity for growth. This implies that they are provided with information, knowledge, skills and attitudes that would enable them perform well as business men and women. They will turnout to be business men and women who have developed business capabilities and are learning to make money. These competences will in turn help them deploy their zeal for nation building in a very efficient manner. Anything short of these realities will be handling Nigerian problems of repositioning the youths with kid gloves.

**Ways Forward in Promoting Entrepreneurship Among Nigeria Graduates**

Nigerian youths face series of problems - poverty, unemployment, conflicts and diseases is not an easy task. These problems therefore will need that the youths be empowered with creative problem-solving skills. The training of educated individuals who can function effectively in the society for the betterment of self and the society will require special attention. The system will be deliberately set to concern itself with the development of sound human capital required for national development (Ocho, 2005). Practically speaking therefore, he/she must do the following:

1. Ensure that schools deliberately provide sector specific skills needed for the development of human capital, use professional and entrepreneurs as instructors and mentors.
2. Teach entrepreneurship and creativity at an early age.
3. organize for curricular integration of education, entrepreneurship and community development
4. plan program to transform Nigerians

Finally, in Nigeria repositioning youths for the eradication of unemployment, there would be need to transform them into confident, aggressive and purposeful individuals. The ideal profile for emerging professionals (products of our ivory towers) with respect to entrepreneurial education, this would include a strong scientific, technical and factual base with good background information and research skills. The individual who opt for non-degree training in skill acquisition will think about the future and relate these ideas to his/her business. The “dream-youths” should have strong skills in business planning, finance and accounting, as well as ability to create new and innovative marketing plans that utilize modern communication technology. Desired attitudes for Nigeria would-be entrepreneurs include a respect for democratic principles and the legal processes of our nation and the highest level of integrity and ethics.

The Nigerian youth therefore need to learn that life is partnership in which the individual strives to fulfill himself/herself with the active support of others. That is, he/ she needs to realize the fact that he /she needs to develop his /her potentials and to contribute his/her talents to the common good of all (Etuk, 2000). With the spirit of collaborating, inter-existence and the desire for collective survival of all there will be a steady growth of development, mutual support and networking.

**Conclusion**

Handwork and skill acquisition is the fastest moves to talent discovery. When the youths in schools, higher institutions and universities are groomed to learn the skills needed in their future self employment and sustenance, the end result would be reassurance and future self employment. The era of white collar jobs have gone, when graduates lookup to government for employment. The major problem is that youths are not exposed to have the background study of the business they want to set up when they leave school. Money is not the first thing when one wants to set up a business, money comes later when they must have had enough knowledge of business. Desirous entrepreneurs should first of all wear their thinking cap and come up with very good ideas that will scale through any test and thereafter plan how to use the idea to make money. Good business idea generates its funding.

Conclusively, entrepreneurship and employability go hand in hand because entrepreneurship education will help to facilitate the acquisition of skills competence and ability by the graduates. When these graduates are equipped they will help to reduce, unemployment, help to generate income, contribute to gross domestic product, faster innovation and incubate potential large industries that will boost technological development and identify business opportunities in Nigeria.

**Recommendation**

One of the reasons of graduate unemployment in Nigeria is that Nigerian educational system emphasis is laid more on the value of the certificate rather than the holder himself. For this reason, undergraduates struggle hard to obtain just the certificate rather than the knowledge and skills which would make them self reliant. Entrepreneurship development is one of the functional elements in addressing job creation. Entrepreneurship education/training should be made increasingly important in the country.

From the foregoing therefore, the following recommendations are made;

1. Establishment of small and medium scale enterprises and skill acquisition centres will go a long way to providing employment to most graduates in Nigeria, thereby, keeping them busy and away from crime.
2. Networking events among graduates is good such that workshops, seminars, symposia, lectures and so on be organized so that cross fertilization of ideas could take place.
3. Training in creativity would help in developing problem solving skills based on recent technological advances. Creativity will ensure that the individual learns to produce practical solution.
4. Teaching of entrepreneurship as a subject should be made compulsory in secondary schools in Nigeria.

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Cultural Heritage Concept, Genealogy and

Contemporary Challenges

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Abstract

This document aims to analyze the genealogy of the concept of cultural heritage from the Middle Ages to the twenty-first century, to establish the reason why it is still necessary to review and reconceptualize the way to understand the cultural heritage, where the material and immaterial aspects mutually interact according to its socio-cultural functions. The impacts of the market economy over the cultural heritage definition and management after the second part of the twentieth century make evident why cultural heritage preservation has to be redirected and redefined. It has to involve not only the communities’ perspective and interests, but also different cultural heritage dynamics and understandings out the Eurocentric perspective that still rules heritage issues.

**Key words:** Cultural Heritage, Heritage Preservation, Market of Culture, Socio-cultural Dimensions, Heritage Management.

**Introduction**

It is clear that the concept of cultural heritage refers to the set of assets inherited from the past and directly related with the identity and memory of a specific culture in a specific territory (Querol, 2010). However, when it comes to cultural heritage is difficult to explain and understand why and how the interaction between the identity, memory and territory becomes one of the most important issues of the everyday life of the people.

The historical context where the concept of cultural heritage was born, its transformation during the history, and the way it has been allocated in different cultures, have created a permanent confusion about the central object of the cultural heritage preservation: what gives the significance to the cultural heritage: is it the artifact or the subject? What does it has to be protected: the object or the social significance of the heritage?

The general anthropological definition for culture refers to the spiritual, material, intellectual and emotional features that characterize the human groups; it includes knowledge, beliefs, customs or any other capabilities acquired by humans to interact with the environment. During the history of the cultural heritage, its cultural connotation has been substantially ignored, even after the twentieth century when the social function of the cultural heritage was recognized. Although many organizations and experts have elaborated more precise theories and definitions considering its historical, social, material and immaterial aspects, in the practice the cultural heritage preservation have been focused on its material, economical and political values, almost ignoring the community component.

On the other hand, the rules or procedures for the management of the cultural heritage determined by the UNESCO and national governments, among other international organizations, seem to be enough guides to work on cultural heritage preservation aspects. Although it is true that those organizations have done a lot of efforts to normalize, standardize and organize when, how and why should be protected the cultural heritage, since cultural heritage corresponds to a particular expression of a particular culture, those regulations cannot be applied as universal parameters.

It is necessary to review where and when those policies and regulations were created, what for and under which cultural perspective. The concept of cultural heritage was born in Europe, into a historical moment that corresponded to that continent’s history. Then it became a concept to understand the cultural expressions of other cultures but it has always been understood under the “western” cultural perspective, which differs from Easter, south American and African ones(Choay, 2007; Ballart & Tesserrast, 2005).

In addition, the cultural heritage preservation has become more and more influenced by its economical value. The market economy and the cultural industry seem to rule the cultural heritage preservation goals. It has created a big gap between the cultural communities’ interests and the economical interests over the preservation of the heritage. This is totally contradictory not only with the concept but also with the social function that it is supposed to have and to be protecting: the cultural identity.

These are the reasons why many communities do not really understand what does the cultural heritage means, how to identify it, why does it have to be protected and how to do it. Even before the discourse of cultural heritage, the communities already knew and understood which the bases of their cultural identity are, but they do not understand the need to make cultural heritage inventories and why are they useful. Specially, since the communities do find their cultural expressions interaction between the material and immaterial fields, they do not really understand why the cultural heritage distinguishes material and immaterial aspects (E. Sanchez, 2011).

This document aims to analyze the genealogy of the concept of cultural heritage to finally establish why it is necessary to understand the cultural heritage in a much more comprehensive way where the material and immaterial aspects mutually interact. Their preservation should really involve the communities perspective and interests, even if they do not corresponds to the cultural heritage economical values and interests. This preservation processes should be more consistent while protecting the identity of a culture and a territory, not only for the immaterial cultural heritage, but also for the material one.

**Transformations of the Cultural Heritage Concept**

The birth of the concept cultural heritage, as we understand it today, is a twentieth century social construction, but it was incubated since the fifteenth century. Even before the cultural heritage was in fact called cultural heritage, the monuments and works of art out of the daily life of the ordinary people, became the bases for what later would be cultural heritage. Only, until the second part of the twentieth century, the notion of the context was introduced and so, the second stage of the cultural heritage concept history started. Nevertheless, in the contemporary way of treatment, preservation and conservation of cultural heritage, is still present the perspective of the centuries before.

From the Middle Ages to the twenty-first century, passing through the Renaissance, Baroque Period, the Enlightenment, the French Revolution, the Industrial Revolution, there have been many different perspectives of what have been understood as cultural heritage. Each of these western historical periods contributes to what is nowadays defining as cultural and historical heritage in a formal way (Querol, 2010; Macarrón, 2008). It is important to notice that the predominant history of the cultural heritage has never included the Eastern social and cultural processes related with the evolution of that concept during the history.

**From the Middle Ages to the Enlightenment Period**

During the Middle Ages the scholars considered the ancient world was impenetrable because of the big damages, destructions and modifications to its monuments, constructions and works of art. The ancient Visigoth Churches were first transformed into Mosques and then turned to Christian Churches and cathedrals (Macarrón, 2008). The religious icons, monuments and objects were substituted or repainted. Independently of the knowledge and value they had, those were immediately assimilated by the religious practices of the church in charge, without the establishments of any symbolic differences that this could have bring into a historical perspective. Preservation activities were just for a practical reutilization of the buildings or its parts (Choay, 2007).

Later, in the Renaissance Period the new vision of the universe, deity and the anthropocentric culture, along with the development of the sciences promote new ways to understand and treat the antique creations, buildings and works of art. The incipient taste of the Greco-Roman antiquities was a very important base for the cultural heritage concept construction (Ballart & Tresserras, 2005). However, the value of those antiques was not based on its historical relations; it was based on the exposition of a superior civilization that the Greek constructed (Choay, 2007).

The cultural heritage started to be link not only to the pleasure of the art itself, but also with the notion of prestige. Anyhow, the historical values of the objects were still not considering an argument for the preservation projects (Choay, 2007; Rivera, 2003). However, under the name of “antiques” the “historical monument” notion was born; Three centuries later the antiques were named historical monuments (Choay, 2007).

This term was also characterized by the origin of the Archeology and the collecting boom, caused by the Greco-Roman inheritance. Also, the discovery of the New World brought the firsts ethnological recompilations, folk objects and the “peculiar” indigenous productions (Macarrón, 2008). It contributed to the first conceptualization of the History as a discipline, and the art as an autonomous activity. Later the notion of historical monument linked the history and the art together (Choay 2007; Macarrón, 2008).

Into this context the antique buildings obtained a new value: they became the testimony of an ended past. The sculptors and architects started to be consider the ones that discover the classical art and the testimony of the “evidence of the great man” of the history.

The Renaissance conservation was full of contradictions. The destructions and reutilizations of the materials found in antique monuments and paintings were used to construct or decorate other places without any criteria. In this environment of grandeur and luxury aesthetic, but also plundering, measures and regulations became necessary for the preservation of the ancient buildings (Macarrón, 2008).

The Popes started to be in charge of the conservation of the antiques. Nevertheless, although the conservation processes were supposed to be modern and objective, those were full of plundering and crippling. The Popes who were showing interest in the conservation of the antique buildings were also involved into the Roma’s devastation and its antiques. The historical monuments never stopped of being used as supply portfolios of the new constructions of the Popes (Choay, 2007).

At the same time, during this period of the history the notion of museum also started to be shaped. Some authors argue that at that time the concept museum was used for the first time, others consider that this happened few centuries later. It is true that the collecting practices distinguish by its private and secular character, resulted in a variety of types of spaces and concepts for the treatment of the antique’s collections, however that prefigured some of the future museums (Ballart & Tresserras, 2005; Choay, 2007).

Within Renaissance in Rome there were three principal perspectives around the cultural heritage: historical, artistic and one related with the conservation. Those contributed to the emergence of a new idea of what later was called historical monument. At this period it was still limited to a reduced audience compose by a minority of scholars, artists and princes (Choay, 2007).

Years later, during the Baroque Period the European scholars did not stop enriching the notion of antiques. They explored new places with vestige in Greece, Egypt and Asia Minor making an inventory of the ruins in Rome and Greece. They created the category “National Antiques” and the conservation of painting, sculptures and antique objects was institutionalized, preparing the subsequent architectural monuments concept. All of these actions constituted an enormous effort for the conceptualization and inventory of the antiques. The experts dedicated to these processes of meticulous and patient investigations were called “Antique Dealer”.

For the antique dealers the bases of the testimony of the history were the collections of material productions of the civilization. The historical buildings became a very important tool for them. The monuments of the architecture became particularly rich sources of information (Choay, 2007).

The concept of “National Antiques” opened a new field to inventory. The professional specialization for the antiques’ conservation and restoration became activities with its own character, accompanied by research, experimentation and theoretical and practical discussions. The museums and the academies were created (Macarrón, 2008). The Enlightenment antique dealers started to distinguish between the real monuments and figurative monuments. For them what matter were the object itself and not its destiny.

Further, the Enlightenment scholars brought up the natural sciences approach for the analysis of the antiques: they propose the same controllable type of description and so reliable, which gave the antique dealers its prominence during this period. It also brought another important characteristic of this time related with the treatment and conception of the later called cultural heritage: the dependence over the illustrators, not the painters; the first ones were supposed to be more precise, the second ones had other techniques that could not guarantee the precision of the antique’s descriptions (Choay, 2007).

The democratization of the knowledge that characterized the Enlightenment was also related with the antiques treatment and understanding (Choay, 2007). The ideal of the democratization of knowledge and making it accessible to everyone was done by the replacement of the documents to the real objects. It was done through the model of museums and literature of arts. Nonetheless, for the historical monuments it was the starting of a predatory fragmentation, which were use to enrich the private and public collections, not the democratization process. This gave an incentive to a form of leisure that still did not have the name of tourism, but that had an effect on the conservation of historical buildings.

**French Revolution**

The French Revolution contribution to the historical buildings and monuments preservation history was the step from the theory to the action. The abstract iconographic conservation of the antique dealers became real and practical, with the bases for the legal and technical devices for its preservation.

These contributions were possible because of two main factors: 1.Was the first time the historical buildings, monuments and antiques of the clergy, the Crown and the emigrants were transfer to the Nation. 2. The new ideology of government: from this time it was not only about the conservation of an object, it was also about the wealth and the diversity that the Nation has, it was about the national responsibility of its conservation (Choay, 2007; Macarrón, 2008).

These treasures given to the Nation had economical value to designate which should be this value, the metaphor of heritage was immediately adopted. The key terms used were: inheritance, heritage, succession, patrimony and conservation. Terms that transformed national antique’s status. The antiques turned to exchange values, in material possessions that had to be preserve and kept to prevent a financial crisis.

Nevertheless, the knowledge about the heritage was still exclusively in hands of the minority, the role of the antique dealers and its conservative perspective still ruled. Besides, the knowledge and the perspective around the national art, the criteria for the selection and the technique to treat the historical constructed architecture and works of art still were not done. The immovable goods (churches, castles, residences, etc.) presented also other kind of problems that the revolutionists were not prepared to solve: 1. the commissions did not have technical and economical infrastructure for the maintenance of the buildings; 2. it was necessary to bring new uses for the buildings that have lost their original destiny. The demolition of some historical buildings during that time was the way to express the rejection of clergy, monarchy and feudalism powers, values and emblems already obsolete (Choay, 2007).

During that period, the historical monuments were liberated from any ideological or stylistic restriction. From that time its theoretical or virtual corpus covers not only the Greco-roman antiques that were already recognized as historical monuments, but also the national antiques (Celtics, intermediary or Gothic) and the classic and neoclassic architectural constructions. Also some specific values were given to the historical monuments: national, cognitive, economical and artistic (Choay 2007; Macarrón, 2008).

After 1989 all the elements required for an authentic conservation of historical heritage policy seem to be collected. The creation of term “historical monument” became the corpus for the inventory and the legal devices. The concept of heritage was affected for a strong economical connotation that contributed to its ambivalence. At the same time, the notion of historical monument was still imprecise for a great majority of people during some decades. Further, the history of the architecture was still almost nonexistent, and either, there were no analysis criteria that will allowed the systematic treatment required for the buildings that had to be conserved (Choay, 2007).

**Industrial Revolution**

The industrial revolution divided the society history and its context in two parts: before and after. It happened also with the concept of cultural heritage and its components.

During the nineteenth century was introduce the new status for the antiques, referred to the hierarchy of the historical monuments’ values, its space-time surroundings, its legal status and its technical treatment. The industrial era contributed to reverse the values attributed to the historical monuments giving the prevailing aesthetic values, while virtually it was given the universal meaning to the historical monuments concept. The decade of 1820 breaks with the antiques and the French revolution perspective (Choay, 2007; Macarrón, 2008).

The antique dealers were replaced by the art historians, who consider the antique architecture the object of a systematic investigation, paying attention to its chronology, technique, morphology, genesis, sources; as well as its decorations, frescos, sculptures, glassworks and iconography. The historical monuments and buildings became counterpoint of the natural, rural or urban panorama, and its value were based on contrast with the landscape (Choay, 2007; Macarrón, 2008).

The historical monuments were assigned to the past. They became a past that no longer stays in the present as it has no future. This crack time inscribed the historical monuments into the infinitive past. The industry replaced the art. The architecture history was divided into two categories: traditional architecture and modern architecture. Since then the architecture became the link between the past and the identity of a society, the domestic architecture and the urban complexes started to be recognized as historical architecture. The architecture started to be an active integrant of a new monument: the antique urban complex (Choay, 2007).

The historical monuments became an obstacle for the modernization and its demolition became a need for the new urbanization processes. The maintenance of the antique buildings was almost forgotten. In the nineteenth century the preservation and conservation of the heritage to be efficient needed the creation and recognition of the preservation law and conservation as a discipline (Choay, 2007).

Since the conservation and restoration of the historical buildings required specific knowledge, the nineteenth century invented the “architects of the historical monuments”. They were educated for the understanding of art history, construction history and the scientific and technical terms related to the materials (Choay, 2007; Macarrón, 2008).

**Twentieth Century**

The most important contribution of the twentieth century to the cultural heritage concept was the inclusion of the social function of the cultural heritage as one of the categories of analysis. The historical monument started to be treated as a social and philosophical object. The monument was linked not only the history but also to the interpretation of the history its socio-identity processes.

The historical monument and the monument concepts started to be distinguished. The historical monument was defined according to its historical values, which made possible its inventory and nomenclature, recognizing two new values: remembrance and contemporaneousness.

During the articulation of the nineteenth and the twentieth centuries, the historical monuments conservation reached the status of discipline. Later, in 1931 was celebrated the First Historical Monuments International Conference, opening the debate about the historical monuments and the city relationship. After this meeting the Athens Charter was elaborated, bringing up very new conceptions about the historical monuments. Nevertheless, these conceptions received a limited diffusion as the participants of this forum were only European countries (Choay, 2007). Still, nowadays one of the most important problems for the cultural heritage preservation is that the international laws are based on the European legal system, without including other traditions (IAPH, 2003). In other words, the cultural heritage issues are still understood under a Eurocentric perspective.

However, until the decade of the 1960’s the conservation of the historical monuments was still focused only in the big religious and civil buildings. After that decade, the historical monuments constitute just one part more of the historical heritage that a society has constructed (Choay, 2007). During the 1960’s the cultural heritage concept was reformulated to be based on the concept of culture, it means the history as the only category to understand the heritage was replaced by other one much more complex and that changed the nature and the sense of the cultural heritage (IAPH, 2003).

Since the culture category identifies the way the individuals and groups live, what a human been is, what it was, what have been forgotten and what would it be, during the decades of the 1960’s and 1970’s, the heritage stopped being only related to individual buildings and started to include groups of buildings and urban fabric: blocks and neighborhoods, villages, complete cities and even sets of cities (Choay, 2007; IAPH, 2003; Unesco, 2011). The industrial archaeology and the Modern Movement architecture also became part of the memory related to the cultural heritage, as well as the notion of cultural landscape, recognizing the interaction of a community with its environment (Rivera, 2003).

During the second part of the twentieth century the conservation of the cultural heritage some other changes occurred. The notion of cultural and artistic heritage was included as well as the notion of natural heritage. Also, were consolidated the international organization for the preservation of the heritage and along with it, the regulations for the cultural heritage preservation in national and international levels were increased.

The last decades of the twentieth century were characterized by the cultural sustainability emerging needs. With it, the cultural heritage became an important tool for the development processes and policies all around the world. It was taken as a tool for the social, cultural and economical development, and at the same time, as a social cohesion instrument. Whit it the cultural heritage also became an important resource for the identity territorialisation into a globalization process (IAPH, 2003).

However, the theoretical and practical research about the relation between sustainable development and cultural heritage is still short (Van Der Hammen, Lulle & Palacio, 2009). Most of the emphasis about are focus on technical issues related with the degradation or damage that the urban cultural heritage can suffer from the climate change or other phenomenon related, or related to sustainable tourism. Other investigation, in spite of recognizing the cultural heritage as a social well-being, reduce the cultural heritage to the built heritage, and the method use to identify and preserve it reduce the cultural heritage to a list of monuments, buildings and conservation areas (Tweed & Sutherland, 2007).

On the other hand, along the first half of the twentieth century in a postwar world and decolonization period, the UNESCO and other international organizations started to work for the recognition of the variety of cultural identities, practices and traditions, to finally declare Convention for the Safeguarding of Intangible Cultural Heritage (2003). Nevertheless, it brought a radical division between the material and immaterial component of the cultural heritage, and with it its identification became confusing for the communities. This division also corresponded to the Eurocentric understanding of the cultural heritage, where the buildings, monuments and works of art seem to be a part of the human being experiences in the space, in the history and in the memory and identity of the heritage (Choay, 2007; Ballart & Tesserras, 2005).

As a result, the Spirit of the Place perspective for the comprehension of the cultural heritage started to emerge, trying to understand the heritage from an integral perspective without dividing or classifying the heritage and involving the community into the cultural heritage preservation practices. Although the Spirit of the Place has not been theorized in depth, it started to be developed and applied through some international conventions, charters and declaration inspired on the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (1979) This has been the only cultural heritage category approximation to the different cultures realities, besides the western ones.

**The Invention of the Urban Heritage**

Why did the urban heritage have to wait so long to be equally considered as a conservation objet nondeductible from the historical monuments? There are two principal reasons: 1.The city definition and the framework for its study were not so clear until the twentieth century. 2. The absence of cartographic documents before the nineteenth century and the difficulty to find archives related to the production and transformations of the urban space in the time. In the same context, the history of architecture forgot about the city and its historical expressions (Choay, 2007; Macarrón, 2008).

The conversion of the city as an object of historical knowledge was caused by the transformation of the urban space during the French Revolution. The notion Urban Heritage came up into the adverse context of the urbanization. The historical city was conceived as a strange object, fragile and valuable for the art and the history, and as the same objects for exhibitions in the museums, so the experts considered it had to be taken out of the life circuit. As a consequence it brought a big contradiction: while the historical city is transformed in historical, the city loses its historicity (Choay, 2007).

How to conserve and take out of the life circuit those historical urban fragments without depriving them of its activities and habitants? This problem was set out after the II world war.

Gustavo Giovannoni was the first one who talked about urban heritage. He was the first who gave the antique urban complexes value of use and value of museum, integrating them into a general conception of territorial planning. This implied a new model of conservation of the historical urban complexes for the history, for the art and for the present (Choay, 2007).

Under this approach the historical city itself became a monument, but at the same time a living fabric. Giovanonni funded the doctrine of the restoration and conservation of the urban heritage, resumed in three principles: the urban heritage has to be integrated to the urban, local, regional plan. 2. The historical monument concept is not only related to a single and isolated building. It corresponded to urban dialectic and cannot be disconnected from that; also, for the first time it was recognized the spirit (historical) of the places, materialized in the special configurations. 3. The urban heritage requires procedures for its preservation and restoration as the monuments does.

**Cultural Industry and the Cultural Heritage**

The second part of the twentieth century was characterized by the emergence of the cultural industry. Edgar Morin defined the modern times culture according to the Mass Culture phenomenon, where the peoples behaviors homogenization is the principal social process, based on the consumerism and pragmatism. In this context, the cultural heritage is an object for use and consumption (Ballart & Tesserras, 2005).

In this context, the market of the culture made the cultural heritage one more of its objects for use and consume. The heritage became part of the regular consumer demand of the contemporary societies, as well as part of education, leisure and tourism. The recognition of the cultural heritage as a resource brought much more extended conscious of its richness but also of its vulnerability.

In this context, the occidental values became the contributors to the ecumenical cultural heritage practices. This expansion was symbolized by the “Convention Concerning the Preservation of the World Cultural and Natural Heritage” adopted by UNESCO in 1972 (Choay, 2007), which define the cultural heritage according to the western classification of the antiques and architecture recognized centuries before only in Europe: monuments, groups of buildings and sites. In this convention the heritage can be recognize when it is “*of outstanding universal value from the point of view of history, art or science*”. But, who define these “universal values”? Where are located the recognized academies of history, arts and sciences?. Under this light, who define what is and what is not cultural heritage?

Whit this convention the universal system of thought and western values on cultural heritage issues were proclaimed. Since that convention, the relation between the cultural industry and the cultural heritage started to be also characterized by the universalization of the western – European values system all around the world. The monument, the historical city and the urban and architectural heritage express the way the western societies have assumed its own temporal and identity relationship (Choay, 2007).

On the same line, the cultural industry and cultural consume took up again the big knowledge democratization project inherit from the Enlightenment Period, based on the eradication of the differences and its most representative phenomenon the historical monuments audience. The privileges of enjoyment and leisure time, and its correlative, cultural tourism became the most significant mass culture consumer’s call (Choay, 2007; Ballart & Tesserras, 2005).

The monuments and the historical heritage acquire a double status: first as knowledge and pleasure works dispensing available to everyone; and also as cultural manufactured product, packed and spread due to its consume. Thanks to the cultural industry, the cultural heritage value becomes also an economical value (Choay, 2007). Now purpose for the cultural and historical heritage preservation is directly related to the private and public sector incomes growth.

With it, the new trends on cultural heritage are composed by its valorization and its integration to the contemporary life. The valorization trend is not referring any more to the values of the heritage itself. Refer to the values of the heritage capital gain. Off course the importance of the monument is still taken into account, but mainly the economical connotation leads its valorization. This new trend is now under the profitability signal, which has been developed with the aim to valorize the cultural heritage: conservation and restoration, staging, animation and modernization of the heritage into a valuable exchange and its presentation (Choay, 2007; Ballart & Tesserras, 2005).

The integration in the contemporary trends refers to the reutilization of the places. This is one of the most audacious and difficult ways for cultural heritage valorization. It is about the reintroduction of the monument into the live circuit uses of the city. The industrial and preindustrial architecture, the cities and historic areas are part of this process. The social value of the historic cities and areas developed into real state and touristic interests, which with difficulty can correspond to any social aspect.

Since then, the re-appropriation and revalorization of the historic cities and historic city areas have become the flag of many nations. But this covers a lot of interventions over the cultural heritage to make it a cultural consumable product. In other words, though the cultural heritage discourse the city is reused for economical benefits. The industry of cultural consume have prepared the procedures of packing of the historic centers and historical complexes ready for the cultural consume. The city is put on stage: illuminate, clean and makeup for its media image. The historical cities and historic areas of the city are full of graphics signage and guidance, but also of colorful stereotypes like alleys, squares, paved and tiled walkways in an antique style, etc. Besides, there are outdoor leisure stereotype places like coffee shops, art crafts shops and restaurants, among others. All of these things to improve the economical benefits of the cultural heritage through the cultural tourism (Choay, 2007; Ballar, 2005).

The government’s laws and conventions for the preservation of the cultural heritage are justified by the economical inputs of the cultural activities related to the heritage. This situation became a subject for discussion not only in national level, but also in an international level. Since the second part of the twentieth century international organizations like OEA, UNESCO, European Council, ICOMOS, OMT, among others, through conventions, charters and laws, s recognized the economical value of the cultural heritage. These documents highlight the evolution of the cultural heritage concept during the last sixty years which have been expanded but also link more and more to the economical interest of the market, still based under the western- European logic (IAPH, 2003).

**Cultural Heritage new needs and challenges**

In the history of the cultural heritage, the cultural notion and its social function may have been included into the cultural heritage discourses but not into its practices. Nowadays there are more and more conventions, charters and declarations where the socio-cultural aspects of the heritage are recognized, but at the same time those regulations also give priority not only to the material but also to the economical value of the heritage, which place the communities’ interests apart.

Besides, since the cultural industry, directly or indirectly, represents an important part of the countries income, the valorization of the cultural heritage became an important corporation. Nonetheless, there are clear sides and negative effects over the cultural heritage: the exclusion of the socio-cultural dimensions of the cultural heritage, like for example the exclusion of the residents and along with it their traditional and daily activities. According to the cultural industry, how does the urban heritage should be understood? Where are the places for the traditional residential activities and the community services (small commerce, schools, medical centers, etc)? When the social demand is a priority?

All of these circumstances and gaps between the theory and the practice of the cultural heritage concept and its regulations show how necessary it is to reconceptualize and reevaluate the heritage concept. It is imperative to generate new definition, regulations and conventions with non-Eurocentric and socially sustainable perspectives. In other words, it is time to look at the ways the cultural heritage has been understood, practice and developed in other cultures different from the European ones, to construct more democratic and multicultural understandings of such a cultural category.

The concept of cultural heritage should become a way to recognize the processes of social cohesion and cultural identity consolidation of the communities and the communities’ interests for the understanding of the management and performance of cultural and social development processes, according to each culture’s particularity. This would bring new challenges: the capacity for the design of new cultural heritage management models that could include a comprehensive and inclusive understanding of the cultural heritage, which in the practice really involves the social and cultural functions. Although over the last decades new appreciations of the cultural heritage have emerged, the traditional model established since the Enlightenment Period is still ruling.

The new models for cultural heritage management have to represent the contemporary society, not only the economical dimensions, but mostly the social and cultural. These models have to preserve and interpret the cultural significance of the place where the cultural heritage is present, its aesthetic, historical, social and spiritual values, as well as the community of the place and their continuous daily life. And the most important, is time to recognize the particularities of the culture and the identity without having the western economic and cultural system values as the only lenses for understanding the cultural heritage.

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Investment In Education as a Means

of Economic Development

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Abstract

The paper examines investment in education as a means of economic development. Investment in education is the way by which human capital can be nurtured towards the achievement of global millennium development goals. It is only when a country increases the quantity and quality of human capital availability in a given economy that there can be more hands on deck to bring the country to a desirable economic development. The main vehicle to economic development is investment in education. . Chi-square tested at 5% level of significance was the statistical tools or technique employed in testing the hypotheses formulated and all the null hypotheses formulated were rejected. It was therefore concluded that investment in education is a means to economic development.

**Introduction**

Individuals are willing to take more years of schooling partly because they can earn more money/income and get better jobs, on the average, with more schooling. To many, more schooling can also be a source of social mobility. Similarly, nation-states and regions are interested in raising the average level of schooling of their population, in part, because they think that doing so will improve productivity, raise the quality of jobs in the economy, and increase economic development.

**Statement of the problem**

The link between education and economic development in some of the early work on the economics of education was based on the argument that a major effect of more education is that an improved labor force has an increased capacity to produce, Because better-educated workers are more literate and numerate, and therefore easier to train. It is easier for them to learn more complex tasks. In addition, they do have better work habits, particularly awareness of time and dependability. But exactly how education increases productivity, how important it is, and in what ways it is important are questions that have no definite answers. A shortage of educated people may limit development, but it is unclear that a more educated labor force will enhance economic development. It is also unclear what kind of education contributes most to development—general schooling, technical formal training, or on-the-job training—and what level of education contributes most to development—primary, secondary, or higher education?

Research Questions

This research work tried to answer the following pertinent questions in order to access the investment in education as means of economic growth.

1. Does investment in education enhance the economy development of the country?
2. Does investment in education have greater impact on the level of productivity in the country?
3. Does investment in education influence the quality of manpower development in Nigeria?

**Research Hypotheses**

Based on the above questions asked, the following hypotheses were formulated:

Ho: Investment in education has no significant influence on enhancement of economic development in Nigeria.

H1: Investment in education has significant influence on enhancement of economic development in Nigeria.

Ho: Investment in education has no significant impact on the productivity of the workers.

H1: Investment in education has significant impact on the productivity of the workers.

Ho: Investment in education has no significant influence on the quality of manpower development in Nigeria.

H1: Investment in education has significant influence on the quality of manpower development in Nigeria.

**Significance of the Study**

The significance of this research work was to bring out the importance of investment in education as a means of economic growth. In this regard, the study would look into the contributions of education to the economic growth which can translate to economic development. The study would also be useful to the government to assess its impact on human capital development in order to put necessary machineries in place for its encouragement.

**Education Contributes to a Higher Economic Development of countries.**

One of the clues in support of the conclusion that education does contribute to development is that countries with higher levels of economic growth have labor forces with higher levels of formal schooling. Beyond such a macroeconomic approach to the relation between education and economic growth, the new growth theories assert that developing nations have a better chance of catching up with more advanced economies when they have a stock of labor with the necessary skills to develop new technologies themselves or to adopt and use foreign technology. In such models, more education in the labor force increases output in two ways: education adds skills to labor, increasing the capacity of labor to produce more output; and it increases the worker’s capacity to innovate (learn new ways of using existing technology and creating new technology) in ways that increase his or her own productivity and the productivity of other workers. The first of these emphasis is that the human capital aspect of education (that is, education improves the quality of labor as a factor of production and permits technological development); the second places human capital at the core of economic growth and development by asserting that the externalities generated by human capital are the source of self-sustaining economic growth—that human capital not only produces higher productivity for more educated workers but for most other labor as well.

This model also sees innovation and learning-by-doing as endogenous to the production process, with the increases in productivity being a self generating process inside firms and economies (Lucas 1988; Romer 1990). Such learning-by-doing and innovation as part of the work process are facilitated in firms and societies that foster greater participation and decision making by workers, since those are the firms and societies in which more educated workers will have the greatest opportunities to express their creative capacity. The frequent observation that individuals with more education have higher earnings is another indication that education contributes to development. The education–higher earnings connection reflects a macroeconomic approach to the relation between education and economic development. Greater earnings for the more educated represent higher productivity—hence, an increase in educated labor in the economy is associated with increased economic output and higher growth rates.

**Economic Justification for Investment in Education**

The scale of public and private expenditures on different levels and types of education provides an indication of de facto priorities. However, it does not indicate the rationales for those priorities. Behind the expenditures are institutional and individual decisions that have social, political, and economic goals. The social and political goals include raising of the levels of education in order to improve public awareness of important issues, efforts to preserve existing social orders, desires to reduce inequalities of access, and concern to reduce population growth rates. However, more relevant to this particular document are the economic goals.Among the dominant strands of thought on the role of education in economic development is that it is an investment in human capital (OECD 1998). Within this, is the view that it is possible to calculate rates of return from investment in education, and to do so by level and type of education. The work of Psacharopoulos (e.g., 1994, 1995) has become particularly well known in this domain.

The result of statistics from a large number of studies on rate of returns to investment in education was compiled by Psacharopoulos in 1994. Private returns accrue to individuals, while social returns accrue to the whole society (including the individuals). In most cases, private returns are greater than social returns because governments give more in subsiding than they take away in taxes. Together with related work, Psacharopoulos has argued that education is generally a good investment both for individuals and for whole societies. Within the education sector, Psacharopoulos has argued that, rates of returns are particularly high at the primary level, and especially in developing countries. This suggests that in most circumstances primary education deserves priority in the allocation of extra resources. This view has helped shaping World Bank policy, and has also been widely accepted elsewhere (e.g., UNDP 2000). The World Bank in 1995,argued on such evidence that expenditures in many countries have been misallocated between education subsectors, with too much emphasis on secondary and higher education. However, evidence from some countries seems to indicate that private rates of returns are falling over time (Tilak 1997a, 69). Moreover, the very concept of rate-of-return analysis in education has been subject to criticism Leslie 1990; Bennell 1996; Curtin 1996. One argument is that greater earnings for individuals with higher levels of education do not reflect the intrinsic value of education so much that school systems operate as screening devices in which only the more talented get through to higher levels. This view does not nullify the value of investments in education, but casts a different light on the reasons for earnings differentials at different levels of education. Other criticism of rate-of-returns analysis is that the presentation of exact numbers gives the illusion of precision.

**Strategies for the Planning of Education for Growth**

Education can be a potent for national growth, if it is properly planned. To this effect , the following actions are necessary:

1. Make attendance at the primary schools compulsory for all Nigerian children of primary school age. The education must be free and must be of high quality. Hence , the schools must be well equipped and staffed.
2. Provide facilities for all those who successfully complete their primary education at the Junior Secondary Schools. The tuition should be free and enough neighborhood schools should be provided to reduce the need for boarding facilities for all except for those who can afford it.
3. Provide enough facilities for graduates from the Junior High Schools to the Senior High Schools. It may be tuition free, eventually when the economy has improved. Enough place should be provided for all those who have successfully completed the Junior High School courses and are willing to continue their education .
4. Provision of facilities in all areas of need at the tertiary level and the orientation of students at this level should be such that students can develop independent thinking and creativity for nation building.
5. Government should continue the six years development plans. The government should not merely continue six years development plans , but must pursue them more realistically. And once this is on, the planning of education for national development will be very easy. The educational needs of the country can easily be determined during a plan period via skill requirement both in public and private sector.

**Methodology**

This study was descriptive, employing the survey research type. This was done through the use of structured questionnaire and observational technique in investigating the investment in education as a means of economic development. Thus, the research made use of primary data obtains from the population.The population for this study consisted of the Teachers and Parents in Epe Local Government Area of Lagos State.A total of Four Hundred people were sampled. The cluster technique was used to select subject from Epe Local Government Area.The instrument was a structured questionnaire consisting of a number of statements to which respondents were to indicate their agreement or disagreement.

**Procedure for Data Collection**

The questionnaire forms were personally administered by the researchers, with the support of people visited. A hundred percent return rate was obtained, thus all the questionnaires sent out were returned and analyzed.

**Method of Data Analysis**

The simple percentage and the Chi-square were used for analysis

**Data analysis and discussion**

***Table 1:*** *Gender of respondents*

|  |  |  |
| --- | --- | --- |
| **Gender** | **Frequency** | **Percentage** |
| Male | 240 | 60 |
| Female | 160 | 40 |
| Total | 400 | 100 |

**Results of Hypotheses Testing**

***Table 1****: Ho: Investment in education has no significant influence in*

*enhancement of economic development in Nigeria.*

*H1: Investment in education has significant influence in enhancement of economic development in Nigeria.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Item | SA | A | D | SD | Total |
| 1 | Individuals with more education have higher earnings is another indication that education contributes to both economic growth and development. | 140(125) | 100(115) | 40(62) | 100(78) | 380 |
| 2 | Investment in education increases the creative ability of an individual to contribute immensely to Gross Domestic Product of Nigeria per year | 100(115) | 120(105) | 80(58) | 50(72) | 350 |
| 3 | Column Total | 240 | 220 | 120 | 150 | 730 |

*X2 observe value = 36.93; Degree of Freedom = 3 Level of significance =0.05; Critical X2 Value = 7.815*

The table 1 revealed that the obtained chi-square value of 36.93 was greater than the critical value of 7.815 at 0.05 level. Therefore the null hypothesis was rejected. This result thus shows that the investment in education has significant influence in enhancement of economic development in Nigeria.

***Table 2:*** *Ho: Investment in education has no significant impact on the productivity of the workers.*

*H1: Investment in education has significant impact on the productivity of the workers.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Item | SA | A | D | SD | Total |
| 1 | The general level of education in the workforce expands production possibilities | 145(127) | 115(122) | 60(66) | 60(66) | 380 |
| 2 | The investment in education has led to increase in the level of both quantity and quality of products being produced in the country. | 105(123) | 125(118) | 70(64) | 70(64) | 370 |
| 3 | Column Total | 250 | 240 | 130 | 130 | 750 |

*X2 observe value =8.22; Degree of freedom=3 Level of significance = 0.05; Critical X2 Value = 7.815*

The result of table 2 revealed that the observe chi-square(X2) value of 8.22 was greater than the critical value of 7.815 at 3 degrees of freedom and 0.05 level of significance. The result was therefore significant. It can then be inferred that the investment in education has significant impact on the productivity of the workers.

***Table3*** *Ho: Investment in education has no significant influence on the quality of manpower in Nigeria*

*H1: Investment in education has significant influence on the quality of manpower in Nigeria.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Item | SA | A | D | SD | Total |
| 1 | Investment in education has greater impact on manpower development to sustain and achieve global millennium development goals. | 150(128) | 110(118) | 40(62) | 80(72) | 380 |
| 2 | Investment in education increases the quality of human capital in the country. | 100(122) | 120(112) | 80(58) | 60(68) | 360 |
| 3 | Column Total | 250 | 230 | 120 | 140 | 740 |

*X2 observe value = 29.19; Degree of Freedom = 3 Level of significance =0.05; Critical X2 Value = 7.815*

The table 3 revealed that the obtained chi-square value of 29.19 is greater than the critical value of 7.815 at 0.05 level. Therefore hypothesis was rejected. Therefore, the Investment in education has significant influence on the quality of manpower in Nigeria.

**Conclusion**

In conclusion, the empirical tests generally show that education is one of the initial conditions that define the long-term steady state towards which the economy tends: the countries that in 1960 had a higher level of education, had a greater opportunity. 40 years later, to reach a higher level of development. On the other hand, despite the diversity of methods and measures of human capital variables, the role of human capital in the convergence process is still not consistently positive. It is unclear that the countries that invested more in education universally experienced a higher growth rate.

**Recommendations**

Experience gathered from the review of innovative practice of both developed and developing countries of the world, indicate that much remains to be learnt about educational planning.

If the desire is to meet the political, social and economic interest of the state and the furtherance of national development, hence it is recommended that:

* Government, private sectors and the community should be charged with the responsibility of proper funding and supervisions of all levels of education in the economy.
* Teachers should be adequately taking care of as this encourages effectiveness in their duties.
* Parents should also encourage their children to go to school as they are the leaders of tomorrow.

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The Effects of International Trade on Macroeconomic

Stability in African Countries

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Abstract

Trying to explain the recent financial and global crisis effects in Africa, different authors demonstrate that international trade has played a key role as a driving channel. The aim of our work is, subsequently, to assess the effects of international trade indicators on African macroeconomic stability. This study is justified by the dependence of these countries to the fluctuations of international business flows. The baseline assumption of the paper is that international trade may induce high volatility in African countries unduly the type of exchange rate arrangement. The set of international trade indicators include indicators of commercial flows (exportations, importations, and openness) and other indicators (terms of trade, exchange rate). Growth volatility is measured by the conditional variance of per capita GDP growth rate. The conditional variance is extracted using a SAARCH model for each country. Then international trade indicators are included in the growth volatility model with a set of control variables. The results show that between 1980 and 2010, international trade is an important determinant of growth instability in African countries whatever the exchange rate regime.

**Keywords:** international trade, growth, volatility, SAARCH, Africa

**Introduction**

As stated by Fornari and Mele (2011), openness and globalization give countries the opportunity to interact more closely through trade and capital flows. Therefore the impact of a global turmoil on African aggregate export revenues and foreign direct investments will be immediate and substantial (Ali, 2009). According to facts, real Gross Domestic Product (GDP) growth rate decrease from 5.5% in 2008 to 2.1% in 2009 in Sub-Saharan Africa. Africa was victim of the nature of its exportations highly constituted of primary commodities whose prices sagged in 2009. South Africa, Nigeria, Ghana, and Kenya were the first to suffer from the global financial crisis which spread to them by more direct channels (falling equity markets, capital flow reversals, pressures on exchange rates). Other African countries were thumped by indirect channels in the number of which aretrade and trade prices[[8]](#footnote-8) . This is due to the nature of their exportations/importations highly constituted of primary commodities. In addition to stock movements (importations and exportations), trade is materialised by financial flows. The interest here is on the relevance of commercial fluctuations in explaining African growth volatility. This strand of the literature is still under construction. Results are then as varied as the number of authors who have studied the question. Moreover, the indicators used in international trade studies differ from one author to another. To date, one can easily say that there is not yet studies taking into account as many African countries (41) as ours coupled with a wide set of trade indicators. The importance of growth volatility questions is documented by different theoretical works. These studies stress on three major reasons: (i) output volatility may be costly in terms of welfare (Barlevy, 2004; Loayza, Ranciere, Servén, & Ventura, 2007; Pallage & Robe, 2003), (ii) higher volatility is detrimental for growth (Aghion, Burgess, Redding, & Zilibotti, 2005; Fatás & Mihov, 2006; Berument, Dincer, & Mustafaoglu, 2011), (iii) volatility has disproportionately adverse effects on the poor countries (Easterly, Islam, & Stiglitz, 2000; Laursen & Mahajan, 2005). The question to be addressed here is what are the effects of trade on growth volatility in African countries? This question may be subdivided in two questions: (i) what are the indicators that can influence growth? (ii) What is the nature of their respective effects? After reviewing the existing work on the question (section 2) we deal with measurement of growth volatility in African countries (section 3) then we try to assess the growth volatility effects of international trade per se. In section 5 we conclude.

**Theoretical Trends in Trade-Growth Volatility Tradeoff**

African countries are particularly exposed to trade fluctuations due to the nature of their exportations or importations (table 1). According to some authors, a high degree of trade exposure has three implications for domestic economic volatility (Down, 2007). First of all, the larger the proportion of the tradable sector in economy (the export oriented and import competing sectors) is, the larger will be the part of total volatility determined externally. Secondly, the greater the degree of trade exposure, the smaller will be the part of domestic volatility determined internally. Thirdly, he says that a lower level of volatility might result from a greater degree of trade exposure.

***Table 1 :*** *Countries exposed to external shocks*

|  |  |  |
| --- | --- | --- |
| **Countries exposed by the nature of their importations** | | |
| **Agricultural commodities** | **Metal** | **Energetic products** |
| Soudan, Niger, Egypt, Senegal, Eritrea, Mozambique, Gambia, Kenya, Uganda, Sierra Leone, Comoros, Togo, Zimbabwe, Benin | Zimbabwe Egypt, Nigeria, Kenya, Morocco, | South Africa, Cameroon, Ivory Coast, Morocco, |
| **Countries exposed by the nature of their exportations** | | |
| **Agricultural commodities** | **Metal** | **Energetic products** |
| Sao Tomé-et-Principe, Burundi, Ethiopia, Benin, Burkina Faso, Ivory Coast, Uganda, Sierra Leone, Gambia, Mali, Kenya, Togo | Zambia, Mauritania, Mozambique, Zimbabwe, Ghana, South Africa, Cameroon, Sierra Leone, Egypt, | Algeria, Nigeria, Gabon, Cameroon, Soudan, Tunisia, South Africa, Egypt, |

*Source: Banque de France • Annual Report on CFA Zone • 2010*

The available evidences suggest that the effects of trade on growth volatility are mixed allowance being made for the used indicator. In fact, two major results emerge from the literature on trade and growth volatility. While several authors documented an increasing role of trade, others assume the opposite point of view.

According to the first point of view, terms of trade (ToT) volatility increases growth volatility (Easterly & Kraay, 2000). In an attempt to justify the above relationship, export concentration was pointed out as playing an important role (Jansen, 2004). Export concentration influences ToT volatility and that ToT volatility in turn drives income volatility. Other authors show that commodity price shocks are positively linked with growth volatility (Dehn, 2000.; Kose & Riezman[[9]](#footnote-9), 2001). Nevertheless, some authors point to the fact that such shocks can just explain a small fraction of the long run variance of real per capita GDP (Ahmed & Suardi, 2009; Becker & Mauro, 2006). The non negligible role of institutions was also emphasized in explaining this tradeoff (Easterly, Islam, & Stiglitz, 2001). Many other authors have documented the positive link between trade openness and growth volatility with different arguments (Bejan, 2006; Koren & Tenreyro, 2007; Kose, Prasad, & Terrones, 2006; Malik & Temple, 2009). In this vein, the positive link between trade and growth volatility was explained stressing on the degree of specialization (Koren & Tenreyro, 2007). According to them a high degree of specialization in high-risk sectors induces high aggregate volatility.

Talking of exchange rate, it is shown that it can influences output volatility in three ways: (i) its ability to adjust in response to shocks, (ii) its impact on economic policies and (iii) its impact on financial system (Yougbare, 2008). Therefore effects of foreign shocks might be weaker in flexible exchange rate countries than in fixed exchange rate ones.

Opposite to the previous conclusion other authors show that trade openness might help decrease volatility (Barell & Gottschalk, 2004). Different hypothesis were then underlined to justify this result. Amongst them we can quote the risk diversification hypothesis (Down, 2007)[[10]](#footnote-10), the reduction of country vulnerability hypothesis[[11]](#footnote-11) (Cavallo & Frankel, 2007; Cavallo, 2005). Given that both positive and negative relationship have pro and cons arguments, some authors rather try to understand the reasons of this fact. Some of them found that the difference between openness and external link is helpful for this purpose (Kim, 2007). The effect of trade depends on the stability of external risk defined as the stability of the terms and circumstances under which trade occurs. Finally he finds in a set of 175 countries that trade is not a significant determinant of output volatility.

**Measuring Growth Volatility**

Different approaches have been used in order to measure GDP growth volatility. While the major part of authors uses GDP growth standard deviation, some authors use the conditional variance. In this second field, different forms of the basic ARCH model have been implemented. Caporale & McKiernan (1998) use a Mean-ARCH on yearly data while Speight (1999), Beaumont, Norrbin, & Yigit (2008) applied a Mean-GARCH on monthly data. Hamori (2000) uses three forms of the model namely GARCH, TGARCH and EGARCH. This last form has also been used by Fountas, Ioannidis, & Karanasos (2004). Here we implement a SAARCH model.

The advantage of the SAARCH specification is that it takes into account the hypothesis of an asymmetric response of growth to positive or negative shocks. We use data on African growth between 1980 and 2010. The results validate the conditional variance hypothesis. The best fitted model according to the information criteria is the AR (1/2) – SAARCH (3) one. This model is used to predict the conditional variance for each country between 1980 and 2010. Results are reported in graph format (annex). It can be see that African countries are highly volatile but in different ways. Some of them fluctuate around a constant mean (Algeria, Mali, Sierra Leone) while others have periodical means (Togo). Another group is constituted of those having explosive fluctuations (Cameroon).

**Assessing The Effects of Trade on Growth Volatility**

This section is devoted to the disclosure of the effects of international trade in African countries. We use a sample of 41 African countries between 1980 and 2010. Data come from the 2011 African Indicator Database[[12]](#footnote-12) (hence after ADI).

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**The Growth Volatility Model**

Let us look at the studies focusing on GDP growth volatility determinants. Some of these studies show that volatility decreases with the global level of GDP but it increases with the share of agriculture in GDP(Fiaschi & Lavezzi 2005). Other studies use a wide range of indicators to find those that explain GDP per capita growth rate volatility. Finally, they found that the more significant are openness (), the lagged GDP per capita growth rate (), the standard deviation of money supply (, and the standard deviation of Consumer Price Index annual growth rate (). These variables are employed here as control variables. Added to these variables five trade indicators are successively introduced in the growth volatility model. Specifically we test the importance of openness, exports, imports, ToT and terms of trade volatility. A dummy variable is also inserted in the model in order to take in account the role of the exchange rate arrangement (E). Therefore it is settled as follow:

.

The type of exchange rate arrangement used here comes from worldwide FMI classification of *de facto* exchange rate regimes. The whole model is then:

**The Results**

The results are presented in two different tables due to the high correlation between and , no matter the indicator. We first apply the fixed effects method, and then we implement different tests to evaluate the adequacy of results. While the autocorrelation and heteroskedasticity tests validate the hypothesis of the presence of these inconsistencies, the fixed effects test failed to reject the null hypothesis of no fixed effects (except in the case of terms of trade). After testing for the presence of random effects, we finally use three different methods to correct for the anomalies: Pooled Ordinary Least Square (OLS), Panel Corrected Standard Errors (PCSE) and Panel General Least Square (GLS). All these methods give quite similar results. We report here the results of GLS regression.

**The Effects of trade without exchange rate differentiation**

Table 2 below shows the results of the regression of trade indicators on per capita growth conditional variance. They are presented as follow: in equation I, ‘’ ≡ ‘’; in equation II, ‘’ ≡ ‘’; in equation III, ‘’ ≡ ‘’; in equation IV ‘’ ≡ ‘’; in equation V, ‘’ ≡ ‘’.

***Table 2:*** *The effects of trade on growth volatility*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Method: Panel General Least Square with Panel specific AR(1)  Dependent Variable: GDP per capita conditional variance | | | | | |
| **Variables** | **I** | **II** | **III** | **IV** | **V** |
| Trade | -0.000\*  (-2.65) | -0.000  (-1.07) | 0.000\*\*  (1.96) | 0.021\*  (4.26) | 0.000  (0.18) |
| GDP(-1) | -0.058\*  (-12.69) | -0.052\*  (-13.89) | -0.052\*  (-14.21) | -0.049\*  (-15.23) | -0.050\*  (-16.59) |
| Δ(σ2[CPI]) | 0.000\*  (3.28) | 0.000\*  (3.82) | 0.000\*  (3.81) | 0.000\*  (3.96) | 0.000\*  (4.03) |
| σ2(M2) | 0,000\*\*\*  (-1.75) | -0.000\*\*\*  (-1.90) | -0.000  (-0.07) | 0.000  (0.08) | -0.000\*\*  (-2.08) |
| IBENIN |  |  |  | 0.0937\*  (3.49) |  |
| IEGYPT |  |  |  | 0.044\*\*  (2.12) |  |
| IGAMBIA |  |  |  | 0.074\*  (3.67) |  |
| IKENYA |  |  |  | 0.038\*  (3.37) |  |
| ILESOTHO |  |  |  | 0.046\*\*  (1.99) |  |
| ITANZANIA |  |  |  | -0.085\*\*  (-2.47) |  |
| IUGANDA |  |  |  | 0.035\*\*\*  (1.80) |  |
| Constant | 1.799\*  (253.24) | 1.787\*  (315.31) | 1.785\*  (316.82) | 1.781\*  (286.14) | 1.786  (312.47) |
| Wald test | 190.65 | 233.30 | 235.63 | 353.69 | 301.48 |
| Prob>Wald | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 720 | 1030 | 1061 | 1020 | 1007 |

*Notes: the stars indicate the degree of significance. \* means 1%, \*\* means 5%, \*\*\*means 10%*

**The Effects of trade with an emphasis on the type of exchange rate arrangement**

Table 3 below shows the results of the regression of indicators on per capita growth conditional variance. In equation I, ‘Trade’ ≡ ‘Openness’. In equation II, ‘Trade’ ≡ ‘Importations’. In equation III, ‘Trade ≡ ‘Exportations’. In equation IV ‘Trade’ ≡ ‘Terms of trade’; in equation V, ‘’ ≡ ‘.

***Table 3:*** *The effects of I\*Trade on growth volatility*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Method: Panel General Least Square  Dependent Variable: GDP per capita conditional variance  Panel specific AR(1) | | | | | |
| **Variables** | **I** | **II** | **III** | **IV** | **V** |
| I\*Trade | -0.000\*\*  (-2.18) | -0.000  (-1.33) | 0.000\*  (2.58) | 0.005  (1.43) | -0.000  (-0.39) |
| GDP(-1) | -0.075  (-15.50) | -0.052\*  (-13.95) | -0.052\*  (-14.14) | -0.050\*  (-14.98) | -0.053\*  (-14.06) |
| Δ(σ2[CPI]) | 0.000\*\*  (2.35) | 0.000\*  (3.79) | 0.000\*  (3.82) | 0.000\*  (4.02) | 0.000\*  (3.83) |
| σ2(M2) | -0.000\*\*\*  (-1.72) | -0.000\*\*\*  (-1.80) | -0.000  (-0.27) | 0.000  (0.10) | -0.000\*\*\*  (-1.77) |
| IBENIN |  |  |  | 0.082\*  (2.73) |  |
| IGAMBIA |  |  |  | 0.046\*\*  (2.32) |  |
| IKENYA |  |  |  | 0.035\*  (3.00) |  |
| Constant | 1.834\*  (231.05) | 1.787\*  (315.64) | 1.785\*  (317.36) | 1.779\*  (298.11) | 1.788\*  (311.94) |
| Wald test | 259.96 | 232.87 | 236.74 | 313.42 | 231.98 |
| Prob>Wald | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 519 | 1030 | 1061 | 1020 | 997 |

*Notes: the stars indicate the degree of significance. \* means 1%, \*\* means 5%, \*\*\*means 10%*

**Discussion of the Results**

Two particular features are important in discussing econometric results. The first commentary is relating to the effects of trade indicators on growth volatility. The second commentary relates to the effects of trade arrangement.

**The Role of International Trade on Growth Stability in Africa**

On a technical point of view, models are well fitted even if we can note the presence of missing values in the sample. In fact, instead of 1230 observations (41\*30) we have generally around 1050 observations except for openness equation where we have more or less 750 observations. This last report implies that data are available for about 20 years within the whole sample. We note that when it means that the effect is significant but small.

Globally, except importations, all international trade indicators have a pertinent effect on growth volatility in African countries. According to table 1, openness is a significant determinant of growth volatility as stated in literature. Even when control variables are added, openness remains negative and significant. Importations are not significant even after the inclusion of control variables (table 2). In the contrary, exportations are significant and positively linked with per capita GDP volatility (table 3). Terms of trade are strongly and positively linked to growth volatility.

Concerning terms of trade regression, country-dummies where use to model the fixed effects hypothesis. It comes that Benin, Egypt, Gambia, Kenya, Lesotho, Tanzania and Uganda dummies are significant. Thus we try to explain the reason of their importance. Firstly we note that when the exchange rate arrangement is taken in account IEGYPT, ILESOTHO, ITANZANIA and IUGANDA become weak. This first approach allows us to presume that the exchange rate regime may be important in explaining the effects, at least, of terms of trade on growth volatility. The second approach is drove by the fact that IGAMBIA, IKENYA, and IBENIN remain significant. According to this approach the reason of their importance may be found in their specific structural features (institutions or financial system) or in an omitted variable.

Going one step above, we test for pairwise correlation between trade indicators to check for the capability to merge them in a same model. The results (table 4) reveal that all the variables are weakly correlated except exchange rate and openness. So they all can be inserted at the same time. In this non reported case ‘openness’ is the sole variable to remain significant.

***Table 4:*** *pairwise correlation among trade indicators*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Openness | Δ(exportations) | Δ(importations) | Terms of trade | Exchange rate |
| Openness | 1.000 |  |  |  |  |
| Δ(exportations) | 0.0091 | 1.000 |  |  |  |
| Δ(importations) | 0.0093 | 0.0863\* | 1.000 |  |  |
| Terms of trade | 0.0085 | 0.0134 | 0.0089 | 1.000 |  |
| Exchange rate | 0.7150\* | 0.3497\* | 0.0047 | 0.0057 | 1.000 |

*Notes: the star indicates the 5% significance level*

Concerning control variables, the one period lagged value of GDP is negatively linked with growth volatility as stated in literature, while the squared standard deviation of CPI is positively linked with growth volatility.

**The Importance of Exchange Rate Regime**

According to the current literature, international trade may have different effects on macroeconomic stability proportionally to the extent to which the country is exposed to international fluctuations. This point of view is validated by our results. The dummy variable inserted in each equation teaches us that countries’ characteristics in terms of exchange rate regime are important to assess the effects of trade on growth volatility. Independently of the indicator considered, the effect is higher in fixed exchange rate countries[[13]](#footnote-13). This fact may be explained by the impossibility to use exchange rate as a short term tool to deal with shocks.

**Concluding Remarks**

Upon completion of this work which was intended to measure the effects of international trade on GDP growth volatility in Africa, it turns out that, firstly, this effect is effective but of a small scale. Moreover, this effect can be both negative (openness, exportations) and/or positive (terms of trade, terms of trade volatility). These results are consistent with actual economic theory on the subject. In addition, exchange rate regime of countries is a major factor in the relationship between trade and growth volatility. In this regard, countries with flexible or intermediate exchange rate justify of a lesser increasing effect than countries with fixed exchange rate. The significance of some country dummies (fixed effects) demonstrates the relevance of structural and institutional explanations of the volatility-trade relationship. Examination of time series per country (not reported here) shows that there are countries in which trade fluctuations do not explain the volatility of GDP growth. Finally what we have to keep back from this study is that the main source of GDP fluctuations is not international trade movement. So this field of research is still to be scrutinized not only in regard to the measure of volatility but also regarding the determinants of volatility.

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**Annex: Growth Volatility In Africa Between 1980 And 2010**

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| --- | --- |
|  |  |
| 1-Burundi | 2-Benin |
|  |  |
| 3-Burkina Faso | 4-Botswana |
|  |  |
| 5-Central African Republic | 6-Ivory Coast |
|  |  |
| 7-Cameroon | 8-Congo |
|  |  |
| 9-Algeria | 10-Egypt |
|  |  |
| 11-Ethiopia | 12-Gabon |
|  |  |
| 13-Ghana | 14-Gambia |
|  |  |
| 15-Guinea Bissau | 16-Equatorial Guinea |
|  |  |
| 17-Kenya | 18-Liberia |
|  |  |
| 19-Lesotho | 20-Morroco |
|  |  |
| 21-Madagascar | 22-Mali |
|  |  |
| 23-Mauritania | 24-Mauricius |
|  |  |
| 25-Malawi | 26-Niger |
|  |  |
| 27-Nigeria | 28-Rwanda |
|  |  |
| 29-Sudan | 30- Senegal |
|  |  |
| 31-Sierra Leone | 32-Seychelles |
|  |  |
| 33-Chad | 34-Togo |
|  |  |
| 35-Tunisia | 36-Tanzania |
|  |  |
| 37-Uganda | 38-South Africa |
|  |  |
| 39-Democratic Republic of Congo | 40-Zambia |
|  |  |
| 41-Zimbabwe |  |

Active Learning: Creating Excitement and Enhancing Learning in a Changing Environment of the 21st Century

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Abstract

The environment is changing very fast, it is reshaping at a rapid pace specifically because the emergence of new technologies is changing the society, changing the way we live, the way we communicate and do business and also the way we learn. Consequently, our educational systems are facing significant pressure to change the way we educate our children too in order to adequately prepare them to live, learn, and work in a global, digital age. Education is all about change and creativity, therefore there should be creative models for engagement in learning in a shifting educational landscape. Education in the 21st century is different from what it used to be in the 17th or 18th century because of the changes overtime and subsequently the variations in the learners’ needs particularly in this world of technological advancement. Teaching and learning process should be more effective by constant renewal in the knowledge impacted and shared with the students all the time. The mode of instruction delivery needs to change from traditional teacher-centred to new learning that is learner-centred and globally acceptable as is the case with the USA and other countries where education is undergoing a major paradigm shift (change) from traditional learning environments focused on the teacher as the “deliverer” of knowledge to new open learning environments focused on the learner as information seeker. Although the movement in the USA and other developed countries took root first at the primary and secondary levels of education, it has had an impact on tertiary education as well. Likewise, there should be turn of the tide in the Nigerian Educational System.

**Introduction**

Education controls the development of any nation because no nation can rise above the products of its educational system (Ikoro 2005). The essence of education at any level is to produce knowledgeable, skilled and productive individual with a sound mind. The knowledge gained through education should be lasting, it should be utilised by the students throughout the lifetime. Orr (1991) asserts that:

“The goal of education is not mastery of subject matter, but of one's person. Subject matter is simply the tool. Much as one would use a hammer and chisel to carve a block of marble, one uses ideas and knowledge to forge one's own personhood. For the most part we labour under a confusion of ends and means, thinking that the goal of education is to stuff all kinds of arts, techniques, methods, and information into the student's mind, regardless of how and with what effect it will be used”.

Likewise, Newman (2008) affirms that "any kind of knowledge, if it be really such, is its own reward. So, the pursuit of knowledge should not be looked at in terms of what it is going to do for you in the future. It should be looked at as beneficial in itself. Knowledge is something that you gain that cannot be taken away from you”.

This is clearly indicated in the Nigeria Philosophy of Education (2004) which is based on the integration of the individual into a sound and effective citizenry and equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels– a meaningful and achievable philosophy of education which is geared toward learning in a changing environment and suitable for the progress of the country. A pertinent question here is “How far has the Nigerian educational system implemented this omnibus philosophy of education to ensure that students are learning in a changing environment?

**Nigerian Educational System and Challenges**

Nigeria, a developing country for the past 52 years after her inderpendence has been facing economic, social, political and educational challenges (Adegoke, 1998; Adomi 2005a; Buaari 2002; Okwudishu 2005; Plante and Beattie 2004). The educational challenges led to the introduction of different reforms in the educational system and switching from the 6-5-2 3 to 6-3-3-4 to 9-3-4. The reforms were designed to bring about developments in areas of needs through infusion of modern methods of teaching and curriculum implementation as indicated by the Federal Government of Nigeria, in the National Policy on Education(Federal Republic of Nigeria, 2004). Infact, the Nigerian government recognizes the prominent role of ICTs (Information and Communication Technologies) in the modern world and tries to integrate it into educational system. To actualize this goal, the document states that government will provide basic infrastructure and training at the primary school. The Federal Ministry of Education launched an ICT-driven project known as School Net ( www.snng.org ) (Federal Republic of Nigeria, 2006; Adomi 2005; Okebukola, 2004), which was intended to equip all schools in Nigeria with computers and communication technologies.

However, this seems to be an illusion as indicated in the reports by many investigators that this was never implemented. For intance Adomi and Kpangban (2010) in their investigation of the causes of low level of ICT application in Nigerian high schools found that “Limited/poor information infrastructure” ranks first; “Lack of/inadequate ICT facilities in schools” ranks second as earlier found by Okwudishu (2005); Plante and Beattie (2004) “Frequent electricity interruption” ranks third as reported earlier by Adomi, (2005a); Adomi, Omodeko, and Otole, (2004); Adomi, Okiy, and Ruteyan, (2003).This makes the few schools with ICT facilities unable to use them regularly.“Poor ICT policy/project implementation strategy” was also indicated as a factor. Additionally, a growing body of ERNWACA (Educational Research For West and Central Africa) researchers also reported that the quality of basic education in Nigeria is still threatened because of failure to plan, under funding or mismanagement of funds, poor maintenance culture and politicisation of educational policies and programmes (Adegoke 1998). Similarly, Busari (2002) observed that the present situation in the classrooms is not tailored to laying a sound basis for scientific and reflective thinking which is one of the aims of primary education. It was suggested that science teacher education programme should be restructured to accommodate integrative learning strategies**.** Specifically, education constitutes of a major focus because it is believed that education is an instrument of national development and thus, it could be employed to achieve political, economic and social developments. The development of any nation requires the collective efforts of its citizens and all residents.

The formal education system in Nigeria includes:

* 6 years of primary schooling
* 3 years of junior secondary schooling
* 3 years of senior secondary schooling, and
* 4 years of university education, finally directing toward a bachelor's level degree in the majority of the courses.

The primary, secondary and post secondary levels had witnessed dramatic growth and tremendous changes. Today, at the university level, what used to be five universities between 1948 and 1965 had increased rapidly to 107 universities in 2012 (2012 University Web Ranking) catering for millons of students. Such growth was impossible without incurring a host of problems, several of which were so severe as to endanger the entire system of education as outlined in the Section 1 sub-section 4 of the Nigeria’s Philosophy of Education (2004)that:

Education is an instrument for national development; in this end, the formulation of ideas, their integration for national development and the interaction of persons and ideas are all aspects of education;

1. Education fosters the worth and development of the individual, for each individual’s sake,and for the general development of the society;
2. Every Nigerian child shall have the right to equal educational opportunities irrespective of any real or imagined disabilities, each according to his or her ability;
3. There is need for functional education for the promotion of a progressive, united Nigeria; to this end, school programmes need to be relevant, practical, and comprehensive, while interest and ability should determine the individual’s direction in education.(FRN, 2004).

Ubong (2011) analysed these omnibus provisions of what should be the country’s philosophy of education stated above and their corresponding philosophical concepts thus:

* Dewey’s multiple approaches to education delivery in a);
* Humanism in b);
* Egalitarianism in c);
* Progressivism, pragmatism, and individualism cum humanism in d).

Similarly, the Section 1 sub-section 5 of the Nigeria’s National Philosophy of Education, is based on:

1. the development of the individual into a sound and effective citizen;
2. the full integration of the individual into the community, and
3. the provision of equal access to educational opportunities for all citizens of the country at the primary, secondary, and tertiary levels both inside and outside the formal school system.

Similar to Ubong’s (2011) observation, these philosophical statements also have theoretical links to the different learning/developmental theories by Skinner, Thorndike, Piaget, Vygotsky, Pavlov, Watson and Information Processing Model which addressed the various strategies of actively engaging and conditioning learners to learn and develop in a changing environment.

Unfortunately, Nigeria is still faced with economic hardship which increased the engagement in nonacademic moonlighting activities among the teaching staff. Added to these difficulties were such factors as the lack of books and materials, no incentive for research and writing, the use of outdated notes and materials, and the deficiency of replacement of laboratory equipment especially with the remarkable growth from the five universities in 1965 to over 1000 universities in 2012 . The graduates produced and the quality of the certificate cannot withstand the changing environment. It is no wonder that the number one university in Nigeria is ranked as the 1639th university among the universities in the world (Ranking Web of World Universities, 2012). The few good students produced continued to search for greener pastures and by 1990 the crisis in Nigerian education was such that it was predicted that by the end of the decade, there would be insufficient personnel to run essential services of the country!

**Active Learning and Its Components**

Investigators refer to active learning as anything that students do in a classroom other than merely passively listening to an instructor’s lecture. This includes everything apart from listening practices which help the students to absorb what they hear, to short writing exercises in which students react to lecture material, to complex group exercises in which students apply course material to "real life" situations and/or to new problems (Paulson and Faust 2010). Additionally, Chickering and Gamson (1987) further suggested that for students to be actively engaged, they must do more than just listen: they must read, write, discuss, or be engaged in problem solving. Most importantly, to be actively involved, students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation.. Paulson and Faust (2010)further distinguished cooperative learning from active learning as covering the subset of active learning activities which students do as groups of three or more, rather than alone or in pairs; generally, cooperative learning techniques employ more formally structured groups of students assigned complex tasks, such as multiple-step exercises, research projects or presentations. They also distinguished cooperative learning from collaborative learning which refers to those classroom strategies when the instructor and the students work together in designing assignments, choosing texts, and presenting material to the class. Clearly, collaborative learning is a more radical departure from tradition of merely utilizing techniques aimed at enhancing student’s retention of material presented by the instructor.

A close examination of the description of active learning shows the theoretical links to some learning and developmental theories: Skinner’s Operant Conditioning Theory where the learner is active, functional and operates on the environment before being rewarded; Pavlov’s Classical conditioning where the learner is conditioned to learn and rewarded, Vygotsky’s Zone of Proximal Development and Social Cultural Perspective where the learner learns through the interaction with the social environment and so many others.

Considering the components of active learning strategies, (Mantyla, 1999) posits that good active learning activities are the same, whether presented in traditional or in online environments and activities should:

1. have a definite beginning and ending;
2. have a clear purpose or objective;
3. contain complete and understandable directions;
4. have a feedback mechanism; and
5. include a description of the technology or tool being used in the exercise

He further suggests that when using active learning strategies, instructors/designers will want to consider the following:

1. Can learners complete the activity independently?
2. Will they need specific guidance before or during the activity?
3. Will visuals or other materials be needed?
4. Will they need to collaborate with other learners?
5. How do the learners ask questions?
6. Will there be formative or summative evaluation?
7. What tools will be available to support the activity, including technology, resources, and examples?
8. Should different strategies and tools provide multiple ways of experiencing learning? (Mantyla, 1999.)

**THE NEED FOR ACTIVE LEARNING**

For the past decades, the majority of college faculties still teach their classes in the traditional lecture mode in which professors talk and students listen, dominate college and university classrooms.Some scholars have criticized traditional method of teaching and argued that it is boring and found that it is one of the factors responsible for absenteeism among the tertiary education students around the globe. For instance, in their cross institutional study of the factors responsible for absenteeism from lectures among the 500 Nigerian and 500 Caribbean tertiary education students, Fayombo, Babalola and Olaleye (2012) found that academic or school-related reasons such as “The poor teaching skills of lecturers leading to boring lectures” top the list while personal, home and society related reasons were also identified. Similarly, in an earlier study at the University of Canterbury, New Zealand, Hunter and Tetley (1999) interviewed 168 full-time students about not only their reasons for not attending lectures but also their reasons for attending and found that tertiary education students will not miss lectures that were interesting and those considered important to their degree, those in which there was a lot of material given out, those where they liked the subject content or in which the lecturer was good, while those that they will not attend according to Gump, (2006) and Nicholl & Timmins,( 2005) also, were perceived as academy-centred such as: failure to connect the content of the lecture to assessment or the ‘real world’, unexciting and unchallenging lecturers. Thus, the students are likely to miss lectures because they are not actively involved in the classroom activities and the content of the lecture did not match the changing environment which are characteristics of traditional lecture method.

Some investigators also reported that active learning is important because: the amount of information retained by students declines substantially after ten minutes (Thomas, 1972); in those experiments involving measures of retention of information after the end of a course, measures of problem solving, thinking, attitude change, or motivation for further learning, the results tend to show differences favouring discussion methods over lecture method ( McKeachie, Pintrich, Lin, & Smith, 1987). Numerous researchers and national reports also discussed the use of active learning strategies in the classroom as indicated in the following statements:

* all genuine learning is active, not passive; it is a process of discovery in which the student is the main agent, not the teacher (Adler, 1982);
* students learn what they care about and remember what they understand (Ericksen, 1984);
* learning is not a spectator sport, students do not learn much just by sitting in class listening to teachers, memorizing pre-packaged assignments, and spitting out answers, they must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves. (Chickering and Gamson, 1987);
* The sort of teaching we propose requires that we encourage active learning and that we become knowledgeable about the ways in which our students hear, understand, interpret, and integrate ideas. (AAC Task Group on General Education, 1988, p. 25).
* “One must learn by doing the thing, for though you think you know it you have not certainty until you try”.(Sophocles, 5th c. B.C.)

Regarding the need for active learning, some investigators also pointed out the limitations of traditional method of teacing. Turner (nd) in her presentation on “Learning in a Digital World: The Role of Technology as a Catalyst for Change in the University of Education, Winneba, Ghana”, claims that traditional method has some characteristics/limitations because:

1. it does not meet the diverse needs of many learners with different learning styles and capabilities as we have in schools today;
2. it does not cater for problem solving skills needed by students in the real world which requires the ability to see a problem from multiple points of view by the students;
3. there is no flexibility in traditional method, therefore learnres are not encouraged to reach their full potentials;
4. of rigid assessment, relying on written tests that cannot assess the full range of one’s achievements and potentials.

Contrarily, Bonwell (1996) summarised the major characteristics/advantages associated with active learning strategies thus:

1. Students are involved in more than passive listening;
2. Students are engaged in activities (e.g., reading, discussing, writing)
3. There is less emphasis placed on information transmission and greater emphasis placed on developing student skills;
4. There is greater emphasis placed on the exploration of attitudes and values
5. Students’ motivation is increased (especially for adult learners)
6. Students can receive immediate feedback from their instructor
7. Students are involved in higher order thinking skills (analysis, synthesis,evaluation)

Hence the need for active learning, a learner centred method in the changing environment.

**Active Learning Strategies**

The techniques of active learning are those activities which an instructor incorporates into the classroom to foster active learning (Paulson & Faust 2010). It is proposed that strategies promoting active learning be defined as instructional activities involving students in doing things and thinking about what they are doing (Chickering & Gamson 1987).

In The University of the West Indies, CaveHill Campus, the University authority recognised the need for learners to be active in the classroom and be actively engaged therefore, lecturers have been encouraged to undergo the Certificate in University Teaching and Learning (CUTL) Training to improve their teaching skills so that they can use the active learning techniques and consequently be more effective in classroom teaching. I incorporated some of these techniques into the classroom activities during the Developmental Psychology II (97 students) and Learning Theory and Practice lecture (178 students) lectures to make my psychology students active in the class, to create excitement and also promote learning. These various techniques of active learning have been described and categoriosed in different ways by the researchers. Below are some examples of active learning strategies that I incorporated into my lectures to make learning fun and at the same time promote it.The examples of active learning strategies that can be adapted in the classroom included those categorised by Paulson and Faust (2010) but not limited to:

**Cooperative Learning Exercises**

For more complex projects, where many heads are better than one or two, students may work in groups of three or more. As the term "cooperative learning" suggests, students working in groups will help each other to learn. Generally, it is better to form heterogeneous groups (with regard to gender, ethnicity, and academic performance), particularly when the groups will be working together over time or on complex projects; however, some of these techniques work well with spontaneously formed groups. Cooperative groups encourage discussion of problem solving techniques ("Should we try this?” etc.), and avoid the embarrassment of students who have not yet mastered all of the skills required.

* **Role Playing** - Here students are asked to "act out" a part. In doing so, they get a better idea of the concepts and theories being discussed. Role-playing exercises can range from simple distinguishing concepts such as “positive reinforcement”, “negative reinforcement”, “punishment” etc as done in my Learning Theory and Practice class to the complex role plays of different parental styles of childrearing and their contributions to the social development during the childhood stage as role-played in my Developmental Psychology class.
* **Game Show** - Many will discard the idea that one would literally play games in a university setting, but occasionally there is no better instructional tool. This strategy is good for late lectures, for young and old students in full time or part time programmes. My courses were usually between 7pm and 9pm when many students will be very tired and even hungry, but when it’s game time they wake up and participate in the lecture. The game show helps to stimulate their sensory abilities, make them to be actively engaged and at the same time learn. In particular, there are some concepts or theories which are more easily illustrated than discussed and in these cases, a well-conceived game may convey the idea more readily. For example, students may be introduced to new concepts or facts that are hard to convey through lectures.
* **Cooperative Groups in Class/ Group Discussions –** The instructor maypose a question to be worked on in each cooperative group and then circulate around the room answering questions, asking further questions, keeping the groups on task, and so forth. After an appropriate time for group discussion, students are asked to share their discussion points with the rest of the class. The ensuing discussion can be guided according to the "Questions and answers" techniques. This strategy was used effectively especially during the tutorial classes.
* **Panel Discussions** - Panel discussions are especially useful when students are asked to give class presentations or reports as a way of including the entire class in the presentation. Student groups are assigned a topic to research and asked to prepare presentations. Each panelist is then expected to make a very short presentation, before the floor is opened to questions from the audience. The key to success is to choose topics carefully and to give students sufficient direction to ensure that they are well-prepared for their presentations.
* **Debates** - provide an efficient structure for class presentations when the subject matter easily divides into opposing views or ‘Pro’/‘Con’ considerations. Students are assigned to debate teams, given a position to defend, and then asked to present arguments in support of their position on the presentation day on topic like “Is learning incremental or insightful?” The opposing team should be given an opportunity to rebut the argument(s) and, time permitting, the original presenters asked to respond to the rebuttal. This format is particularly useful in developing argumentation skills (in addition to teaching content).

**Exercises for Individual Students**

These techniques according to Paulson and Faust (2010) are aimed at individual students and therefore can very easily be used without interrupting the flow of the class. These exercises are particularly useful in providing the instructor with feedback concerning student’s understanding and retention of the material. They are especially designed to encourage students' exploration of their own attitudes and values and to increase retention of material presented in lectures and texts. Here are some examples:

* **The "One Minute Paper" –** This is a highly effective technique utilised frequently when teaching to check students’ progress, both in understanding the material and in reacting tocourse material. I asked students to take a blank sheet of paper, then posed a question either specific or open-ended, and gave them one or perhaps two or 5 minute(s) to respond by writing it down. Some sample questions for Developmental Psychology course include: "What are Chromosomal abnormalities?" and for Learning Theory and Practice course; "What is the difference between positive reinforcement and negative reinforcement?” and so on. Another good use of the minute paper is to ask questions like "What was the main point of today’s class material?" This tells you whether or not the students are viewing the material in the way you envisioned. Additionally, the one or five minute paper helps to find out whether the active learning techniques used during the lecture were effective or not.
* **Muddiest (or Clearest) Point** - This is a variation on the one-minute paper, when the instructor wishes to give students a slightly longer time period to answer the questions at the end of a class period or at a natural break in the presentation; e.g "What was the "muddiest point" in today's lecture?" or, perhaps, you might be more specific, asking, for example in Developmental Psychology Lecture on “Biological beginnings”: "What (if anything) do you find unclear about the concept of 'Chromosomal Abnormalities/Genetic Influences' ('Traits' 'Genes', 'Alleles', 'Chromosomes' 'Deoxyribonucleic Acid' 'Sex Determination' ‘etc.)?", or in Learning Theory and Practice class, “What (if anything) do you find unclear about “Information Processing Model Theory?”
* **Affective Response** - Again, this is similar to the above exercises when students are asked to report their reactions to some facet of the course material - i.e., to provide an emotional or evaluative response to the material. Obviously, this approach is limited to those subject areas in which such questions are appropriate. However, it can be quite a useful starting point for courses in social sciences and education, particularly as a precursor to theoretical analysis. This is very useful because many students don’t like theories. For example, students in Learning Theory class were asked of their feelings about Thorndike’s Theory or Gestalt Psychology, before presenting what other theorists think of the concepts of the theory or its applicability to learning situations. By having several views "on the table" before the theories were presented, students can be helped to see the material in context and to explore their own beliefs.
* **Reading Quiz** - Clearly, this is one way to coerce students to read assigned material! Active learning depends upon students coming to class prepared. The reading quiz can also be used as an effective measure of students’ comprehension of the readings to gauge their level of sophistication as readers. Further, by asking the same sorts of questions on several reading quizzes, students will be guided as to what to look for when reading assigned text. If you ask questions like "What are the **basic concepts** in Piaget’s Cognitive Development Theory?" (As I asked my Psychology students in Learning Theory and Practice Class), you are telling the students that it is the details that count, whereas questions like "What **reason** did Piaget give for a child’s inability to conserve at the preoperational stage?” highlights issues of justification.
* **Clarification Pauses** - This is a simple technique aimed at fostering "active listening". Throughout a lecture, particularly after stating an important point or defining a key concept, stop, let it sink in, and then (after waiting a bit!) ask if anyone needs to have it clarified. You can also circulate around the room during these pauses to look at student notes, answer questions, etc. Students who would never ask a question in front of the whole class will ask questions during a clarification pause as you move about the room.

**Share/Pair**

Grouping students in pairs allows many of the advantages of group work students have the opportunity to state their own views, to hear from others, to hone their argumentative skills, and so forth without the administrative "costs" of group work (time spent assigning people to groups, class time used just for "getting in groups", and so on). Further, pairs make it virtually impossible for students to avoid participating thus making each person accountable.

* **Discussion** - Students are asked to pair up and to respond to a question either in turn or as a pair. This can easily be combined with other techniques such as those under "Questions and Answers" or "Critical Thinking Motivators". For example, after students have responded to statements, such as " Learning is not mediated by ideas” with 'true' or 'false', they can be asked to compare answers to a limited number of questions and to discuss the statements on which they differed. In science classes, students can be asked to explain some experimental data that supports a theory just discussed by the lecturer. Generally, this works best when students are given explicit directions, such as "Tell each other why you chose the answer you did".

**Questions and Answers**

While most of us use questions as a way of prodding students and instantly testing comprehension, there are simple ways of tweaking our questioning techniques which increase student involvement and comprehension. Though some of the techniques listed here are "obvious", we will proceed on the principle that sometimes bears repeating (a useful pedagogical principle, to be sure!).

* **The Socratic Method:** The instructor tests student’s knowledge (of reading assignments, videos, lectures, or perhaps applications of course material to a wider context) by asking questions during the course of a lecture. Typically, the instructor chooses a particular student, presents her with a question, and expects an answer forthwith; if the "chosen" student cannot answer the question presented, the instructor chooses another (and another) until the desired answer is received. This method has come under criticism, based on claims that it singles out students (potentially embarrassing them), and/or that it favours only a small segment of the class (i.e., that small percentage of the class who can answer any question thrown at them). In addition, once a student has answered a question they may not pay much attention as it will be a long time before the teacher returns to them for a second question. In spite of these criticisms, we feel that the Socratic method is an important and useful one; the following techniques suggest variations which enhance this method, avoiding some of these pitfalls.
* **Wait Time** - Rather than choosing the student who will answer the question presented, this variation has the instructor waiting before calling on someone to answer it. The wait time will generally be short (15 seconds or so) - but it may seem interminable in the classroom. It is important to insist that no one raise his hand (orshout out the answer) before you give the OK, in order to discourage the typical scenario in which the five students in the front row all immediately volunteer to answer the question, and everyoneelse sighs in relief. Waiting forces every student to think about the question, rather than passively relying on those students who are fastest out of the gate to answer every question. When the wait time is up, the instructor asks for volunteers or randomly picks a student to answer the question. Once students are in the habit of waiting after questions are asked, more will get involved in the process.
* **Demonstrations with questioning (video clips).** A video could be shown to the class to illustrate some theories (Piaget’s Theory of Cognitive development) or abstract concepts (hereditary transmission). This will concretize the theories or the concepts or the topic being discussed and make it clearer. For instance, I showed videos during the Learning Theory and Practice lectures to demonstrate in concrete terms the concepts of the different learning theories and also the different stages of human development from conception to adolescence during the Developmental Psychology lectures. In the absence of a psychology laboratory, showing videos can help the students to have a practical experience that will aid their understanding of the topics discussed.
* **Student Summary of another Student's Answer -** In order to promote active listening, after one student has volunteered an answer to your question, ask another student to summarize the first student's response. Many students hear little of what their classmates have to say, waiting instead for the instructor to either correct or repeat the answer. Having students summarize or repeat each others' contributions to the course both fosters active participation by all students and promotes the idea that learning is a shared enterprise. Given the possibility of being asked to repeat classmates' comments, most students will listen more attentively to each other.
* **Quiz/Test Questions -** Here students are asked to become actively involved in creating quizzes and tests by constructing some (or all) of the questions for the exams. This exercise may be assigned for homework and then evaluated (perhaps for extra credit points). In asking students to think up exam questions, we encourage them to think more deeply about the course material and to explore major themes, comparison of views presented, applications, and other higher-order thinking skills. Once suggested questions are collected, the instructor may use them as the basis of review sessions, and/or to model the most effective questions. Further, you may ask students to discuss the merits of a sample of questions submitted; in discussing questions, they will significantly increase their engagement of the material to supply answers. Students might be asked to discuss several aspects of two different questions on the same material including degree of difficulty, effectiveness in assessing their learning, proper scope of questions, and so forth as done for Gestalt Psychology and they came up with these two different questions on the same topic; “With reference to Gestalt theory of learning, justify the view that ‘the whole is more than the sum of its part” or “With reference to Gestalt theory of learning, justify the view that ‘learning is insightful”

**Immediate Feedback**

These techniques are also designed to give the instructor some indication of students’ understanding of the material presented during the lecture. These activities provide formative assessment rather than summative assessment of student understanding, Formative assessment is evaluation of the class as a whole in order to provide information for the benefit of the students and the instructor, but the information is not used as part of the course grade; summative assessment is any evaluation of student performance which becomes part of the course grade. For each feedback method, the instructor stops at appropriate points to give quick tests of the material; in this way, she can adjust the lecture mid-course, slowing down to spend more time on the concepts students are having difficulty with or moving more quickly to applications of concepts of which students have a good understanding.

* Finger Signals - This method provides instructors with a means of testing student comprehension without the waiting period or the grading time required for written quizzes. Students are asked questions and instructed to signal their answers by holding up the appropriate number of fingers immediately in front of their torsos (this makes it impossible for students to "copy", thus committing them to answer each question on their own). For example, the instructor might say "one finger for 'yes', two for 'no'", and then ask questions such as "Is learning easily observable?". Or, the instructor might have multiple choice questions prepared for the overhead projector and have the answers numbered (1) through (5), asking students to answer with finger signals. In very large classes like mine, the students can use a set of large cardboard signs with numbers written on them. This method allows instructors to assess student knowledge literally at a glance.
* Quotations - This is a particularly useful method of testing student understanding when they are learning to read texts and identify an author's viewpoint and arguments. After students have read a representative advocate of each of several opposing theories or schools of thought, and the relevant concepts have been defined and discussed in class, put on the overhead projector a quotation by an author or a theorist whom they have not read in the assigned materials, and ask them to figure out what position that person advocates. In addition to testing comprehension of the material presented in lecture, this exercise develops critical thinking and analysis skills. This would be very useful, for example, in discussing the various types of learning theories.

**Research Findings on Active Learning Strategies as Tools for Promoting Learning**

Many proponents of active learning suggest that the effectiveness of the strategies has to do with students’ attention span during lecture. Wankat (2002) suggested that student attention span during lecture is roughly fifteen minutes while Hartley and Davies (1978) in their earlier investigation reported that the number of students paying attention begins to drop dramatically with a resulting loss in retention of lecture material. The same authors found that immediately after the lecture, students remembered 70% of information presented in first ten minutes of the lecture and 20 percent of information presented in last ten minutes. It was suggested that breaking up the lecture might work because students’ minds start to wander and activities provide the opportunity to start fresh again, keeping students engaged.

Thus, after incorporating the active learning strategies into my classroom activities for about eight weeks, I gave my students the Active Learning Strategies Questionnaire to fill to find out whether the strategies are actually enhancing their learning with PowerPoint being the tool/technology used for some of them. Below are the students’ ratings on each of the active learning strategies and PowerPoint presentation.

**Results**

**Research Question 1: What is the profile of students’ ratings on PowerPoint Presentation?**

***Table 1:*** *Profile of students’ ratings on PowerPoint presentation (n=158).*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S/N | Items | SD  F % | | D  F % | | | A  F % | | | SA  F % | | |
| 1 | Power point Presentation facilitates active learning | 0 | 0 | 5 | | 3.2 | | 65 | 41.1 | 88 | 55.7 | |
| 2 | I love the images and pictures on the slides, they help my understanding in this course | 1 | 0.6 | 1 | 0.6 | | 72 | | 45.6 | 84 | | 53.2 |
| 3 | The slides stimulate my sensory abilities during lecture | 0 | 0 | 2 | 1.3 | | 85 | | 53.8 | 71 | | 44.9 |
| 4 | The slides are usually too busy, too many images | 94 | 59.5 | 47 | 29.7 | | 1 | | 0.6 | 16 | | 10.1 |
| 5 | The slides are usually too long and boring | 88 | 55.7 | 53 | 9.5 | | 2 | | 1.3 | 15 | | 9.5 |

The result on table 1 revealed that PowerPoint is an effective tool or technology for active learning strategy with 97% agreeing that it facilitates active learning; while 99% also agreed that it helped their understanding during the lectures, while 99% also reported that it stimulated their sensory abilities during lectures etc.

**Research Question 2: What is the profile of students’ ratings on Discussion?**

***Table 2:*** *Profile of students’ ratings on Discussion (n=158)*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Discussion helps me to clarify points discussed during lecture | 1 | 0.6 | 4 | | 2.5 | 94 | 59.5 | 59 | 37.3 |
| 2 | Discussion promotes active learning | 0 | 0 | 4 | | 2.5 | 80 | 50.6 | 74 | 46.8 |
| 3 | Discussion makes me to be lively during lectures | 0 | 0 | 14 | | 8.9 | 86 | 54.4 | 58 | 36.7 |
| 4 | Answering questions in the class helps in self assessment | 1 | 0.6 | 8 | | 5.1 | 92 | 58.1 | 57 | 36.1 |
| 5 | Discussion disrupts the flow of the lecture | 87 | 55.1 | 66 | | 41.8 | 1 | 0.6 | 4 | 2.5 |
| 6 | Discussion during the lecture is a waste of time | 62 | 39.2 | 88 | | 55.7 | 2 | 1.3 | 6 | 3.8 |

The result shown on table 2 revealed that 97% agreed that discussion helps in clarification of points discussed during lecture, majority (97%) also opined that it promotes active learning while 91% stated that it makes them lively during lectures, 94% agreed that it helps in self assessment.

**Research Question 3: What is the profile of students’ ratings on Group work?**

***Table 3:*** *Profile of students’ ratings on Group Work (n=158)*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Group activities facilitate active/cooperative learning | 2 | 1.3 | 24 | | 15.2 | 82 | 51.9 | 50 | 31.6 |
| 2 | Group activities aid my understanding in this course | 5 | 3.2 | 18 | | 11.4 | 92 | 58.2 | 43 | 27.2 |
| 3 | Group work enhances my academic achievement | 19 | 12 | 20 | | 12.7 | 84 | 53.2 | 35 | 22.2 |
| 4 | Group work limits my intellectual capability | 17 | 10.8 | 23 | | 14.6 | 76 | 48.1 | 42 | 26.6 |
| 5 | Group work is too stressful because of the uncooperative attitudes of some group members | 63 | 39.9 | 32 | | 20.3 | 36 | 22.8 | 27 | 17.1 |

Table 3 showcases students’ ratings indicating that majority of them (84%) agreed that group activities facilitate active/cooperative learning; 86% indicated that group activities aid their understanding in this course and 75% were of the opinion that it enhances their academic achievement. Interestingly, 75% still reported that it is detrimental to their intellectual capability while 40% indicated that it is too stressful. This is one of the risks of active learning when students may not want to participate in active learning activities.This is in consonance with the assertion that students too seemed to prefer traditional method of lecturing, resist non-lecturing approaches because active learningalternatives provide a sharp contrast to the very familiar passive listeningrole (Bonwell 1996)

**Research Question 4: What is the profile of students’ ratings on Role play?**

***Table 4:*** *Profile of students’ ratings on Role Play (n=158)*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Role play or promotes student engagement in lecture | 0 | 0 | 8 | 5.1 | 93 | 58.9 | 57 | 36.1 |
| 2 | Role plays create excitement during lectures | 5 | 3.2 | 12 | 7.6 | 72 | 45.6 | 69 | 43.7 |
| 3 | Role play helps me to reflect on the topics taught in this course | 1 | 0.6 | 11 | 7.0 | 91 | 57.6 | 55 | 34.8 |
| 4 | Role play facilitates students’ creativity | 1 | 0.6 | 13 | 8.2 | 98 | 62.0 | 46 | 29.1 |
| 5 | Role play makes the lecture to be rowdy and noisy | 91 | 57.6 | 52 | 32.9 | 2 | 1.3 | 13 | 8.2 |
| 6 | Role play is just a form of entertainment | 76 | 48.1 | 44 | 27.8 | 18 | 11.4 | 20 | 12.7 |

In table 4, 95% agreed that roleplaypromotes student engagement in lecture, 89% reported that it creates excitement during lectures, while 92% agreed that it helps them to reflect on the topics taught in this course while 91% stated that it enables them to be creative. etc

**Research Question 5: What is the profile of students’ ratings on videos?**

***Table 5:*** *Profile of students’ ratings on videos (n=158)*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Videos promote active learning during lectures | 0 | 0 | 2 | | 1.3 | 90 | 57.0 | 66 | 41.8 |
| 2 | Videos create mental images of the topics taught | 1 | 0.6 | 0 | | 0 | 82 | 51.9 | 75 | 47.5 |
| 3 | Videos facilitate retrieval of learning materials | 1 | 0.6 | 1 | | 0.6 | 79 | 50.0 | 77 | 48.7 |
| 4 | Watching videos during lectures is exciting | 1 | 0.6 | 7 | | 4.4 | 87 | 55.1 | 63 | 39.9 |
| 5 | Watching videos is just a form of entertainment | 83 | 52.5 | 51 | | 32.3 | 2 | 1.3 | 22 | 13.9 |
| 6 | Watching videos during lectures is a waste of time | 70 | 44.3 | 84 | | 53.2 | 0 | 0 | 4 | 2.5 |

Table 5 revealed that 99% of the participants agreed that video show promotes active learning during lectures, 99% again reported that it creates mental images of the topics taught, 99% also indicated that video shows facilitated the retrieval of learning materials while 85% agreed that watching videos during lectures is exciting.

**Research Question 6: What is the profile of students’ ratings on Game Show?**

***Table 6:*** *Profile of students’ ratings on Game Show (n=158).*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Game activities enhance active learning in this course | 1 | 0.6 | 3 | | 1.9 | 81 | 51.3 | 73 | 46.2 |
| 2 | Game activity is good for self assessment | 4 | 2.5 | 10 | | 6.3 | 85 | 53.8 | 59 | 37.3 |
| 3 | Game activities make the lecture lively and interesting. | 0 | 0 | 11 | | 7.0 | 80 | 50.6 | 67 | 42.4 |
| 4 | No need for the game, too childish | 63 | 39.9 | 86 | | 54.4 | 3 | 1.9 | 6 | 3.8 |
| 5 | Game activities waste time during lectures | 78 | 49.4 | 78 | | 49.4 | 1 | 0.6 | 1 | 0.6 |

Table 6 revealed that game show enhances learning in this course as indicated by 98% of the respondents, 91% also agreed that game activity is good for self assessment while 93% agreed that game show makes the lecture to be lively and interesting, 94% also disagreed that it was too childish while 6% agreed.

**Research Question 7: What is the profile of students’ ratings on Five minute paper?**

***Table 7:*** *Profile of students’ ratings on Five Minute Paper (n=158).*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Five minute paper ensures students’ participation in the lecture | 3 | 1.9 | 26 | | 16.5 | 96 | 60.8 | 33 | 20.9 |
| 2 | Five minute paper keeps me on my toes. | 1 | 0.6 | 31 | | 19.6 | 94 | 59.5 | 32 | 20.3 |
| 3 | Five minute paper helps to monitor students’ progress | 1 | 0.6 | 19 | | 12.0 | 100 | 63.3 | 38 | 24.1 |
| 4 | Five minute paper is a waste of time | 10 | 6.3 | 23 | | 14.6 | 68 | 43.0 | 57 | 36.1 |
| 5 | Five minute paper is like a test | 17 | 10.8 | 91 | | 57.6 | 36 | 22.8 | 14 | 18.9 |

The results on table 7 revealed that 82% agreed that Five minute paper ensures their participation in the lecture, 80% agreed that it kept them on their toes, while 87% agreed that it enhances their academic progress. It may not be surprising to see that, 79% agreed that it‘s a waste of time while 42% reported that it is like a test., of course students don’t like test so they may not welcome anything that is similar to test even when you tell them that it is not a test.

**Research Question 8: What is the profile of students’ ratings on clarification pauses?**

***Table 8:*** *Profile of students’ ratings on clarification pauses (n=158)*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Items** | **SD**  **F %** | | **D**  **F %** | | **A**  **F %** | | **SA**  **F %** | |
| 1 | Clarification pauses foster active listening during lectures | 3 | 1.9 | 8 | 5.1 | 103 | 65.2 | 44 | 27.8 |
| 2 | Clarification pauses help in clarifying points that are not clear | 2 | 1.3 | 6 | 3.8 | 100 | 63.3 | 50 | 31.6 |
| 3 | Clarification pauses encourage students to ask questions | 3 | 1.9 | 4 | 2.5 | 101 | 63.9 | 50 | 31.6 |
| 4 | Clarification pauses waste time during lectures | 1 | 0.6 | 6 | 3.8 | 76 | 48.1 | 75 | 47.5 |
| 5 | Clarification pauses distort free flow of lectures | 1 | 0.6 | 16 | 10.1 | 78 | 49.4 | 63 | 39.9 |

Finally, the result on table 8 showed that 93% of the participants concurred that clarification pauses foster active listening during lectures, 95% stated that it helps in clarifying points that are not clear, 94% said that it encourages the students to ask questions. Amazingly, majority still reported that clarification pauses waste time during lectures and that it distorts free flow of lectures. Some students are always in a hurry to leave the class, so anything done in the class apart from lecturing is time wasting.

In order to have a quick glance at the varying degrees of the students’ agreement that active learning strategies promotes learning , the data was plotted on two charts. Figure 1 revealed the various degrees of the students’ agreement regarding active learning strategies promoting learning while figure 2 revealed that video is the best active learning strategy among this sample.

***Figure 1:*** *Chart showing students’ responses on active learning strategies promoting learning.*

**Key**: The three bars indicated the students’ responses on active learning strategies promote learning. 1) Discussion; 2) Group Work; 3) Role Play; 4) Videos; 5) Game Show; 6) 5 Minute Paper; 7) Clarification Pauses; with the percentages.

Discu . Gr.Wk Rol. Pl Video Game 5min paper Clar. Pauses

Prom L 1 97% 84% 95% 99% 98% 82% 93%

Prom L 2 97% 85% 89% 99% 91% 80% 95%

Prom L 3 91% 75% 92% 99% 93% 87% 94%

Average 95% 81% 92% 99% 94% 83% 94%

***Figure 2:*** *Chart showing the best active learning strategy that promotes learning.*

These findings lend credence to the earlier reports that active learning strategies are important (Chickering & Gamson, 1987; Ericksen, 1984; McKeachie, et. al., 1987) and can be incorporated in the classroom activities (Bonwell & Eison, 1991; Mantyla, 1999; McKeachie & Svinicki 2006; Paulson & Faust, 2010 and Prince, 2004). As good as the active learning strategies are however, there are many obstacles or barriers preventing faculty from using them as evident in the findings of this study on some of the strategies. Bonwell (1993) outlined some barriers to active learning:

1. You cannot cover as much course content in the time available;
2. Devising active learning strategies takes too much pre-class preparation;
3. Large class sizes prevent implementation of active learning strategies;
4. Most instructors think of themselves as being good lecturers;
5. There is a lack of materials or equipment needed to support active learning approaches;
6. Students resist non-lecture approaches, as observed by The National Association of Teachers (1907) many years ago that **“**Students today depend too much upon ink. They don’t know how to use a pen knife to sharpen a pencil. Pen and ink will never replace the pencil”

**Overcoming the Barriers**

Bonwell (1996) asserts that there are two primary sets of obstacles that prevent faculty fromusing active learning strategies in the classroom: (1) the six potential obstaclesnoted above, and (2) the fact that using active learning strategies involves risk**.** With respect to the six commonly reported obstacles, the following should be noted:

1. Admittedly, the use of active learning strategies reduces the amount ofavailable lecture time that can be devoted to content coverage. Faculty whoregularly use active learning strategies typically find other ways to ensurethat students learn assigned course content (e.g., using reading and writingassignments, through their classroom examinations, etc.)
2. The amount of pre-class preparation time needed to implement activelearning strategies will be greater than that needed to "recycle old lectures;"it will not necessarily take any more time than that needed to createthorough and thoughtful new lectures.
3. Large class size may restrict the use of certain active learning strategies(e.g., it is difficult to involve all students in discussion in groups larger than40) but certainly not all. For example, large classes can be divided intosmall groups for discussion activities, writing assignments can be read andcritiqued by students instead of the instructor.
4. Most instructors see themselves as good lecturers and therefore see noreason to change. Though lecturing is potentially a useful means oftransmitting information, teaching does not equal learning; this can be seen clearly in the painful disparity between what we think we have effectively taught, and what students indicate they have learned on the examination papers that we grade.
5. The lack of materials or equipment needed to support active learning can bea barrier to the use of some active learning strategies but certainly not all. For example, asking students to summarize in writing the material they haveread or to form pairs to evaluate statements or assertions does not requireany equipment.
6. Students resist non-lecturing approaches because active learningalternatives provide a sharp contrast to the very familiar passive listeningrole to which they have become accustomed. With explicit instruction inhow to actively participate and learn in less-traditional modes, studentssoon come to favour the new approaches.

A second set of potentially more difficult obstacles to overcome involvesincreasing one's willingness to face two types of risks.

1. There are risks that students will not: participate actively;learn sufficient course content**;** use higher order thinking skills**;** enjoy the experience
2. There are risks that you as a faculty member will not:feel in control of the class;feel self-confident; possess the needed skills**;** be viewed by others as teaching in an established fashion**.** However, faculty should continue to remember the philosophical statement by Habbert Otto that"Change and growth take place when a person has risked himself and dares to become involved with experimenting with his own life."

Though the classroom use of active learning strategies will always involve somelevel of risk, by carefully selecting only those active learning strategies that areat a personally comfortable risk level, you can maximize your likelihood ofsuccess.

**Recommendations and Conclusion**

No doubt, for learning to reflect the changing environment, among the Nigerian students, all the stakeholders (the faculty members, the students, the parents, the government) in Education must be prepared to change what they do in order to change how they are doing it. All the stakeholders should realise that “nothing is permanent except change” as stated by Napoleon Hill, the great philosopher and that "The more things change, the more they remain the same  **-** Alphonse Karr**.** These philosophies should be embraced to change their outlook to life; that changes are inevitable for success and progress in life. The following recommendations are therefore addressed to the stakeholders thus:

**1. The Faculty Members**

1. The Faculty Members who are directly in contact with the students in the class should be the first change agent to implement active learning strategies in their teaching. Thus, the reformation of instructional practice in higher education in Nigeria must begin with the effort of the faculty members who must also be willing to change from their traditional, more convenient and less mentally tasking approach to the learner-centred method of teaching which although is highly complex and hectic to practice but is more exciting and more rewarding in terms of knowledge impartation.
2. Learning should be fun through lecturer’s efforts by adopting a teaching approach that is centred on 3 basic building blocks: Effective, Engaging, and Enjoyable. This involves spending quality time in planning and structuring the lectures thus making each one effective in the impartation of knowledge by engaging the students and making it enjoyable for them. It should be realised that in this changing environment, new information is worth more than old information and learning never stops.
3. It has also been suggested that an excellent first step is to select strategies promoting active learning that one can feel comfortable with. Such low-risk strategies are typically of short duration, structured and planned focused on subject matter that is neither too abstract nor too controversial, and familiar to both the faculty member and the students. This was earlier suggested by Seth Godin, an American entrepreneur, author and public speaker that “Tools matter, because tools impact the way you interact. You don’t need to use every tool, but every tool you use, you must use well”
4. Lecturers’ needs should be identified and their skills be enhanced through various training programmes and seminars so as to change their orientation from the traditional lecture method to interactive and innovative lecture method. A step towards this has been taken by The University of the West Indies, Cave Hill Campus, Barbados by encouraging all faculty to undergo the Certificate in University Teaching and Learning (CUTL) training to enhance lecturer’s teaching skills.

**2. The Students**

1. Many investigators asserted that there are risks that students will not participate actively; learn sufficient course content; use higher order thinking skills; enjoy the experience being shared in the class. It is imperative that the the students develop interests in their academic work; be present at lectures and be actively involved. Bulunuz and Jarret (2009) assert that there is a connection between interest and effort. The more a person is interested in a subject, the more effort he will put into it. He further described an interested person as being engaged, engrossed or entirely taken up by an activity because of its recognized worth. Suffice to say therefore that students’ interests will also sustain their lecture attendance and participation, they must be self driven as this intrinsic motivation is stronger than the extrinsic motivation from lecturers, parents and the society and therefore yields better result in learning.
2. There is a popular adage that “you can drag a horse to water but you cannot force it to drink unless it is thirsty”. It is when the students are thirsty for knowledge that that they go for lectures and participate. They should not frustrate the lecturer’s efforts as quality time would have been spent in preparing and incorporating the active learning strategies into the lectures. “Lecturers open the door, but the students must enter by themselves and be actively involved in the lecture”.

**3. The Government**

1. Pertaining to Nigeria, the government should make efforts to implement the national philosophy of education and addresses the causes of low level of ICT application in Nigerian high schools like: limited/poor information infrastructure; lack of/inadequate ICT facilities in schools; frequent electricity interruption which makes the few schools with ICT facilities unable to use them regularly; poor ICT policy/project implementation strategy” was also indicated as a factor.
2. Attention should be paid to the funding of Education at all levels which is still threatening the quality of Nigerian Education. Efforts should be made to maintain the existing facilities such as the replacement of laboratory equipment especially with the remarkable growth from the five universities in 1965 to over 1000 universities in 2012 to ensure their continuous use.
3. Politicisation of educational policies and programmes should be eradicated so that all learners will have equal opportunities; books and materials should be funded, there should be incentives for research and writing, to eradicate the use of outdated notes and materials by lecturers.
4. Lecturers’ and teachers’ salaries should be paid on time, to avoid strikes. The practices of active learning strategies need a lot of motivation an investment. Computers must be supplied to schools and there should be internet connections. Electricity must be regular because of the use of technology.

**4. Parents**

1. Parents’ efforts are also vital to students’ attendance and participation at lectures. They should provide the financial, moral, social and emotional support essential for their wards’ regular attendance at school and participation in class activities. They should not shift the financial responsibilities to the students and should avoid unnecessary demands from them and at the same time, the parents should guide against over pampering the students so that they will have self discipline, respect their lecturers and find it valuable to attend lectures and participate in class activities.

In conclusion, active learning strategies are effective in engaging learners and assisting them in creating their own learning experiences in the changing environment. Active learning strategies make learning to be fun and they motivate students’ attendance at lectures and to also participate. To enhance the competence and intellectual capability of the Nigerian learner therefore, the models for active learning should be embraced. It is time to change from the traditional and rigid method to the globally accepted learner – centred method; it is time to invest in the lives of “Today's Youth, Tomorrow's Leaders” through sound education which is the key to bright future. It is time to redeem the image of the country in the international world by curbing the menace of the corruption that constitutes the cog in the wheels of Nigeria’s progress. "Nothing endures but change. There is nothing permanent except change. All is flux, nothing stays still."- Heraclitus

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The Paradox of Economic Globalization:

The Case of the Niger Delta Region

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Abstract

Globalization presents contradictions, leading to its manifestation as good and bad – a double edged sword. For the proponents of globalization, it is a unifying force, an economic process that offers people a variety of choices, leading to an improved quality of life. One can also argue that globalization is good given the example of China and Indian where most people have moved from abject poverty. However, the negative aspect of globalization has resulted in a tremendous income inequality in most developing nations. There is a high rate of unemployment in these countries as both skilled and unskilled youths have become increasingly marginalized and disfranchised from the promise of “development.” The position of this paper is that, the processes of globalization in the last few decades have continuously restricted people’s lives, widened the gap between the rich and poor, north and south, resulting in a fragmented globality. And for the particular case of the Niger Delta region, economic globalization has resulted in the disenfranchisement of the youths. The discussions of this socio-economic phenomenon in this paper will be based on the field work that commenced in 2004 to 2010 in Obagi, Obelle, Omoku, Ogbogu, and Obite communities

**Keywords**: Globalization, Economy, Oil Exploration, Marginalization, Disenfranchisement

**Introduction**

Economists describe globalization as the abolition of tariff and non-tariff barriers (Weisbrot et al., 2002) or the practice in which national and international policymakers encourage domestic deregulation and external liberalization (Cornia, 2001). While we are not taking anything away from the above assertions, we posit that globalization goes beyond changes in rules and regulations guiding domestic and international economic development. In general terms, we argue that the processes of globalization affect people’s daily lives in various areas such as the environment, health, economic, politics, culture, prosperity of communities and the physical wellbeing of individuals.

In addition, given the uneven interactions of all the participants of economic globalization, we assert that economic globalization presents contradictions, leading to its manifestation as good and bad – a double edged sword. For the proponents of economic globalization, it is a unifying force, an economic process that offers people a variety of choices, leading to an improved quality of life. One can also argue that economic globalization is good if one takes into account, the example of China and Indian where most people have moved away from abject poverty. However, the negative aspect of economic globalization has resulted in a tremendous income inequality in most developing nations. This socio-economic phenomenon has in turn led to more social unrest in most developing countries because income inequality has become very precarious as the overall social exclusion has become more magnified.

There are various ways in which local citizens have been prevented from obtaining the basic necessities of life. For instance, there is a high rate of unemployment in these countries as both skilled and unskilled youths have become increasingly marginalized and disenfranchised from the promise of “development” as presented by the proponents of globalization. The position of this paper is that, the processes of economic globalization in the last few decades have rapidly and continuously restricted people’s lives, widened the gap between the rich and poor, developed and undeveloped, north and south, resulting in an uneven globality. And for the particular case of the Niger Delta region, economic globalization has resulted in the social exclusion and disenfranchisement of the youths. The discussions of this socio-economic phenomenon in this paper will be based on the field work that commenced in 2004 to 2010 in Obagi, Obelle, Omoku, Ogbogu, and Obite communities. For clarity and to encourage intellectual discussions on the pertinent issues in this paper, we will discuss the means by which economic globalization affects the inhabitants of the Niger Delta region as a thorough understanding of these mechanisms will inform the decision making process and assist local, national and international stakeholders to devise and implement socio-economic policies that will alleviate the negative outcomes of economic globalization while promoting its intended positive effects. To enable us do this, we have adopted both macro and micro-sociological perspectives as we plan to aid understanding of the complexity of economic globalization and the global determinates of community development and well-being.

**Literature review**

Nigeria is located on the Gulf of Guinea in West Africa (Fried and Gaydos, 2007). According to Adalikwu (2005), Nigeria is a multi-ethnic country whose economic base has shifted from agriculture to oil exploration. However, Fried and Gaydos (2007) assert that notwithstanding the fact that much of Nigerian’s income is derived from the export of petroleum, the agricultural sector still provides employment to several legal residents of Nigeria. Although the country has abundant human and natural resources, it ranks among the 13 poorest countries in the world (World Bank, 2001). According to the World Bank (2000), about 70 percent of the Nigerian Population lives in poverty. In 1997 it was estimated that 70 percent of the population lived on one dollar daily while about 90 percent survived on two dollars a day (World Bank, 2000).

Fried and Gaydos (2007) believe that Nigeria’s complex political history, widespread corruption, and heavy reliance on oil revenues are largely responsible for the very low standard of living in Nigeria. Similarly, Adalikwu (2005) posits that the processes of political and economic forces at the international and national levels have contributed to the exacerbation of inequalities and ethnic divisions in Nigeria. For instance, the Niger Delta region of Nigeria, has been systematically deprived of any meaningful development since Nigeria’s independence in 1960, and has also become the center of a tense triangular conflict between many ethnic communities, the Nigerian government, and the oil producing multinational corporations (Adalikwu, 2005). Shah (2005) supported this assertion by arguing that developing countries’ poverty and social inequalities are complicated issues. For example, Shah (2005) stated that it is not sufficient to say that the poor are poor because of their own governance and management but because the rich have the power to enforce unequal trade agreements that favour their interests more than the poor. This explains why Sala-i-Martin (2002) and Ellis (2003) posited that economic globalization encourages inequality because trade increases the disparity in returns to education and skills, globalization marginalizes certain groups of people or geographic regions, and opening up lags behind development of adequate institutions and governance.

Adalikwu (2007) expanded on this theory by asserting that the exploration of oil in Nigeria and the Niger Delta region in particular, without sufficient plans for the protection of the people and environment, has led to the continued damage and degradation of the natural environment, people’s health, and their means of livelihood. There has been continuous and uncontrolled activity in the exploration and extraction of crude oil, which involves uncontrolled gas flaring, use of old oil pipes, pipe blow outs, oil well/pipe leaks, and numerous oil spillages, resulting in the death of many people, including women and children. In addition, until June 2003, as in much of today, all the interest groups and stakeholders in Nigeria and the Niger Delta region have no clear economic direction and these weak institutions and legal environment hindered the benefits that would have accrued from oil earnings (Adedipe, 2004).

Although the proponents of globalization can argue that economic globalization has contributed to the economic growth in some industrialized nations, it is very clear that it has negatively affected the economic growth of most developing countries that have been denied the institutional tools that will enable them compete with developed countries. According to Whelan (2004), globalization is not only spreading and enlarging market structures; it also has the ability to control trading policies and initiate economic reforms that are not always favourable to either domestic or international economic growth.

There is no doubt that both domestic deregulation and external liberalization of trade have facilitated the distribution of economic goods and services across different countries, the fact remains that the laws that govern these process tend to favour one economic and political region over the other. It is this uneven application of local and international economic rules and regulations that is perpetually hindering the development and well-being of the less developed countries and their citizens. The activities of transnational corporations in less developed countries, particularly in the oil sector have been purely to exploit both human and natural resources which have contributed to the perpetual environmental degradation (Sweetman, 2000:3) and increased burden of disease and social inequalities. However, the major issue with economic globalization in less developed countries is that most of its economic policymakers represent the interests of the big multinational corporations that control the global economy and exploit indigenous resources and peoples by controlling the socio-economic and political affairs worldwide ( Whelan, 2004).

**Methods and Procedures**

The purpose of this paper was to establish that the processes of globalization affect people’s daily lives in ways that have resulted in social exclusion in view of the effects on the environment, prosperity of communities, and the physical wellbeing of individuals.

Given the uneven interactions of all the participants of economic globalization, we present it as a double edged sword by which some have access to necessities of life while others are prevented from obtaining the basic necessities of life. In order to achieve the objectives of this paper, data collected from Obagi, Obelle, Obite, Ogbogu, and Omoku communities will be presented and analyzed. The reason for the population and sample of these five communities is that, they constitute areas of on-going oil exploration and extraction by oil Multinational Corporations (MNCs) in parts of the Niger Delta region of Nigeria and the local indigenes have observed the effects of the exploration of crude oil over five decades. Hence, they constitute information-rich cases through which much could be learned about issues of central importance to the objective of this paper.

In-depth interviews were conducted with subjects who were purposively selected in these communities based on the criterion that the technique gives one an opportunity to select respondents that have and would give information that is relevant to the phenomenon under investigation.

The instrument which involved in-depth interview protocol was based on sixty-two items. The in-depth interviews consisted of open-ended questions and required the hiring of translators who translated the questions from English into the local languages and conducted the interviews based on these questions for those who did not speak the English language. Most importantly, these interviews concerned the quality of their lives (access to basic human needs), the effect of crude oil exploration on their economic activities, particularly their household economy.

The participants in the in-depth interviews included two community leaders (a chief and a youth leader) in each of the five target communities because of their in-depth knowledge of the political and economic relationships between their communities, the oil MNCs and the government.

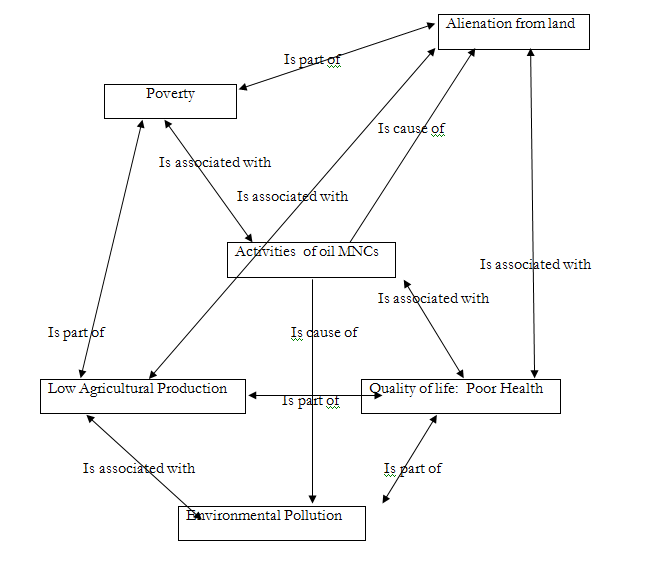
Using a thematic analysis, the data from the in-depth interviews is presented using critical ethnography of the subjects’ lived experiences prior to the commencement of oil exploration based on their personal recollections. The subjects’ present economic situation is also presented in relation to the historical structural change in their communities. Based on these analyses, we explained how economic globalization, through the activities of the oil MNCs, affected the lived realities of local citizens.

**Analysis of Results**

To explore the complex phenomena hidden in data collected from the five communities in our study, we made use of Atlas.ti 6.2 computer programme for qualitative analysis of large bodies of textual data, such as interview transcripts. This programme was also used to measure and analyze the relationships between categories and variables that we pre-determined. Accordingly, in transforming our qualitative data into useful knowledge, Atlas.ti 6.2 became functional in the visualizing of emerging relationships from the study and was also useful in the graphic presentation of these relationships as shown in this section of our paper.

Our study confirmed that, the vast wealth produce from the oil found in the Niger Delta region has not trickled down to local masses. While the people in this region have experienced the adverse effects of oil extraction for over five decades, they have not had any tangible benefit from the oil wealth. Instead, their quality of life and environment have been degraded as a result of oil exploitation. For instance, people in the five communities of our study area as in the entire Niger Delta region are primarily peasants famers, fishers, food processors, craftspeople and artisans who sustain themselves from their own land and labour. In this regard, any destruction or destabilization of the ecosystem would have detrimental consequences on the people given that their only means of sustenance and household economy depends on land and the natural environment (Adalikwu, 2007). Data collected from these communities revealed the adverse impacts of oil exploitation and exploration in Obelle, Obagi, Obite, Ogbogu and Omuku. These adverse impacts include alienation from land, environmental pollution, low agricultural production, poverty and poor quality of life.

The following is the analysis of the relationships between these five variables that represent the paradox of economic globalization. Our data revealed that there is a relationship between the activities of the oil Multinational Corporations (MNCs) in these communities and alienation from land. The activities of the oil MNCs are the cause of people’s alienations from their land, which ultimately impact on their means of sustenance where the traditional means livelihood is farming. This alienation from land is supported by the Nigerian Land Use Act of 1978, which has dispossessed the people of any right to ownership of land in the region. The diagram below also shows that the non-viability of farming as an occupation is a consequence of the activities of the oil MNCs which renders the local indigenes incapable of providing the basic economic needs for their families.



*Atlas.ti 6.2 network view of the negative consequences of oil multinational activities*

Poverty is associated with alienation from land because; when people do not have accesses to viable farmland their means of livelihood is negatively affected as agricultural production decreases. This situation in our opinion is a good recipe for poverty as people are rendered unable to provide the basic needs of their families and instead become economically dependent which is indicative of the paradox of economic globalization. Thus, we argue that when people whose mainstay comes from farming do not have access to adequate and fertile farmland, they are rendered poor as they are unable produce enough food for their families and for commercial purposes.

The activities of MNCs have also been associated with environmental pollution through gas flares, oil spills, use of old oil pipe lines, laying of surface oil pipe lines, use of open oil wells with rusted oil well heads, and pipe blow-outs some of which are shown in the pictures below:

|  |  |
| --- | --- |
| Omoku 3 Black and White.jpg | Omoku 7 Black and White.jpg |
| Gas Flare in Omoku City | Gas Flare in the Centre of Omoku City |
| 010 Black and White.jpg | Gas plant Obite 012 Black and White.jpg |
| Gas Flare in Obagi | Open Oil Wells with Rusted Oil Well-Heads in Obite |
| Obagi 6 Black and White.jpg | |
| Surface Laid Rusted Oil Pipe Lines in Obagi | |

These pictures support the assertion that the presence of oil MNCs in these communities is the cause of chronic environmental pollution which is negatively impacting the environment and health of the indigenes. Based on the data used for this paper, we posit that the state of oil exploration and extraction in the Niger Delta region has led to environmental pollution and health issues for the indigenes.

The paradox of economic globalization is further illustrated in the quest of the Nigerian government to create a favourable environment for foreign investment and trade. This phenomenon has essentially dislocated and disenfranchised the masses. Thus, we assert that the forces of economic globalization have privileged the private over the public sphere through economic policies like trade policies and structural adjustment programmes (SAPs), which further marginalizes the masses. International trade policies do not adequately establish trade laws that protect local citizens, instead the focus is on the maximization of profit and efficiency of human and material resources in host communities to the detriment of the indigenes. On the other hand, SAPs have primarily resulted in the poor people of the world becoming poorer and marginalized from their means of livelihood, a situation by which the indigenes in our area of study have not been immune from.

It is also interesting to note that, 90 percent of Nigeria’s foreign exchange earnings and 80 percent of the federal revenue is from the Niger Delta region’s oil wealth (Adalikwu, 2007), yet the region lacks simple necessities of life with no adequate health facilities and infrastructure for basic education. Based on the data collected from the five communities of this study, we can infer that both the Nigerian government and the various oil MNCs in the Niger Delta region are more interested in oil exploration and extraction than in helping the people in these communities by providing proper infrastructure that promotes a good quality of life.

**Conclusion**

There are overwhelming data to support the assertion that the processes of economic globalization in the last few decades have rapidly and continuously restricted people’s lives, widened the gap between the rich and poor, developed and undeveloped, north and south, resulting in a fragmented globality. Based on the findings of our study, the experiences of the people of Obagi, Obelle, Omoku, Ogbogu, and Obite show the paradox of economic globalization. While one of the most important mechanisms of globalization is increased trade in goods and services across national and international borders, our study has shown that the dynamics of economic globalization have severely impacted the lives of people in the Niger Delta region due to the uneven interactions between the masses, Nigerian leaders and the oil MNCs. For instance, while the increased oil exploration and extraction in Obagi, Obelle, Omoku, Ogbogu and Obite have alienated the people of these communities from their farmlands, polluted their environment and robbed them of their traditional means of livelihood, both the national and the international policymakers are either too slow or too incompetent in making policies that will ensure the even distribution of the oil wealth thereby, stripping these communities of the resources that would have enabled them to re-educate themselves in a way that will empower them to effectively compete with people from other regions and against their foreign counterpart

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The Impact of Climate Change in Nigeria:

Implications for Schooling

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Abstract

Although climate change is a global issue, likewise its impacts, but the biting effects are felt more by poor and developing countries especially those in Africa due to low level of infrastructural development, awareness and coping capacities. This can become worse if the educational systems of such countries experience serious setbacks as a result of the negative impacts of climate change. A lot of research has been carried out on the impact of climate change in Nigeria and the diverse ecological problems been faced today in the country have been linked to the ongoing climate change. However the impact of climate change on the access to quality education is yet to receive much attention. In this paper an overview of the impact of climate change as it affects schooling has been carried out with a view to spurring research on the subject matter.

**Keywords:** Climate change. Flooding, Drought, Desertification, and Schooling.

**Introduction**

Climate change is the greatest challenge facing the world today. It has impacted on all ecosystems and human societies in different ways and to varying degrees. As we well know, climate change is not a natural occurrence. It differs completely from climate fluctuations or climate variability which are inherent in the nature of climate and are dynamic on various temporal scales. The temporal scales could be monthly, annual, decadal, seasonal periodic, quashi-periodic or non-periodic.

What then is climate change? It is a change in the composition of the atmosphere that is over and above natural variations, attributed directly or indirect to human activities. (Odjugo, 2010). The implication here is that climate change is a man made phenomena and the situation can be changed if activities of mankind are geared towards restoring and conserving the environment.

Nigeria, like other African nations which are at the receiving end of the effect of global climate change, is counting its losses from the impact of the phenomenon. From desertification and drought in the north to gully erosion and flooding in the south, Nigerians are witnessing firsthand the effect of climate change on their socio-economic life. It is therefore necessary for us to take a look at how this menace affects access to quality education in Nigeria and Africa at large.

**Evidence of Climate Change in Nigeria**

The Nigerian metrological agency NIMET this year (2012) reported that episcope flooding and erosion in the coastal zone and river catchment areas of Nigeria may be inevitable. The agency further predicted that normal rainfall may result in flash flooding particularly in the northern states. These NIMET predictions are not only in line with climate changes worldwide but have manifested in the past in this country and are still being anticipated.

In July, 2011 Lagos experienced severe flooding due to unusual rainfall of 233.3mm. Ibadan experienced it in August of the same year with rainfall recording 88.2mm. In 1997, Lagos was heavily flooded following a rainfall value of 237.3mm (Njoku and Akinboade, 2012). Nigeria is thus experiencing adverse climate conditions with negative impact on the welfare of millions of people.

The International Federation of Red Cross (IFRC, 1999) reported that sea level rise and flooding are clearly affecting millions of people worldwide. The report pointed out that 10 million people are at the risk of coastal flooding and that flood is making 3 million people homeless every year and the number is expected to rise due to annual sea level rise. Okon and Egbon (1999) in Uyigue and Agho (2007) reported the occurrence of coastal erosion in the Niger Delta area which cuts across the nine states of Abia, Akwa Ibom, Bayelsa, cross river, Delta, Edo, Imo, Ondo, and rivers in southern Nigeria. Udofa and Fajemirokun (1978) in Abu (2007) showed a rise in sea level along Nigerian coastal waters. They carried out a mechanical analysis of Niger Delta from 1960 to 1970 as reported in Uyigue and Agho (2007), and estimated a sea level rise of 0.462m above zero level of the tide gauge.

Floods of the low lying areas in the Niger Delta have already been observed. In Egbor and Ogida communities in Edo state, several houses have been abandoned by the owners due to floods and many more areas are vulnerable to floods. Calculations have shown that Nigeria will inundate 3400 of its coastal lands with a 20cm rise in sea level (Onoeghara, 1990). Also the Niger Delta could lose over 15000 square kilometer of land by year 2100 with a one meter rise in sea level. It is valuable of note that the Niger Delta region spans over 20,000 square kilometers, (Uyigue and Agho, 2007), one can only imagine the loss of land mass in the offing in this part of the country as a result in climate change if adequate precautionary measures are not put in place. It is also worthy of note that the oil rich Niger Delta region is the main source of revenue in Nigeria accounting for about 97% of the country’s total export.

In the northern part of Nigeria, drought and desertification has been taking place steadily in the arid and semi arid zone with destructive socio-economic impacts for decades. The principal causes have been ascribed to deforestation, over grazing and poor irrigation practices resulting in negative impacts like food scarcity, resource use conflicts, migration, and losses of fauna among others (Medugu 2011). Experts have revealed that Sahara desert is advancing south wards through the northern part of Nigeria. The desert is said to be advancing at the rate of 0.6km a year resulting to the loss of land mass and displacement of farmers in the affected areas. It is also projected that an area of about 75 million hectares of land is susceptible by desertification in the north (NGO News Africa/Afrigue en Ligne, 2009).

These threats can lead to increased human competition resulting to mass migration, civil unrest and wars. Lagos, Africa’s largest city is currently having immigration growth of about 8% per annum. At this rate its population will exceed 25 million by 2015, making it the 3rd most populous urban centre in the world. Many of its new comers will be climate refugees from the north (Medugu, 2011).

**How Climate Change Affects Schooling**

The impact of climate change to the socio-economic well being of mankind has been discussed worldwide yet its impact on access to quality education has not received much attention.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) in its Education for all monitoring report 2010 highlights that girls are often the first to feel the impact of climate change. It cited the example of Pakistan and Uganda where climate related shocks result in far more girls being taken out of school than boys. The report indicates that cross-country research on past economic crises and climate events shows that the effect of shocks on schooling tends to be more pronounced in low-income countries. This report also finds that about 27 million children worldwide are still out of school, as a result of countries’ slower economic growth and rising poverty which increases marginalization in education. Often, the children of the poorest house holds are most likely to suffer consequences with regards to education, health and nutrition, and poverty tends to persist across generations.

Without missing words, Climate change has adverse effects on children’s education as it hinders the attainment of qualitative education for children of schooling age. For this, women and girls are worst hit than men because of their physiology and societal attitude towards girl-child education. This is one vital area that has not been properly given support initiative for sustainability.

One of the major effects of climate change on society is drought which also affects women and girls most. This is because drought results into water and food scarcity thereby bringing untold burden on women and girls who are vested with the responsibility of collecting water for domestic use in most societies. They may spend more time and energy in search of water for family use.

In addition to increased burden on women is the widening gap in gender inequality and poverty. While the boy child is preparing for school, the female has less time for education, less time for any income generating venture and so not considered in decision making as she lacks the critical mind to make good decisions in the home. This places the woman at a disadvantage because she finds it difficult to cope with climate change.

Changes in ecosystems caused by climate change can lead to loss of diversity and reduced agricultural output and increase food insecurity thereby bringing negative impacts to farmers as some settlement areas become completely uninhabitable. A careful study on migratory trend in Nigeria shows that there has been a significant displacement of numerous farmers and nomadic population in the northern states especially those state that are ravaged by drought desertification and other natural disasters. This means that the families migrate with all their children resulting in to children missing their education rights. Sometimes it is only the men who migrate in search of greener pastures where they may face exploitative and poor working conditions. This increases the chances of children not been provided with their basic school needs like uniform, stationeries and the psychological support necessary for learning.

Food insecurity and scarcity means lack of adequate or proper food. This in turn means children will lack proper meals to sustain them in school. Thus the adage, “A hungry man is an angry man” takes effect as most children become truants as a result of hunger, some of them may even drop out of school since they cannot properly participate in the school activities. This greatly affects the learning process in children.

Increased poverty at home due to the impact of climate change affect children in school as most times, they are withdrawn from school by parents to work in order to increase household income. This affect school attendance and when a family decides who leaves school, it is the girl child that is at the receiving end. They may be forced to work in the farm, become house girls or help do petty businesses to keep the family going.

Increased flooding and other natural disaster results in houses, school buildings and other infrastructure such as roads, bridges etc. being damaged thereby impacting on children’s rights to education as many of them are cut off from their schools or become refugees in refugee camps where there is no room for education. These disasters caused by the effects of climate change leave many children homeless or living in overcrowded accommodations that are inadequate. For some, their belongings like school uniforms, books, shoes, bags, and other school items get missing. Worst of all, some children become orphans in the process as their parents are killed in the process (by disaster). In some cases, schooling premises are also used as temporary refugee settlement for disaster victims. This means the children will stay at home and even if they later resume school, they will fall behind.

The adverse effect of climate change and environmental degradation on human health starting from water borne diseases through polluted water supply, extreme weather conditions resulting in disasters, changes in air quality cannot be over emphasized. These impacts negatively on women and girls who are the principal household care givers. This will in turn affect sick children who cannot have good school attendance as a result of poor care at home. In such situations, children in remote areas are mostly hit since they have poor or no access to proper health facilities when they become sick. This lack of proper medical attention and care will definitely affect their school attendance as they stay out of school more than in school.

It is important to restate that diseases caused by climate and environmental change can have adverse effect on household income thereby reducing households into poverty. The nomadic Fulani household for example depends mainly on cattle as their sole source of income and food. If cows therefore die in large numbers as a result of disease caused by climate change and degradation, there is bound to be untold hardship and poverty on the inhabitants resulting in high mortality rate. Extremely poor households might find it increasingly difficult to provide for their families as well as meet children’s school needs. This will eventually result to either poor performance due to poor attendance or sometimes outright dropout from school.

**Way Forward**

Climate change has more effect on women and girl child than on men. This situation can however be changed if individuals and communities adapt behaviors that are geared towards restoring and conserving our environment. Local and international communities need to reduce the emission of green effect gases, provide environment education to members of their societies and also take necessary precautionary steps to prevent these impacts.

Schools will serve as the strategic area to introduce environment education for learners. School or education curriculum should provide skills to children to study and understand the causes of climate change, its effect on various social groups and to participate in improving their local environment. It is good to act locally while thinking globally. Only then would the menace of climate change and environmental degradation be checked and prevented. This will indirectly empower girl child education and alleviate poverty in society.

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Impact of Climate Change on Grain Yield and Variability in Nigeria:

A Stochastic Production Model Approach

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Abstract

This paper analyses the impact of climate change on Nigeria’s cereal grain yields, variance and covariance. Maize and rice were selected based on their distinct production in almost all the States in Nigeria. A panel data stochastic production model with heteroscedasticity was employed in analysing the data. The data consists of a panel of eight States and 18 time periods. The eight states spans across the six geopolitical zones. The cereal grains considered are rice and maize. The simulation results show that there would be an increase in rice yield whereas its variance would increase. The contrary holds for maize. The covariance of the two crops would reduce in future due to climate change. The results have implications for allocations of agricultural land among crops, for crop production mix, and for adaptation and mitigation policies.

**Introduction**

It has now been widely accepted that the earth is warming and will continue to warm as the concentration of greenhouse gases rise in the future (Mendelsohn, 2009). These greenhouse gases such as carbon dioxide (CO2) have been shown to lead to changes in climate conditions such as temperature, precipitation, soil moisture, and sea level (Houghton et al., 1996; Schimmelpfennig and Yohe, 1999). Climatic change could have adverse effects on ecological systems, agriculture, human health, and the economy. However, how harmful climate change will actually be is still an ongoing debate (Intergovernmental Panel on Climate Change (IPCC), 2007a). Though climate change is a threat to agricultural and socioeconomic development, agricultural production activities are generally more vulnerable to climate change than other sectors (IPCC, 1990). Hence, substantial attention has been devoted to agricultural effects of climate change (Bryant et al., 2000; McCarthy et al., 2001; Polsky and Easterling, 2001; Isik and Devadoss, 2006; Deressa et al., 2005; Ajetomobi et al., 2011; Fonta et al., 2011). Climatic conditions and water availability may influence the mix of crop and livestock productions. As climatic conditions vary, crop production patterns could change since different crops could react differently to the alterations in climatic conditions. The timing and level of precipitation will impact the seeding and other field operations, and changes in the temperature level will affect the length of growing season and crop evapo-transpiration. These changes could also increase the need for more irrigation and decrease water supplies that are crucial for natural ecosystems, urban population, industry, and other users (Adams et al., 1998; Isik and Devadoss, 2006). Therefore, agriculture would have to compete for the scarce water with various users of water. Consequently, agricultural production patterns need to be adjusted to suit the ever changing climatic conditions.

Nigerian agriculture is a key sector in the economy employing over 60% of the labour force and contributing about 41% of the nation’s GDP. The sector is also the source of raw materials used in several processing industries as well as a source of foreign exchange earnings for the country. However, agricultural productivity growth has been below expectation. How much one can hold climate change responsible for changes in agricultural productivity in Nigeria remains a subject of research. Hence, its vulnerability to climate change is of particular interest to both researchers and policy makers. Attempts to analyze the effects of climate change on crop productivity globally have basically focused on mean crop yields. Majority of these studies employed either a crop simulation model or regression techniques. Only a few studies have analysed the impact of climate change on yield variability (Chen et al., 2004; Isik and Devadoss, 2006; Finger and Schmid, 2007, Baubacar, 2010). To the best of my knowledge, there has not been a similar study on Nigerian agriculture. Hence, this study intends to fill this gap by using historical data to elicit the response of crop yield and variability to climate change in Nigeria. A stochastic production function with multiplicative heteroscedasticity is employed. This is selected to ensure that consistent estimates of both the mean and variance of the production function are obtained.

**Data**

Maize and Rice were selected for analysis as these are the only cereal crops that are planted in all the geopolitical zones in Nigeria. The data description is presented in Table 1. These include maize output in tons, rice output in tons, area under maize and or rice cultivation in hectares, total annual precipitation in millimeters and average monthly temperature in degree Celsius. Output data are sourced from National Bureau of Statistics (NBS). Monthly Climate data are sourced from World Weather Records, GHCN v.3 (2011) and NBS Abstract of Statistics (2009). The explanatory variables used for the estimations include a constant, precipitation and temperature levels, and trend. The trend variable is a proxy for technological progress. Although aware that maize yields are driven by numerous factors, only climate factors are considered, specifically temperature and precipitation. Other factor inputs such as fertilizer, seed, herbicides could have been included but these are not available on a crop by crop basis. The data spans the period 1991 to 2008 for eight States namely Enugu, Borno, Kano, Lagos, Niger, Ondo, Plateau and Rivers.

***Table 1:*** *Variable Description*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | N | Mean | Standard Deviation | Minimum | Maximum |
| Maize( Tons/ha) | N | 1.731 | 0.310 | 1.000 | 2.500 |
| Rice (Tons/ha) | 144 | 1.909 | 0.930 | 0.147 | 8.756 |
| Precipitation (Millimetres) | 144 | 1445.302 | 518.442 | 426.600 | 2710.800 |
| Temperature (Degree Celsius) | 144 | 26.205 | 1.967 | 20.400 | 29.100 |

Prior to fitting the functions, IPS panel unit root was conducted to determine the stationarity or otherwise of all the variables used in the analysis. Results are presented in Table 2. In all cases the null hypothesis of panel unit root is rejected. All the variables are therefore integrated of order zero, in other words, they are stationary.

***Table 2:*** *IPS Panel Unit Root Test*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Maize | Rice | T | P |
| Statistic | -5.1022 | -4.3194 | -3.5836 | -6.9658 |
| P-value | 0.0000 | 0.0000 | 0.0002 | 0.0000 |

*H0: All panels contain unit roots*

**Empirical model**

In this paper, the stochastic production function with multiplicative heteroscedasticity is employed following Harvey 1976 and Just and Pope, 1978. The model is implemented in a panel data frame work by taking into account State specific effects. The model is specified as:

 (1)

 (2)

where denotes maize (or rice) output for State  at time , is avector of climate variables for State  at time , and are the corresponding parameter vectors, is a random variable distributed with zero mean and variance:  and  could be linear or nonlinear functions. The idea behind the above specification is that the effects of inputs on output should not a priori be tied to the effects of inputs on the variability of output. The first argument of equation (1) specifies the effects of inputs on the mean of output and the second argument expresses the effects of inputs on the variance of output. Thus,, and  and the two effects are independent. The Just–Pope function does not impose a priori restriction on the risk effects of inputs and therefore it accommodates both increasing and decreasing risk effects of inputs on output. The sign of  indicates whether a climate variable increases or decreases crop yield variability. An input is said to be risk increasing (decreasing) if it increases (decreases) the variance of crop yields (i.e. >(<)0) under uncertainty.

Feasible generalized least squares (FGLS) has been widely used since the Just and Pope (1979) paper. However, Saha, et al. (1997) Monte Carlo experiment results show that, unless the error distribution departs significantly from normality, the maximum likelihood estimator (MLE) is substantially more efficient with a considerably smaller mean squared error than FGLS. Hence, in this study, the MLE is employed. The maximum likelihood function is given as:

 (3)

Maximization of  with respect to and provides ML estimates. Three functional forms are considered namely, the linear, quadratic and square root functional forms. However, the discussion is limited to the quadratic form as this was selected based on AIC for the mean and variance model. Using the estimated production function parameters from Equation 3, we estimate the covariance of crop k and crop j by running the regression of  on the same set of explanatory variables as in the mean yield and variance functions. Also, the functional form for the covariance function is selected based on the RMSE and R2.

The future impacts of climate change on the mean grain yields and yield variability were examined using the climate scenarios from the Special Report on Emission Scenarios (SRES). Predictions from two climate models namely CGM2 and HADCM3 for the period 2060 and 2100 were used.

**Results and Discussion**

First, the correct panel data model for the estimation of production functions was ascertained. Panel data models take two alternative forms: random effects and fixed effects (Baltagi, 1995). The correct panel data model was determined by testing the random effects model versus the fixed effects model using the Hausman test statistics. The Hausman test statistic is distributed asymptotically as chi-squared with m (explanatory variable) degrees of freedom under the null hypothesis that the random effects estimator is consistent and more efficient. The Hausman test statistics rejected the null hypothesis that the random effects estimator is consistent and efficient for rice and maize estimations. Thus, the fixed effects model is more appropriate than the random effects model for two estimated yield equations. The fixed effect models are estimated using the maximum likelihood estimation method. The estimated equations showing the effects of climatic variables on the mean and variance of maize and rice yields for the three alternative functional forms are presented in Table 3 and 4 respectively. Based on the AIC, the quadratic functional form is selected for discussion.

Precipitation has a negative impact on the mean maize yield. However, only the square of temperature is statistically significant. Whereas temperature is positively and significantly related to the mean maize yield, its square is negatively and significantly related to mean maize yield. The interaction term between the precipitation and the temperature in the quadratic mean yield function for maize is positive and statistically significant. This implies that temperature and precipitation are not independent. The estimated coefficients in the variance function indicate that increases in the rainfall and temperature tend to respectively reduce and increase the variability of maize yields. These results imply that rainfall and temperature are respectively risk-decreasing and risk-increasing inputs in maize production. The trend has a positive impact on both the mean yield and variance though only significant in the mean maize yield function. This implies that as crop yields rise over time because of the technological progress, yield variance rises as well. These results also confirm the findings of Anderson and Hazell (1987) and Isik and Devadoss (2006) who found that the improved technology augments both the mean and variability of crop yields.

The estimated equations for rice show that the precipitation and temperature have negative effects on the mean rice yield but a positive effect on the variance of rice yield. With exception of the square of temperature in the mean function and precipitation in the variance yield function, all other climate terms are statistically significant.

***Table 3:*** *Impact of Climate Change on Mean and Variance of Maize in Nigeria*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Model | Variable | Linear | | Quadratic | | Square root | |
| Mean : |  |  |  |  |  |  |  |
|  |  | Coeff. | S.E | Coeff. | S.E | Coeff. | S.E |
|  | P | 0.0001\*\* | 0.0001 | -0.0015 | 0.0012 | -0.0008\* | 0.0004 |
|  | T | -0.0594\*\*\* | 0.0073 | 0.8901\*\*\* | 0.3267 | -2.0826\*\*\* | 0.7024 |
|  | P2 |  |  | -0.0000\*\*\* | 0.000 |  |  |
|  | T2 |  |  | -0.0213\*\*\* | 0.0069 |  |  |
|  | PT |  |  | 0.0009\* | 0.0005 |  |  |
|  | P1/2 |  |  |  |  | -0.1801 | 0.1632 |
|  | T1/2 |  |  |  |  | 18.3744\*\*\* | 6.7417 |
|  | (PT)1/2 |  |  |  |  | 0.0462 | 0.0319 |
|  | Trend | 0.0066\* | 0.0037 | 0.0061\* | 0.0036 | 0.006 | 0.0037 |
|  | Constant | 3.0316\*\*\* | 0.1622 | 7.2629 | 3.8366 | 38.7489\*\* | 16.4452 |
| Variance: |  |  |  |  |  |  |  |
|  | P | 0.0004 | 0.0006 | -0.0002 | 0.0004 | -0.0002 | 0.0004 |
|  | T | 0.1851\*\* | 0.0828 | 0.2158\*\*\* | 0.0778 | 0.2129\*\*\* | 0.0796 |
|  | Trend | 0.0471\*\* | 0.0226 | 0.0333 | 0.0247 | 0.0355 | 0.0246 |
|  | Constant | 8.5435\*\*\* | 2.1889 | 8.5487\*\*\* | 2.1641 | 8.4639\*\*\* | 2.174 |
|  | R2 | 0.332 |  | 0.3785 |  | 0.3635 |  |
|  | Log Likelihood | -7.2166 |  | 4.0637 |  | 2.4631 |  |
|  | AIC | 30.4333 |  | 13.8727 |  | 17.0737 |  |

*\*, \*\*, \*\*\*, denotes significance at 10%, 5% and 1% respectively; S.E = Standard error*

The interaction term in the quadratic mean yield function is positive and statistically significant. The positive coefficients of the precipitation and temperature in the variance function imply that the temperature and the precipitation are risk-increasing inputs in the rice production. However, only the coefficient of temperature is significant. The coefficient of the trend variable is positive in the mean yield function and the variance function, indicating that the technological progress brings higher yield and larger variability though this is only significant in the mean rice yield function.

***Table 4:*** *Impact of Climate Change on Mean and Variance of Rice in Nigeria*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Model | Variable | Linear | | Quadratic | | Square root | |
| Mean : |  |  |  |  |  |  |  |
|  |  | Coeff. | S.E | Coeff. | S.E | Coeff. | S.E |
|  | P | 0.0006\*\*\* | 0.0001 | -0.0028\* | 0.0021 | -0.0013 | 0.0009 |
|  | T | -0.077\*\*\* | 0.0208 | -1.3568\* | 0.7767 | 2.2593 | 1.5354 |
|  | P2 |  |  | -0.0001\*\* | 0.0000 |  |  |
|  | T2 |  |  | 0.0226 | 0.0151 |  |  |
|  | PT |  |  | 0.0021\*\* | 0.001 |  |  |
|  | P1/2 |  |  |  |  | -0.4205 | 0.268 |
|  | T1/2 |  |  |  |  | -26.4436\* | 15.9643 |
|  | (PT)1/2 |  |  |  |  | 0.1089\*\* | 0.0488 |
|  | Trend | 0.0256\*\* | 0.0129 | 0.0258\* | 0.0132 | 0.0263\*\* | 0.0133 |
|  | Constant | 2.8672\*\*\* | 0.5024 | 20.0503\*\*\* | 9.9456 | 74.5008 | 41.8504 |
| Variance: |  |  |  |  |  |  |  |
|  | P | 0.0004 | 0.0004 | 0.0006 | 0.0005 | 0.0006 | 0.0005 |
|  | T | 0.2266\*\* | 0.1099 | 0.2368\* | 0.1214 | 0.2374\* | 0.1213 |
|  | Trend | 0.0756 | 0.0479 | 0.0737 | 0.0469 | 0.0732 | 0.0468 |
|  | Constant | 7.6898\*\*\* | 2.9688 | 8.2365\*\* | 3.353 | 8.2359\*\* | 3.3422 |
|  | R2 | 0.1935 |  | 0.2547 |  | 0.2528 |  |
|  | Log Likelihood | -1.70E+02 |  | -1.70E+02 |  | -1.70E+02 |  |
|  | AIC | 356.8258 |  | 354.9872 |  | 355.0794 |  |

*\*, \*\*, \*\*\*, denotes significance at 10%, 5% and 1% respectively; S.E = Standard error*

The impacts of the precipitation and temperature on the covariance between maize and rice are reported in Table 5. The estimated coefficients of the precipitation and temperature terms are negative and statistically significant. This indicates that increases in the precipitation and temperature levels initially reduce the covariance between maize and rice. However, the square of temperature and the interaction term has positive and significant coefficients. The trend term is positive and significant implying that technological progress increases the covariance between maize and rice.

***Table 5:*** *Impact of Climate Change on Covariance of Maize and Rice in Nigeria*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Linear | | Quadratic | | Square root | |
|  |  | |  | |  | |
|  | Coeff. | S.E | Coeff. | S.E | Coeff. | S.E |
| P | -0.0013\*\*\* | 0.0001 | -0.0061\*\*\* | 0.002 | -0.0017\*\*\* | 0.0003 |
| T | -0.8929\*\*\* | 0.0325 | -4.8769\*\*\* | 0.4468 | 6.6689\*\*\* | 0.9266 |
| P2 |  |  | -0.0000 | 0.0000 |  |  |
| T2 |  |  | 0.0746\*\*\* | 0.0094 |  |  |
| PT |  |  | 0.0022\*\*\* | 0.0008 |  |  |
| P1/2 |  |  |  |  | -0.5946\*\* | 0.2736 |
| T1/2 |  |  |  |  | -79.794\*\*\* | 8.7859 |
| (PT)1/2 |  |  |  |  | 0.1204\*\* | 0.0497 |
| Trend | 0.2273\*\*\* | 0.0076 | 0.2334\*\*\* | 0.0052 | 0.2306\*\*\* | 0.0051 |
| Constant | 29.1074\*\*\* | 0.9328 | 82.2523\*\*\* | 5.4365 | 239.079\*\*\* | 21.486 |
| R2 | 0.9732 |  | 0.9918 |  | 0.9917 |  |
| RMSE | 0.386 |  | 0.2367 |  | 0.2355 |  |

*\*, \*\*, \*\*\*, denotes significance at 10%, 5% and 1% respectively; S.E = Standard error*

The estimated production function parameters are employed to examine the implications of the climate change scenarios (CGM2 and HADCM3) for crop yields and variability. The percentage changes in the mean crop yields, variance, and covariance are calculated for the four climate change scenarios and the results are presented in Table 6. The results from the CGM2 and HADCM3 indicate that both temperature and precipitation would increase maize by about 4.1%-13.7% and 1.2%-2.1% respectively in the four scenarios. However, temperature and precipitation would cause a decrease in maize yield variance by about 1.5%-3.0%. For rice, temperature and rainfall would in general decrease the yield for rice and increase its variance in all four scenarios. Table 6 also summarizes the potential impacts of the four climate change projections on the yield covariance of maize and rice. The results indicate that the covariance of maize and rice would decrease in all cases except for the CGM2 precipitation scenarios where precipitation would cause an increase in the covariance of the two crops.

***Table 6:*** *Percentage Change in Mean, Variance and Covariance of Maize and Rice under*

*Climate Change Scenario*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | CGM3 | | HADGM3 | |
|  | 2060 | 2100 | 2060 | 2100 |
| Maize | | | | |
| Mean |  |  |  |  |
| Temperature | 4.1288 | 7.2446 | 13.7431 | 7.5116 |
| Precipitation | 1.8740 | 2.1009 | 1.2083 | 1.1931 |
| Variance |  |  |  |  |
| Temperature | -2.3127 | -1.5574 | 0.0181 | -1.4926 |
| Precipitation | 2.8734 | -2.8404 | -2.9701 | -2.9723 |
| Rice | | | | |
| Mean |  |  |  |  |
| Temperature | -1.7296 | -6.4789 | -16.3844 | -6.8860 |
| Precipitation | -2.1973 | 2.6226 | -0.9499 | -0.9216 |
| Variance |  |  |  |  |
| Temperature | 0.1126 | 0.9412 | 2.6696 | 1.0123 |
| Precipitation | -0.5786 | 0.6623 | 0.3332 | 0.3276 |
|  |  |  |  |  |
| Covariance |  |  |  |  |
| Temperature | -11.3768 | -28.4459 | -64.0472 | -29.9090 |
| Precipitation | 2.3487 | 3.2659 | -0.3417 | -0.4028 |

**Conclusions and Policy Implications**

This paper uses an econometric model to estimate a stochastic production functions and quantify the impacts of temperature and precipitation on the mean, variance, and covariance for maize and rice yields in Nigeria. The estimated production functions are then used to draw inferences about the future impacts of climate change for Nigerian agriculture.

The results from the econometric model that employs the historical climate and yield data show that the impacts of the temperature and precipitation on grain yields vary between maize and rice. The impact of precipitation is very minimal and sometimes insignificant compared to that of temperature. In general temperature and precipitation decreases maize and rice yields and reduces their variability. Simulation results however indicate that the mean yields of maize will increase substantially in the future while its variance would decrease because of the projected increases in both the temperature and precipitation levels. For rice, climate change will reduce its yield and increase its variance in future. The climate change will likely have significant impacts on the covariance of grain yields. The covariance of maize and rice yields is declined significantly except for the CGM2 precipitation scenario.

These results have important implications. First, there is need to learn the consequences of global warming for agriculture in order to prepare for the possible changes in climate conditions. Global climate change could have significant effects on Nigerian Agriculture. Hence, mitigation and adaptation strategies to curb these effects are necessary especially for rice production in Nigeria. If these are not tackled appropriately, Nigeria would continue to spend huge money on rice importation. Second the results have important implications for allocations of agricultural land among crops and the mix of crop production in the future. Allocations of agricultural land among various crops could change because of the changes in climate conditions. Changes in the variance and covariance of crops affect producers’ land allocations among various crops by impacting the variability of profits. Because the climate change projections have differential impacts on the mean crop yields, yield variability, and covariance, the future mix of crop production and the extent of the acreage allocated to each crop are expected to change. Farmers will likely expand the acreage of crops whose mean yield increases and/or variability decreases in response to the projected climate change. Ceteris paribus, production of maize will likely increase and productions of rice will likely decrease in Nigeria. The reason for this result is that a risk-averse farmer is more likely to plant crops with low variability. Although, these results appear to support the current ongoing doubling of maize production in Nigeria, this however has long term implication for Nigeria’s foreign reserve as rice continues to be imported.

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Agricultural Development and Land use Pattern

in Nashik District of Maharastra, India

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Abstract

The paper aims to analyse the agricultural development and land use pattern in Nashik district. Nasik, lying between 19o 33’ and 200 53’ north latitude and 730 16’ and 750 16’, with an area of 15530 Sq. K.M. North south length is 120 k.ms. East West length is 200 k.ms. Forest, Agricultural Land, Area not available for cultivation, Cultural waste is different distribution of land use pattern. The total irrigated area is 6.6 % and unirrigated area is 54.6 %.The highest irrigated area is in Niphad and lowest irrigated area is in Surgana. The highest unirrigated area in Igatpuri Tahsil. The Girna and Godavari is drained by two chief rivers and several dams have been built across the main stream.Rafiullah’s method is use for crop combination analysis, the nine crop combination in Dindori Tahsil , four crop combination in Yevla, three crop combination in five tehsils that are Surgana, Kalwan, Deola, Peint, Trimbak and two crop combination in Satana(Baglan), Malegaon, Nandgaon, and Chandvad Tahsil. Nashik has population of 6,109,052 of which male and female are 3,164,261 and 2,944,791 respectively, Average literacy rate of Nashik district in 2011 are 82.91 compared to 80.96 of 2001.

**Keywords:** Agricultural Development, Land use Pattern, irrigation, Crop Combination, Population.

**Introduction**

Agriculture is the main economic activity of the district and about 70 per cent working population is dependent on agriculture occupation. Grapes of Nashik district are famous for their exhilarating taste and rich flavour and Onion, Pomegranate and tomato is also famous in all over India.

The national horticultural research and development foundation (NHRDF) was establish by national agricultural co-operative marketing federation of India Ltd. (NAFED) and its associate shippers of onion on 3 Nov, 1977 under societies registration act 1860 at new Delhi. During 1989, the head office of NHRDF was shifted to Nashik but the registered office is at New Delhi. The head quarter of NHRDF is located 20 km away from Nashik towards north-east on the Nashik- Aurangabad road at 200 north latitude and 730 57’ east longitudes at 492 m above mean sea level at Chitegaon Phata in Niphad talukas of Nashik district.

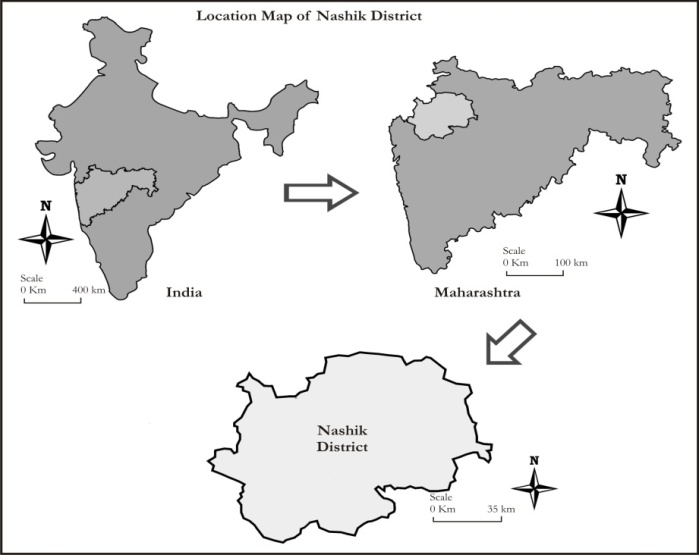
Weather of Nashik generally compares well with that of Pune or Bangalore .Generally climate is pleasant, dust free and non-corrosive. The Coldest month is December with minimum temperature of up to 50 c and maximum temp.28.30 c. The hottest month is May with minimum temp.21.5o c and maximum temp. Up to 42.50c. The average rainfall of the District is between 2600 and 3000 mm, there is wide variation in the rainfall received at various blocks. Most of the rainfall is received at various blocks. Most of the rainfall is received from June to September. Relative humidity is maximum 62% and minimum 43%. It may be mentioned that the average temperature is rising and rain fall is decreasing slowly.

Nashik is also deemed "the third most industrialised city of Maharashtra after Mumbai and Pune", mainly due to extensive industrial development in recent times. It is home to an important thermal power plant (Eklahare) and a National Treasury Printing Press (India Security Press at Nashik Road). There are five "Industrial Zones" in the Nashik area and its outskirts (Satpur, Ambad, Sinnar, Igatpuri and Dindori). These estates house corporations like Mahindra and Mahindra, MICO (Bosch), VIP Luggage, Crompton Greaves, GlaxoSmithKline, Graphite India Ltd. (Formerly Carbon Everflow Ltd), Larsen & Toubro, ABB Group, Siemens, Samsonite, Ceat and Hindustan Aeronautics Limited. Software companies like Aress Software and WNS.

The highest density in Malegaon and lowest density in Nandgaon. The Progressive growth rate from 1901 to 2012 is 642.

**The study area**

Nasik, lying between 19o 33’ and 200 53’ north latitude and 730 16’ and 750 16’, with an area of 15530 Sq. K.m. Nashik has population of 6,109,052 of which male and female are 3,164,261 and 2,944,791respectively,average literacy rate of Nashik in 2011 are 80.96 compared to 74.36 of 2001. If things are looked out at gender wise, male and female literacy were 88.03 and 73.43 respectively. For 2001 census, same figures stood at 83.65 and 64.35 in Nashik District. Total literate in Nashik District are 4,294,045 of which male and female are 2,408,876 and 1,885,169 respectively. River Godavari passes through Nashik. Jalgaon district is at its east and north east. Surat and Dang district is at north. Thane district is at south west and west. Aurangabad district is at south east and Ahmednagar is at south. There are 15 talukas in Nashik district.



**Objectives**

1. To study the agricultural development in Nashik district of Maharashtra
2. To study the land use pattern
3. To study the irrigated land
4. To study the crop combination region with the help of Rafiullah’s method
5. To study the population growth and development

**Methods and procedures**

The present study is based on primary and secondary sources. District census handbook and Socio-economic reviews have been used for data analysis. Corel draw x3 and adobe Photoshop CS3 used for map preparation. The Tahsil has been taken as unit for study and the statistical data extracted from district office pertains to 2004-2005. The crop combinations regions derived from the application of Rafiullah’s method. The analysis of population growth of the study area depends entirely upon the census report.

*Land Use Pattern of Nashik District* ***Table No-1***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tahsil | Area  (Sq. Km.) | Forest | Agricultural  Land | | Area not available for cultivation | Cultural waste |
| Irrigated | Unirrigated |
| Malegaon | 1825.13 | 34261.7 | 10357.4 | 109864.8 | 19587.6 | 8441.3 |
| Baglan | 1477.83 | 41618.9 | 11808.4 | 73047.0 | 16401.5 | 4907.3 |
| Kalwan | 859.71 | 32028.1 | 2653.6 | 43433.4 | 5413.1 | 2442.8 |
| Nandgaon | 1089.82 | 25951.9 | 3261.0 | 62751.7 | 8093.4 | 8923.9 |
| Surgana | 845.65 | 45626.3 | 156.4 | 33823.7 | 4729.3 | 229.3 |
| Nashik | 810.57 | 13990.2 | 3488.3 | 43148.8 | 8531.1 | 11898.7 |
| Dindori | 1342.19 | 19483.7 | 5243.3 | 81751.4 | 16522.1 | 11218.6 |
| Igatpuri | 846.32 | 16631.2 | 453.8 | 58624.7 | 7887.8 | 1034.5 |
| Peint | 560.60 | 26718.1 | 463.7 | 15717.6 | 5770.9 | 7389.7 |
| Niphad | 1053.65 | 1976.1 | 34568.7 | 47523.7 | 14268.9 | 7027.7 |
| Sinnar | 1352.61 | 14739.9 | 12046.9 | 84972.0 | 17334.6 | 6167.6 |
| Yevla | 1064.47 | 11146.0 | 5256.0 | 65863.4 | 12106.1 | 12075.4 |
| Chandvad | 958.75 | 8704.4 | 8236.8 | 60056.0 | 11871.4 | 7006.4 |
| Trimbak | 874.7 | 33668.0 | 830.0 | 37025.0 | 8465.0 | 7482.0 |
| Deola | 568 | 7809.0 | 2917.0 | 30699.0 | 10180.0 | 5195.0 |
|  | 15530 | 334353.6 | 101741.3 | 848302.3 | 167162.7 | 101440.1 |

*Percentage of Land Use Pattern in Nashik District* ***Table No -2***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tahsil | Tahsil percentage | Forest | Agricultural  Land | | Area not available for cultivation | Cultural waste |
| Irrigated | Unirrigated |
| Malegaon | 11.8 | 18.8 | 5.7 | 60.2 | 10.7 | 4.6 |
| Baglan | 9.5 | 28.2 | 8.0 | 49.4 | 11.1 | 3.3 |
| Kalwan | 5.5 | 37.3 | 3.1 | 50.5 | 6.3 | 2.8 |
| Nandgaon | 7.0 | 23.8 | 3.0 | 57.6 | 7.4 | 8.2 |
| Surgana | 5.4 | 54.0 | 0.2 | 40.0 | 5.6 | 0.3 |
| Nashik | 5.2 | 17.3 | 4.3 | 53.2 | 10.5 | 14.7 |
| Dindori | 8.6 | 14.5 | 3.9 | 60.9 | 12.3 | 8.4 |
| Igatpuri | 5.4 | 19.7 | 0.5 | 69.3 | 9.3 | 1.2 |
| Peint | 3.6 | 47.7 | 0.8 | 28.0 | 10.3 | 13.2 |
| Niphad | 6.8 | 1.9 | 32.8 | 45.1 | 13.5 | 6.7 |
| Sinnar | 8.7 | 10.9 | 8.9 | 62.8 | 12.8 | 4.6 |
| Yevla | 6.9 | 10.5 | 4.9 | 61.9 | 11.4 | 11.3 |
| Chandvad | 6.2 | 9.1 | 8.6 | 62.6 | 12.4 | 7.3 |
| Trimbak | 5.6 | 38.5 | 0.9 | 42.3 | 9.7 | 8.6 |
| Devla | 3.7 | 13.7 | 5.1 | 54.0 | 17.9 | 9.1 |
| Total % | 100.0 | 21.5 | 6.6 | 54.6 | 10.8 | 6.5 |

The Malegaon is the largest area i.e. it’s first ranking in area i.e. 1825.13 Sq. Km in the Nashik district. The land use pattern is not uniform; the total forest area is 21.5% in the Nashik district, more than 37 % forest area in Surgana, Trimbak and Kalwan Tahsil. The Niphad Tahsil is the lowest forest area i.e.1.9 % area but the irrigated area is the highest i.e. 32.8 % area. The low irrigated area in Surgana, Igatpuri, Peint and Trimbak because this Tehsils receiving the highest rainfall in the Nashik district and farmer depends on rainfall. The total unirrigated area is 848302.3 hector. Igatpuri Tahsil is the highest unirrigated area i.e.69.3% area and low unirrigated (40%) in Surgana Tahsil. The total area not available for cultivation is 10.8 %, the highest area in Deola Tahsil and 5.6% area in the Surgana Tahsil. The total cultural waste is 6.5% area and the highest (14.7) cultural in Nashik Tahsil.

*Irrigation Land and unirrigated landuse category* ***Table No -3***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Irrigated land | | | Unirrigated Land | |
| Category | Range in % | Tahsil | Range in % | Tahsil |
| Low | Below 4 | Kalwan, Nandgaon, Surgana,  Dindori, Igatpuri, Peint,  Trimbak (07) | Below 20 |  |
| Medium | 4 to 8 | Malegaon, Nashik, Yevla,  Deola (04) | 20 to 40 | Peint, (01) |
| High | 8 to 12 | Baglan, Sinnar, Chandvad(03) | 40 to 60 | Baglan, Kalwan, Nandgaon,  Surgana, Nashik, Niphad,  Trimbak, Deola. (08) |
| Very High | More 12 | Niphad, (01) | More 60 | Malegaon, Dindori, Igatpuri,  Sinnar, Yevla, Chandvad (06) |

Out of fifteen Tahsil only one Niphad Tahsil 32.8% area is highly irrigated. Three Tehsils are high irrigated i.e. Baglan, Sinnar and Chandvad. Medium irrigated four Tehsils are Malegaon, Nashik, Yevla and Deola. Seven Tehsils are low irrigated area.(Map No.1). The total 54.6 % area is unirrigated; Peint Tahsil is medium unirrigated area. The eight Tehsils are highly unirrigated and six Tehsils are very high unirrigated.( Map No.2)

The drainage pattern depends upon the structure of the underlying basaltic rock. The Girna and Godavari River are drained by two chief rivers and several dams have been built across the main stream, irrigating large areas of garden land.

|  |  |
| --- | --- |
|  |  |

*Major and medium project* ***Table no-4***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Basin/  Sub Basin | Name of Project | Talukas | Project | | Designed Live Storage (Mcft) |
| Major | Medium |
| Girna | Chankapur,Haranbari , Kelzar  Nagyasakaya | Kalwan, Satana(2),Nandgaon | 01 | 03 | 4849 |
| Godavari | Gangapur, Alandi,Kashyapi | Nashik(02) | 01 | 02 | 8452 |
| Darna | Darna, Kadwa, Mukne | Igatpuri | 03 |  | 13444 |
| Kadwa | Palkhed, Karanjwan, Ozerkhed.  Waghad,Tisgaon,Punegaon | Dindori | 06 |  | 11873 |
| Pravara | Bjojapur | Sinner | 01 |  | 361 |
| Total | | | 12 | 05 | 38979 |

*Last Updated data 2/3/2012*

The district is drained by two chief rivers, the Girna and Godavari, and their tributaries. Dam is constructed on Girna, Godavari, Darna, Kadwa and Pravara River. These 12 dams play the very important role in agricultural development and designed live storage is 38979 (Mcft). Igatpuri Tahsil areas which are cultivated under purely rained conditions are treated as unirrigated lands. Some important dam is following.

Gngapur Dam: - The total catchment area of the dam is 357.4 Sq.km. The total dam length is 3810 m. and maximum height of the dam is 36.57m. The total Gross storage of the dam is 215.88 MCM (7624 mcft) the length of the waste weir is 102 m. There are total 9 radial gates of size (9.15x6.10 m.) having the discharge capacity of 2294 cumecs (81013 cusecs). The dam has two canals, the left bank canal is 64 Km. long and right bank canal is 30 Km. long. The total irrigable area of this dam is 15960 Ha.

Darna Dam: - The dam constructed by British Government in 1916.The total length of dam is 1634 meters, and the maximum height of the dam is 28 meters. There are 50 automatic Reynolds type gates for passing the discharge of 2017.55 cumecs (71250 cusecs). In 1972 additional 6 radial gates of size 12.19 x 4.27 m. are constructed for passing the discharge of 1318.40 cumecs (46560 cusecs). There are 6 irrigation outlets on left bank and 2 irrigation outlets on right bank. The total catchment area at the dam site is 404 Sq.Km. The Gross irrigation command area is 79697 Ha. And irrigation command area of the dam is 33170 Ha.

**Crop combination is significantly**

The Tahsil has been taken as unit for study and the statistical data extracted from district office pertains to 2004-2005.Tahsil has been taken as a unit for study. Tahsil wise crop data collected from the revenue department of the Nashik and processed for crop combination. The crop combination has been estimated in a several ways. The present investigation is based on Rafiullah’s’ (1965) technique, which may be expressed as -

δ = ∑Dp2-Dn/N2

Where

*δ = Deviation*

*Dp = Positive difference from the median value of theoretical curve of crop Combination*

*Dn = Negative difference from the median value of theoretical curve of crop Combination*

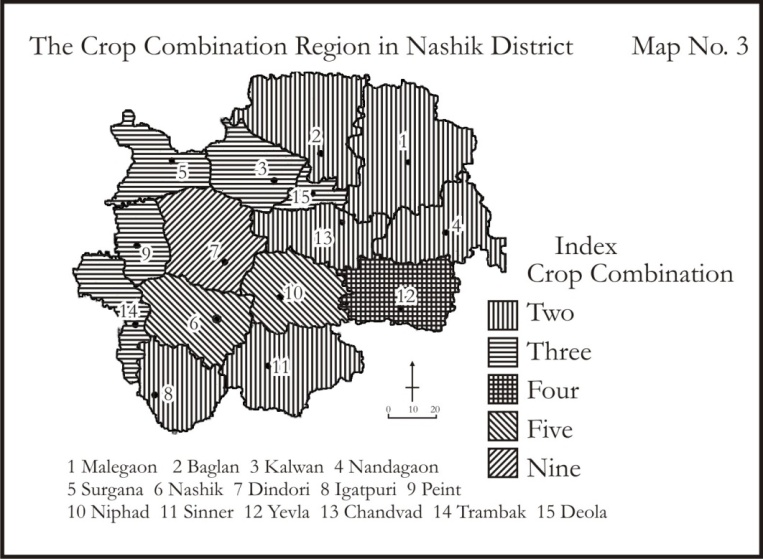
*N = Number of crop combination*

Fist all absolute values of the crop combinations for 15 Tahsil of Nashik district area determined and resultant cropping patterns. The Nashik district falling different crop associations are given below

*Crop combination and average rainfall* ***Table No-5***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tahsil | Total area | Crop  combination | Name of  The crop | Average Rainfall |
| Malegaon | 1825.13 | 2 | Bajra, Maze | 471.9 |
| Baglan | 1477.83 | 2 | Bajra, Maze | 424.7 |
| Kalwan | 859.71 | 3 | Maze, Bajra, Paddy | 625.5 |
| Nandgaon | 1089.82 | 2 | Bajra, Onion | 524.5 |
| Surgana | 845.65 | 3 | Paddy, Ragi, vari | 1807.2 |
| Nashik | 810.57 | 5 | Wheat, Paddy, Nachani, Javari, Onion | 613.4 |
| Dindori | 1342.19 | 9 | Graps, tomato, Wheat, Paddy, Sugarcane, groundnut, Ragi, Gram, Brigal. | 697.6 |
| Igatpuri | 846.32 | 2 | Paddy, Gram | 3442.1 |
| Peint | 560.60 | 3 | Mango, Ragi, wari | 2278.6 |
| Niphad | 1053.65 | 5 | Grape, Maze, Sugarcane, Onion, Wheat | 481.7 |
| Sinner | 1352.61 | 2 | Bajra, Wheat | 516.8 |
| Yevla | 1064.47 | 4 | Bajra, Onion, Maze, Wheat, Gram | 488.5 |
| Chandvad | 958.75 | 2 | Bajara,Onian | 570.6 |
| Trimbak | 874.7 | 3 | Paddy, Ragi, Wari | 2278.6 |
| Deola | 568 | 3 | Bajra, Maze, Onion | 625.5 |

The cropping combination denotes the proportion of land under different crops in various combinations in the time context. The various combinations stretching from two crops to nine crops. Two crops are found in six Tahsil. Nine crop found only in Dindori Tahsil for Grapes, tomato, Wheat, Paddy, Sugarcane, groundnut, Ragi, Gram, Brigal. These are all cash crops and Pipalgaon Market is famous for Graps, Tomato, Wheat, etc. In the western part of the Tahsil receives high rainfall so paddy cultivation is found in the tehsil’s i.e. Igatpuri, Trimbak, Surgana, Kalwan and that is correlation in between high rainfall and crop combination. Towards the eastern part of the Tahsil, rainfall is decrease so eastern part of the Tahsil Bajra is fames and mostly people eat the Bajra.



**Density and Literacy**

*Rural and Urban category of density and literacy* ***Table No - 6***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Density | Literacy | | |
|  |  |  | Total | Male | Female |
| Total  (District ) | High | Nashik  1625 | Trimbak  83 | Trimbak  90 | Trimbak  75 |
| Low | Trimbak  154 | Nashik  52 | Surgana  64 | Nashik  40 |
| Rural | High | Niphad  379 | Niphad  75 | Sinnar  84.96 | Niphad  65 |
| Low | Nandgaon  133 | Nashik  49 | Nashik  61 | Nashik  37 |
| Urban | high | Malegaon  18213 | Niphad  87 | Igatpuri  93 | Niphad  82 |
| Low | Niphad  1227 | Malegaon  79 | Malegaon  85 | Surgana  73 |
| Total  Nashik  District | Total | 322 | 74 | 83 | 64 |
| Rural | 202 | 67 | 78 | 56 |
| Urban | 4448 | 83 | 90 | 76 |

*Censes2001*

The above table shows the rural, urban and total Nashik district density and Literacy rate in the cense year 2001. The Nashik is the highest total population density is 1625 sq. km, the Malegaon is the height urban density is 18213 sq.km and the Niphad is the lowest population urban density is 1227 sq. km. Niphad is the highest rural density is 379 sq. km. and Nandgaon is the lowest density is 133 sq. km. The Nashik district density is 322 sq. km.(2001) the total density is 322 but urban density is very high i.e. 4448. The total literacy rate is 74% and the total urban literacy is high i.e. 83%. But male urban literacy rate 90%.

According to the data for 2001, Nashik acquired the first rank for degree of urbanisation it had achieved;87 per cent of its population lived in urban areas. Malegaon gained the second rank for the degree of urbanisation is 58 per cent (2001).

According to 2001 there has been a considerable growth of literacy in district. The literacy rate is higher for male (90 %). The male literacy of Igatpuri is 93. Trimbak Tahsil shows the highest literacy for male and females (Table No)

The percentage of urban population is 38.8. (Census 2001)(pp408) The percentage of urban population is 38.8. During the decades of 1951-61 and 1991-2001 it increased proportionately at higher rates vis., by 29.74 per cent and 29.66 per cent respectively. Child sex ratio of Nashik district is 882 females per 1000 males. Female Sex ratio of Nashik district is 931 females per 1000 males

Since 1901 there has been a considerable growth of literacy. The educational progress achieved since 1930 and the compulsory education by state after Independence. Devnagari is one of them used in this district .from the above table it is clear that the literacy rate in the Nashik district have continuously incising over all the decades. While we can derive some satisfaction from the improvement in the literacy rates, it is important to note here, that, even though the number of literates has increased by 82.91 % over the decade censes 2011, the male literacy rate is 88.03 % and female literacy rate is 73.43 %.

*Population decadal growth* ***Table No- 7***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Census Year | Population | Decadal growth | | Average annual  Exponential  Growth rate  (Per cent ) | Progressive  growth rate  over 1901  (Per cent ) | Density  Per Sq. km. | Literacy rate |
| Absolute | Per Cent |
| 1901 | 823,080 |  |  |  |  | 52 |  |
| 1911 | 915,698 | + 92,618 | 11.25 | 1.13 | 11.25 | 58 |  |
| 1921 | 845,783 | - 69,915 | -7.63 | -o.76 | 2.76 | 58 |  |
| 1931 | 1,009,583 | + 163,800 | 19.38 | 1.93 | 22.66 | 54 |  |
| 1941 | 1,127,597 | + 118,014 | 11.68 | 1.17 | 37.00 | 65 |  |
| 1951 | 1,429,916 | + 302,319 | 26.81 | 2.68 | 73.73 | 72 | 36.89 |
| 1961 | 1,855,246 | + 425,330 | 29.74 | 2.97 | 125.40 | 92 | 36.37 |
| 1971 | 2,369,000 | + 513,754 | 27.70 | 2.77 | 187.82 | 119 | 44.36 |
| 1981 | 2,991,739 | + 622,739 | 26.28 | 2.63 | 263.39 | 152 | 62.33 |
| 1991 | 3,851,352 | + 860,352 | 28.76 | 2.88 | 367.92 | 193 | 74.36 |
| 2001 | 4,993,796 | + 1,142,444 | 29.66 | 2.97 | 506.72 | 248 | 80.96 |
| 2011 | 6,109,052 | + 1,115,256 | 22.33 | 2.23 | 642.22 | 322 | 82.91 |

In 2011, Nashik has population of 6,109,052 of which male and female are 3,164,261 and 2,944,791 respectively. There was change of 22.33 present in the population compared to population as per 2001. In the previous census of India 2001, Nashik District recorded increase of 29.66 present to its population compared to 1991.

The (No-) presents the growth of Nashik district from 1901 -2011.It will be seen that except for the decade of 1911-1921 when the severe influenza epidemic took a heavy toll of life, the population of the district has increased all along, although not at a uniform rate. During the decades of 1951-61 and 1991-2001 it increased proportionately at the higher rates vis., by 29.74 per cent and 29.66 per cent respectively.

According to the 2001 census, the total population of Nashik district was 4,993,796 and the second highest decadal growth rate of 29.66 per cent. There has been a net addition of 1,115,256 persons during 2011.The decadal growth decreases at the rate -7.33 during 2001-11. During the decade 2011 the growth rate of the district is 22.33 and progressive growth over 1901 is 642.22.

The percentage of urban population is 38.8. During the decades of 1951-61 and 1991-2001 it increased proportionately at higher rates vis., by 29.74 per cent and 29.66 per cent respectively. In 1901 the density is 52 and 2011 the density is 393 Per Sq. Km.

Since 1901 there has been a considerable growth of literacy. The educational progress achieved since 1930 and the compulsory education by state after Independence. Devnagari is one of them used in this district .from the above table it is clear that the literacy rate in the Nashik district have continuously incising over all the decades. While we can derive some satisfaction from the improvement in the literacy rates, it is important to note here, that, even though the number of literates has increased by 82.91 % over the decade censes 2011, the male literacy rate is 88.03 % and female literacy rate is 73.43 %.

*Population compare to Maharashtra* ***Table No-8***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| year | 1981-91 | 1991-2001 | 2001-2011  Nashik | Maharashtra-2011 |
| Total Pop | 3851352 | 4,993,796 | 6,109,052 | 112,372,972 |
| Male | 1984973 | 2,590,912 | 3,164,261 | 58,361,397 |
| Female | 1866379 | 2,402,884 | 2,944,791 | 54,011,575 |
| Population Growth Rate | 28.73% | 29.66% | 22.33% | 15.99% |
| Density(per.sq.km) | 248 | 322 | 393 | 365 |
| Literacy rate | 62.33 | 74.36 | 80.96 | 82.91 % |
| Area in Sq. Km |  |  | 15530 | 307690 |
| % compare to Maharashtra | | | 5.05 | 100 |

As compare to the Maharashtra state Nashik district growth rate is +6.34 in censes year 2011. The Nashik is 5th growing district. ( Thane +35, Pune +30, Aurangabad +27, Nandurbad +25 and Nashik +22.growth rate during censes 2011).The literacy rate of Maharashtra is high ,density of Nashik district is high as well as population growth is high as compare to Maharashtra.

**Results**

The total 101741.3 sq.km (6.6%) irrigated area playa the important role in agricultural development as well as road, railway, agricultural labour, bank, good climate and modern technology give the support to agricultural development.

The total forest area is 21.5%, irrigated area is 6.6%, and unirrigated area is 54.6 %. Area not available for cultivation is 10.8 % and Cultural waste is 6.6 %. In the district more than 37 % forest area in Surgana, Trimbak and Kalwan Tahsil. The lowest forest area i.e.1.9 % area but the irrigated area is the highest i.e. 32.8 % area in Niphad Tahsil.

The Niphad Tahsil 32.8% area is highly irrigated. The total 54.6 % area is unirrigated , Peint Tahsil is medium unirrigated area. The eight Tahsil is highly unirrigated and six Tahsil is very high unirrigated crop pattern is a very important feature of landuse in Nashik district, especially Dindori is nine crop combinations on the economic point of view. The high rainfall region paddy is found and less rainfall region Bajra is found. The western part paddy is found and eastern part of Tahsil Bajra is found means towards the eastern parts rainfall is decries. Bajra is important crop of the District. However other crops like wheat, paddy and other cereals are also grown in various parts of the District. Paddy is mainly grown in Tribal belt i.e. Igatpuri, Peth, and Surgana Blocks. Vegetables and Onions have been main cash crops for last 30 years.

The percentage of urban population is 38% and urban-rural ratio is 0.63 urban people in Nashik district in 2001.In the present times, because of advances in good climate, industrialization, development of road, religious importance’s ,cargo services, good quality of grape and onion more and more people are being attracted towards Nashik districts.

Maximum 12% of area is occupied by Malegaon Tehsil. Smallest area 3.63% occupied by Peint Tehsil.2nd Smallest Tehsil is Deola occupied space is 3.81%.Rest 12 Talukas occupied 5 to 9 % of the area

**Conclusion**

The 4 lining of national highway no NH- 3, the total length is 231.759 Km from Igatpuri to Zodage and state road network1639.97Km, the total railway network 287Km from Igatpuri to Nayadoangari play the very important role of agricultural development. Now recently cargo surveys play the very important role for commercial agricultural development. Crop combination is change from east to waste direction due decrease rainfall. The urbanisation growth of Nashik Tahsil is very high. In the present times, because of advances in good climate, industrialization, development of road, religious importance, cargo services, good quality of grape and onion more and more people are being attracted towards Nashik districts. Due to good transport facilities there is an agricultural development. Agriculture has been used to its full potential in Nashik district.

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**Botanical name of crop**

|  |  |
| --- | --- |
| **Crop** | **Botanical Name** |
| Bajra | *Pennisetum glaucum* |
| Brinjal | *Solanum melongena* |
| Grape | *Vitis Vinifera* |
| Gram | *Cicer arientinum.l* |
| Groundnut | *Arachis hypogaea.l* |
| Jowar | *Sorghum vulgare* |
| Mango | *Mangifera indica* |
| Maze | *Zea mays* |
| Nachni/Ragi/Vari | *Eleusine coracana* |
| Onion | *Allium capa.Linn* |
| Paddy | *Oryza sativa* |
| Sugarcane | *Saccharam officinaram* |
| Tomato | *Lycopersicum esculentum* |
| Wheat | *Triticum aestivum* |

Enhancing the Science, Technical and Vocational Skills of Universal Basic Education Graduates in Nigeria

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Abstract

The main focus of this paper is on how acquisition of science, technical and vocational skills by the universal Basic Education graduates in Nigeria can be enhanced. The paper outlines how science and technical skills can be taught and imparted practically to the learners in the workshops and laboratories. The need to incorporate indigenous Artisans and skilled personnels into the UBE programme was highlighted. Anticipated obstacles associated with the idea of using indigenous skilled personnel was also explained. Finally the paper concludes that the present universal Basic Education programme can be strengthened and the vocational goals of the learners achieved, if the skills and expertise of the indigenous people are incorporated into the system. Recommendations made include, adopting a compulsory one-year vocational skill training for all junior secondary school graduates in Nigeria.

**Keywords:** Science Education,Technical, Vocational, Graduates,Nigeria

**Introduction**

It is generally recognized that the highest goal of education is man’s search for himself in a constantly changing world where he is continuously called upon to make choices that will definitely influence his environment. Education should thus be concerned with the unfolding of the individual as a whole in the particular and peculiar environment and circumstances in which he finds himself.

However, the situation in our contemporary classrooms, lecture halls, even laboratories and workshops in all essentials is like the atmosphere in a clerical office or bank, (Kosemani, 2000). The above comment is a clear testimony of the system most Nigerian students go through in their institutions of learning. A system where students are reduced to mindless consumers because knowledge is packaged to them and delivered with ready – made answers. A system where learners are denied the right to explore, deviate, innovate and make mistakes in their quest for self fulfillment.

But according to UBE (2002:6), the Universal basic Education programme is in fact, part of Nigeria efforts to uphold and renew its commitment to the provision and promotion of basic education for all as required by a number of covenants and protocols to which Nigeria is a signatory. Deriving from the jornitien declaration and framework of action on education, the UBE (2002:6-7) scope of program includes the following:

1. Programme and initiatives for the acquisition of functional literacy, numeracy and life skills especially for adults (persons aged 15 and above).
2. Special programmes for nomadic populations.
3. Out – of – school children, non – formal programme for up dating the knowledge and skills of person who left before acquiring the basics needed for life long learning.
4. Non-formal skills and apprenticeship training for adolescents and youth who have not had the benefit of formal education.

However, detailed articulation of the purpose, goal and method of achieving science, technical and vocational skills in the universal basic education programme is enunciated in the National Policy on education, (NPE, 2004) section 7, dealing with science, technical and vocational education. According to the above policy document; “science education shall emphasize the teaching and learning of science processes and principles. This will lead to fundamental and applied research in the sciences at all levels of education”. The goals of science education shall be to: (1) cultivate inquiring, knowing and rational mind for the conduct of a good life and democracy;……

On technical and vocational education, the policy document states that; technical and vocational education is used as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of our economic and social life.

Specifically, the document states that; the preparatory aspect of pre-technical and pre – vocational training offered to students at the juniors secondary level is for the purpose of:-

1. Introduction into the world of technology and appreciation of technology towards interest arousal and choice of a vocation at the end of junior secondary school and professionalism later in life;
2. Acquiring technical skills;
3. Exposing students to career awareness by exploring usable options in the world of work, and
4. Enabling youths to have an intelligent understanding of the increasing complexity of technology.

To achieve the above objectives of technical and vocational skills acquisition in the basic education programme, the policy document recommends that; each state and local government, in co-operation with appropriate agencies, shall organized relevant apprenticeship scheme and also enterpreneurial training. Also relevant Artisan training should be obtained in vocational centres.

**Statement of Problem**

There is no doubt that the current Nigerian secondary school system of 6 – 3 – 3 – 4 has not shifted appreciably from the former 6 – 5 – 4 system of education in terms being “bookish” and utilizing ‘talk and chalk” method of teaching. According to Obumeneke (1998), Agbogiasede (2008), Okorosaye-orubite (2008) the major difference between 6 – 3 – 3 – 4 and 6 – 5 – 4 system of education have been in the increase in the number of years from 5 to 6 years as well as the delineation of the 6 years into 3 years of Junior and 3 years of senior schools.

Apart from the Federal government Secondary Schools which enjoy some federal support, most states secondary schools find it extremely difficult to establish adequately equipped workshops for the teaching and learning of pre-vocational subjects. Even those junior secondary schools with some equipment, there is less seriousness in handling these pre-vocational subjects, in such a way that the students will acquire sufficient basic skills to foster the acquisition of technical and vocational skills for self – reliance and industrial growth of Nigeria. Today, many scholars are of the opinion that with the high level of corruption, political ineptitude and lack of morale among the teaching staff in the secondary schools that the Universal Basic Education (Ube) programme will go the way of the UPE then therefore, the main focus of this paper, is how to enhance the acquisition of science, technical and vocational skills of the Universal basic Education graduates in Nigeria.

**Teaching Science, technical and vocational skills in the UBE**

One of the national demands on teachers of the universal basic Education programme especially teachers in the junior secondary schools is to teach in a way that will enable pupils to acquire further knowledge and develop general and specialized skills.

Therefore, skill acquisition is very crucial in the basic education programme.

Nature of skills: Skills are acts which are performed at a high level of proficiency. For an act to be really a skill, it has to be performed well, smoothly and in an expert – like way. So, a teacher has to encourage students or learners to learn and perform the acts so expertly that they do not bother to spend much time thinking of the component parts. Although the focus of this paper is on the psychomotor skills, other skills will be mentioned. Psychomotor skills are overt and observable, they still carry elements of cognitive and affective skills.

Psychomotor skills, are subdivided into three:- Locomotor skills, Manipulative skills and Non – Locomotor skills. Some writers often distinguish between gross and fine motor skills.

Gross motor skills involve movement of large muscles and fine motor skills involve movement of small muscles. The above classifications are valid but in this paper we will use the former classification.

Locomotor skills are those skilled actions which are related to movement from one place to another these include skills needed in physical education, creative and cultural arts etc.

Manipulative skills involve skills required in receiving, giving and handling objects in the performance of various technical and vocational tasks. These are very important in all school subject e.g measuring, setting up laboratory apparatus etc.

Non – Locomotor skills are classified as acts which involve neither movement from one place nor manipulation of objects. Eg perceptual motor skill. For an effective teaching and learning of science and technical skills in the junior secondary schools, Onwioduokit (2000) suggested that the UBE teachers should master the performance codes of skills required of them to impart to the learners. Example;

Manipulation Skills Performance Codes:

1. Ability to handle objects / apparatus correctly,
2. Ability to set up apparatus correctly and with correct bearings,
3. Ability to manipulate objects / apparatus correctly,
4. having good experimental posture
5. Ability to contact model and
6. Ability to draw accurately.

Observational Skills Performance Codes:

1. Correctness of observation, that is, ability to observe correctly,
2. Ability to discover characteristic features of objects or events;
3. Ability to notice changes in characteristics in terms of say, color, tastes, smell, shape etc.
4. Ability to notice the effect of one substances or object on the other eg, a vegetable oil makes a white paper translucent, when robbed on it and water turns a dry white copper II tetraoxo-sulphate (vi) blue;
5. Taking correct reading with measuring instruments and
6. Ability to notice errors involved during experimentation.

Computational Skills Performance Codes:

1. Ability to relate the variables involved quantitatively
2. Ability to get necessary data
3. Ability to summarize the data in a graphical form, if required
4. Ability to undertake all calculations required, accurately and
5. Ability to assign correct units of measurements.

It should be note that the skills though district are related. Cognitive skill, for instance is required in the proper exhibition of all other skills. In order to further show how to practically teach and assess the science, technical and vocational skills in the junior secondary schools in Nigeria, the teacher of basic science, technical and vocational subjects is expected to be:

1. Familiar with the performance objectives suggested in his subject curriculum;
2. List or identify the science, technical or vocational skills involved in each teaching unit of his subject curriculum; and
3. Master the performance codes associated with each skill to be learn’t or taught.

As an example, let us take a teacher teaching unit one JSS 1 –integrated science. He needs to draw up a chart as shown below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | Topic | Performance Objective | Students Performance  Level: 5 – Excellent, 4- Very well, 3 – Well, 2 – Partially Well, 1 – Not Well | Skills Assessed |
| 1 | Characteristics of living things | The child should be able to;  1. Identify those characteristics that separate from living non living things.  2. Use such criteria to sort objects into living and non-living things. | The child is able to ;  1. Identify things in the school compound.  2. classify objects into living and non living things | Observational  Cognitive |
| 2 | Human beings as intelligent animals |  | 3. Draw parts of the body  4. Take care of the teeth.  5. Describe what he/she sees in the environment. | Manipulative  Manipulative  Communicative |

In the table above, the students performance level indicates the grade to award a learner based on his/ her level of performance in the skill assessed.

The above brief example demonstrates how the science skills can be taught and inculcated into the learners in the laboratory or classroom. Now, this method can be adopted by technical and vocational teachers to teach their subjects or to inculcate the technical and vocational skills needed by their learners.

**Rationale for using artisans and skilled personnel in UBE**

Universal Basic Education programme in Nigeria should encompass formal and non – formal aspects of education for children, adolescents and adults. It should aim at only making the learners to acquire the skills of permanent literacy, Numeracy and the ability to communicate effectively, but also to acquire practical skills with which to earn a living for life. The National policy on education, NPE (2004) section 5 states that the junior secondary school shall be both pre-vocational and academic. The pre – vocational subjects which form the base for technical and industrial growth include: wood work, metal work, electronics repair, mechanics, local craft, home economics and business studies. Further-more, the National policy on education states that, in order to realize the objectives of basic education, local craft-man and Artisans should be used to foster skill acquisition in the junior secondary schools.

Now, apart from federal Government secondary schools and few state, comprehensive schools, there is hardly any junior secondary school in Nigeria where technical and vocational skills are adequately imparted to the learners. It is this ugly situation and circumstances that made Okorosaye – Orubite (2008) to ask the question, can the goals of Universal basic Education (UBE) be realized? Will the UBE not go the way of the former Universal primary Education?

To enhance the skills acquired by the universal Basic Education graduates, Nwachukwu (2000) suggested looking inwards, into our traditional Nigeria societies, which was sustained by the principles and practices of indigenous vocational education before coming in contact with the western system of thought. Our traditional societies have people who are proficient and specialist in different occupations or professors like the blacksmith, cloth and fabric weavers, wood and leather worker etc.

These traditional societies has metamorphosed into our present day 774 local government Areas of Nigeria with many more new vocational skilled people than in the days of independence why should we not incorporate them into our school system? Why can’t we send our junior secondary school graduates to undergo the traditional apprenticeship scheme to make the child self reliant, productive and explore his latent talents?

According to Kosemani (2000) the general aim and process of education are the same in all societies – to pass on the wisdom of former generations to the new and to introduce the young to the social organization and impart skills that will benefit them and the society they live in. According to Nwachukwu (2000), the apprenticeship system of training if adopted in our educational sector will ensure that the necessary skills and attitudes are actually acquired by the learner, since it is practical oriented and the trainee sees the immediate results of his efforts.

Infact, it can argued that our inability to link the western system of thought with our indigenous system of vocational education and culture is the cause of the educational and developmental crises in Nigeria and Africa in general.

Anticipated problems in using local Artisans and skilled personnel.

To use indigenous artisans and skilled perssonels to enhance skill acquisition of UBE graduates certain problems or difficulties are obvious.

1. Willingness of the indigenous personnel to be involved in the business of education. They may not be willing to be involved in a professional teachers job.
2. Remuneration of the skilled personnel. Where the indigenous people are willing to participate in the universal Basic education programme, they may require remuneration which the schools may not provide except the state or the federal government takes the responsibility.
3. Incorporating into the school time table the lessons of the indigenous skilled personnel.
4. The problem of controlling the learners and avoiding work accident.
5. Examination policy in Nigeria. It seems reasonable to assume that unless skill acquisition is taken proper care of in the school examination syllabus; many Nigerian youths may not want to participate effectively in skill training.

However, despite the afore-mentioned problems, a well planned learning experiences involving teachers, Artisana and skilled personnel is possible if the goals of UBE is to be achieved. For example, the problem of examination policy in Nigeria, can be solved if in all final year examinations a compulsory project section which will involve some community work experience in addition to a finished skilled work in vocational or technical areas.

**Summary, Conclusion And Recommendation**

This paper has endeavored to demonstrate literarily that the Universal Basic Education (UBE) scheme in Nigeria has failed to provide many of the learners who has gone through the 9-years of basic education the appropriate levels of literacy numeracy, manipulative, communicative and life skills…… needed for laying a solid foundation for life –long learning, as a basis for scientific and reflective thinking. Otherwise there would have been no need for the various skill acquisition programmes of the multinational oil companies, government and Non-governmental organizations in Nigeria. The writers of this paper are of the view that the present Universal Basic Education scheme could be strengthened and the vocational goals of the students achieved if the skills and expertise of the indigenous people are incorporated into the system. This can be done by:

1. Using the 774 Local Government Education Authority (LGEA) in the country to identify competent skilled personnel or Artisans in all the vocational areas specified in the National policy of Education for Basic Education e.g. automechanics, electrical work, painting and graphics, information technology skills (computer studies) etc.
2. Adopting a compulsory one – year vocational skill training for all junior secondary school Graduates in Nigeria. Something similar to industrial training (IT) scheme of university and polytechnic students.
3. A vocational training allowance to be paid to the students and their instructors.
4. The junior secondary school Graduates to be assigned to vocational skill training based on aptitude or interest.
5. The monitoring and inspectorate division of the UBE to monitor and report on the scheme. Where a skilled personnel is not students, he should be dropped and the students re-assigned.

For effective administration of this vocational training each junior secondary school should have a vocational / industrial training unit with a coordinator and a team of inspectors to also carry out an independent assessment inspection and record keeping will also forestall any fraudulent intentions of some individuals.

Finally, the writers of this paper are of the conviction that if the path outlined in this paper is followed, it will enhance the science, technical and vocational skills of UBE graduates and consequently the attainment of the technical and vocational goals of the universal Basic Education programme in Nigeria.

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Human Capital Development in Science,Technology and Mathematics Education: Implications for Sustainable

Development in Africa

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Abstract

This paper harped on human capital development in science, technology and mathematics education with special reference to its implications for sustainable development in Africa. The usefulness and relevance of science, technology and mathematics education to sustainable development in African Nations are no longer in doubt. Therefore any nation that plays with these indices plays with her own development. America is a super power today because she has been able to transfer her science into technology. This could also be done in Africa through effective and efficient development of STM human capital. This paper discussed the rational for human capital development in STM education, the economic implications of human capital development in STM education and the attendant suggestions to improve human capital development in the STM programme in Africa.

**Keywords**: Human Capital, Science, Technology, Mathematics, Sustainable Development.

**Introduction**

Science, technology and mathematics are components of the triangle of knowledge that exude sustainable development in advanced nations of the world. Therefore, the usefulness of science, technology and mathematics education to sustainable development are no longer in doubt. The pursuit of this triangle of knowledge as an imperative effort for achieving sustainable development is conspicuous in many National Development plans. Invariably STM education is regarded as the pivot upon which technological advancement revolves. Gbamanja (1986) posited that a general trend in this pursuit has been to produce scientifically and technologically literate citizens. Supporting this view, Gimba (1997) remarked that the achievement of a sustainable development through STM education cannot only be realized by just producing or providing the necessary infrastructural facilities, rather effort should be geared at producing the individuals in order to effect positive change of attitude and orientation concerning their physical environment and natural existence.

Hence, human capital development in science, technology and mathematics education connotes the development of teachers, technicians, and personnel involved in the teaching-learning process. However, the human capital development that hinges on the teacher is perhaps the most crucial in that the development of science and technology culture has its origin in the classroom. The extent to which this is achieved depends on the qualification and training of the teacher and on the attitude of the teacher in the teaching environment. Thus the success of STM education and achievement of sustainable development in Africa depends critically on the availability of technically trained manpower. Furthermore, Fafunwa (1969) had earlier asserted that sustainable development will be achieved when the emphasis on development is on people rather than things. He stressed that although factories, schools, hospitals, steel mills are built over night, they will stand idle or be unused, unless the masses of people for whom they are built have been scientifically and technologically prepared for them.

Therefore the need for emphasis on people when considering the indices of development is underscored by the fact that people are the subjects and objects of development; they are the wealth of a Nation. This is hinged on the fact that when the people are developed, they will develop all the acknowledged indices of sustainable development. Therefore, human capital development is tantamount to the development of the spirit and skill of innovation needed to manage our natural resources inorder to meet our technological needs. This will make Africa to be self-reliant, thus ensuring sustainable development.

**The Rationale for Human Capital Development in STM Education**

The fact that science, technology and mathematics education is a verital tool for sustainable development of any Nation is n longer in doubt. Sustainable development according to Ogban-Iyam (1983) is that development which is self-regenerating, self-sustaining and dependent mainly on internal inputs and initiatives. In continuation, he added that this type of development is needed to maximize the output of consumer and capital goods, reduce the problem arising from foreign trade and promote social economic development. In line with this, Badejo (1998) noted that sustainable development can only be meaningful when most of the inhabitants of a country have rudimentary knowledge of science, technology and mathematics. The extent to which this objective is achieved depends on the attention given to the training, welfare, remuneration, and ego-boasting environment of the resource personnel in the system.

This calls for human capital development as this refers to the totality of the effort made at equipping the individuals with the necessary scientific and technological skills, knowledge, abilities and environmental conditions necessary for them to achieve their full potentials. These enable them to make full use of their hands, brain and energy, thus being self-reliant. The need for emphasis on human capital development in STM when considering the indices of sustainable development is underscored by the fact that people are the object and subject of development. On this note, Akale (1990) pointed out that the development of science and technological culture in any nation begins in the classroom and the teacher is the key factor. This implies that the implementation of the STM curricular objectives in Africa depends on a strong army of science, technology and mathematics based teachers who can interprete the curricular objectives and use new educational materials effectively. It should be noted that no matter how attractive, detailed and supportive new educational materials are, they cannot be effective unless science and technology personnel are adequately developed to put them to use.

Unarguably, human capital development is the key to successful and lasting STM education vis-a-viz sustainable development. Without the right kind of teachers, the innate potentials of the populace cannot be tapped. The science teacher is a vital factor in motivating and maintaining students’ interest in achieving the curricular objectives. Furthermore, the role of the STM teacher is a very important one in the scheme of things in any nation’s vision for development. Effective STM teaching is not just a professional necessity but paramount to the basic need in the country for socio-economic development and to improve the quality of human life. Without well-trained and competent STM personnel, African Nations will continue to depend on other more advanced nations. Therefore a nation cannot be dreaming of sustainable development so long as foreigners continue to man her technology.

A closer look at the educational practices in the Nigerian nation in particular and Africa in general depicts that the teaching style of the average STM teacher still sees the learner as a vessel in which to pour knowledge, thus relegating the potentials for self-directed learning to the background. In this approach, the emphasis is on the imparting and regurgitation of facts, which makes students more on-lookers learning about science and not learning science. The type of result expected from such a system is far from what can be relied on for sustainable development. Hamlyn (1967) had earlier noted that such a learner is put in a situation in which he will need to perpetually rely on external sources of knowledge even when he has innate capabilities to source for knowledge. Akale (1990) also noted that without the right kind of teachers the STM education is pushed in a precarious position and there are indications that the educational policies coupled with the present economic constraints may bring the STM education to the brink of disaster.

Nsofor (2002) posited that the healthy growth of STM in Africa depends critically on the availability of technically and scientifically trained manpower. The above pictures if not put on check will constitute a vicious circle for when the teacher is not well developed all that depend on him for training will not be developed and so science, technology and mathematics become a powerless tool in their hand. On this note the paper puts in that human capital development in STM is a “sine-qua-non” for sustainable development in Africa.

**Problems of Sustainable Development in the STM Education**

The role played by science, technology and mathematics education is an indication that education is the foundation of all development. Thus, sustainable development of any nation is dependent upon the educational system. In Africa, a number of factors have been identified to militate against her development. These include:

1. **Poor Quality Education**: The implication of poor quality education for sustainable development is not far fetched; hence once the educational practices are faulty, the products of such a system are bound to be faulty also. Such is the situation in Africa in general where the teacher education programmes in most African countries do not implement their programme, which emphasized practical work for the teacher trainee. It is only when the teacher is grounded on the practical and innovative work can he on graduation apply such knowledge to expose the students to learning through creativity. It is said that a blind man cannot lead a blind man; hence poorly trained personnel will invariably have a rippling effect on the system. Poor quality education leads to sterile knowledge, which is not viable for sustainable development

Furthermore, it has been reported in many profiles of teachers that most of their interactions with their students is the lecture method and note copying, the result being that students are only oriented towards remembering what is taught to them which is also easily forgotten. The result is that students cannot think enough to create something. Closely tied to this is lack of basic training on methodology of science instruction. Abdullahi (1982) revealed that most of the teachers who taught primary science in most part of the country had no training whatsoever in the area of science. It is therefore unlikely to expect these ill-equipped teachers to teach science in any imaginative way that will lay foundation for the development of creative thinking, vis-a-viz sustainable development.

1. **Dearth of STM Teachers**: This is also a problem staring sustainable development in the face. There are few qualified STM teachers coupled with rapidly expanding number of schools. To this effect, STM teachers are drafted to teach other STM subjects other than the ones they specialized in. These groups of teachers cannot contribute meaningfully towards achieving sustainable development in Africa.
2. **Ego-Boasting Environment of STM Teachers**: Government and the general society at large have not accorded STM teachers their rightful respect and honour needed as a take-off for better service. Teachers are not regularly paid their due wages, and they are held at a very low ebb. These attitudes have generated a lot of provocative set back in the role the teachers can play to ensure sustainable development
3. **Poor Funding:** African educational institutions at various levels are poorly funded; this manifests itself in poor infrastructural and educational materials. Students are supposed to do science and not learn about science, but the situation in African schools is such that science is taught with a simple wave of hands and textbook regurgitations. This does not promote creativity in students and therefore not lead to sustainable development.

**Economic Implications for Human Capital Development in the STM Education**

Human capital development in STM education has far-reaching economic implications for sustainable development in Africa. According to the Ministry of National Planning (1980), human capital development entails the development of man, the unfolding and realization of his creative potentials enabling him to improve his material conditions of living through the use of resources available to him. These are sine-qua-non for mobilizing and empowering nation’s citizens for effective participation in technological development. It is also a foundation for transmitting the values inherent in STM to technological advancement hence ensuring sustainable development.

To support this, Akuimade (1997) asserted that human capital development is very important in the scheme of things in any nation’s vision for development. In continuation, he explained that human capital development nurtures individual’s potentials, boosts one’s knowledge, skills, attitudes, promotes motivation and ensure that they are all integrated to bring about the overall technology that is functional and people-oriented. This is the foundation for sustainable development.

It should be noted that human capital development is tantamount to the development of the spirit and the skill of innovation; the knowledge and attitude which make people self-reliant and self conscious instruments of change. It is a truism that the cost of developing human capital in STM is high because it calls for attention into the training, welfare remuneration and ego-boosting environment of the teachers in the system. But no amount of money spent in developing human capital should be considered too much, as humans are the wealth of a nation. When African Nations have enough effective STM human capital they will contribute immensely in training and turning out efficient personnel who effectively will manage the nation’s natural resources. In order words they will make Africa to be self-reliant thus ensuring sustainable economic development.

**Suggestions for Human Capital Development in STM Education**

As a check on the problems enumerated above, the following suggestions are put forward:

* African National governments should provide enough funds to build more infrastructures and purchase science teaching materials in all levels of education. This will make STM education activity-oriented and innovation conscious.
* The problem of low motivation on teachers may be solved if there is the standardization of teacher’s condition of service. This will accord teachers their desirable high social esteem and status and thus motivate them to put in their best to ensure sustainable development.
* The STM education programmes in teacher trainee institutions should be grounded on practical works. The programme should be technique-dominated, industry-oriented and innovation conscious.

All these should be geared towards achieving the much-desired sustainable development in African Nations.

* Finally, governments of the African Nations should sponsor STM teachers to seminars, conferences, workshops and encourage full in-service training. These will enable them be up to date in their knowledge of current events and new developments from advanced nations of the world.

**Conclusion**

Science, technology and mathematics education provide the overall avenue for a nation’s development. Human capital development holds the key to the training of qualified teachers which is paramount to the STM education programme. There is therefore the need to start a comprehensive science teacher education programme in all African Nations, that will arrest the deplorable conditions of science teaching in Africa. STM teachers should be encouraged through innovative training and be able to improve and infer alternative opportunities in the development of science, technology and mathematics. Inspite of the attendant cost implications, human capital development in STM education is the bedrock for sustainable development in Africa.

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**Classroom Management as a Control Strategy for Promoting**

**Quality Education in Nigeria**

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***Abstract***

*Classroom management has been viewed as a control strategy for effective instructional and curricular activities towards ensuring quality and relevant education at all levels. Consequently, there is need to ensure a good and sound classroom environment for effective delivery of the teaching and learning process. The paper underscored the need for revitalizing classroom management and therefore calls on the teacher skills in ensuring effective discharge of instructional responsibilities. An overview of classroom management in the school were highlighted. Finally, the paper highlights key principle or factors of improving the learning environment so as to bring about the desired qualitative education in Nigeria.*

***Keywords:*** *Classroom, Management, Education, Teaching, Learning*

**Introduction**

For effective teaching and learning to take place, it is important to recognize and arrange the classroom environment, to suit the learners who can only learn when conditions that encourage learning are provided. There is need to understand what will be involved in the environment. Idowu , 2012) observed that a number of environmental factors influence the child such as home, social, school and so school experience exert dynamic effects on children’s learning behavior. Given the above situation, it beholds on the teacher to effectively control and manage the classroom in a way that order, peace necessary for effective learning will be put in place. In most Nigerian schools, there are inadequate classroom, therefore it calls for proper management and control of the available class to promote and ensure effective teaching/learning process.

The achievement and success of classroom teaching and learning interaction depend to a large extent on the teacher’s skill and abilities in classroom management. If the teachers lack abilities in management of the classroom, control and order that will enhance teaching/learning process will be inhibited. The goals or objectives of quality education cannot be achieved in the school system without effective classroom management. The teacher specifically is the instructional leader of the classroom and as such is essentially the important pivot of classroom management. He is responsible for ensuring effective management of the classroom so as to achieve sound climate or environment for effective teaching/learning. Consequently, the need for effective classroom management as a control strategy for promoting quality education cannot be over-stated. It is believed that classroom management is an essential ingredient in the school system without which, it will be difficult to ensure peace and stability in the classroom management should be seen and use as a resources that could be meaningfully utilized to sharpen the quality of the output in teaching and learning. Further, it could be used as a factor in the process of quality education implementation.

The paper attempts to examine the processes and skills required for effective classroom management. It further explained the concept and practical application of classroom management as control measure in enhancing teaching/learning process. The paper highlights the conceptual definitions, purposes and process of classroom management and discipline. Attempts at asserting the need for effective classroom management as a necessary instrument for ensuring efficient, productive control and discipline in the classroom for enhanced and efficient delivery of the teaching and learning situation for the attainment of qualitative education was made.

**Classroom Management: An overview**

Classroom management has defined as the process concerned with been defined as the processes concerned with indentifying, maintaining, motivating, stimulating, controlling and unifying human and material resources in the classroom for maximum success in teaching and learning situation (Adesina et al, 1995) Duke (2002) described classroom management, as the provisions and procedures necessary to create and maintain a situation in which learning and teaching can take place. And for teaching/learning to take place, there should be order in the classroom. Order as described by Cohen, Intille and Robino (2002) is a situation where there is a clear set of expectations for all classroom members, where people anticipate expectations and where there is high degree of conformity to the expectations.

Furthermore, classroom management has been viewed as the process that involved the careful harmonization of those elements which help to create good teaching-learning atmosphere which include the physical conditions with the classroom ventilation, equipment, general appearance, the seating of pupils, the collections of books and materials etc. According to Idu (2003) Classroom Management is the process by which a teacher gets his pupils/students to co-operate in directing actions towards achieving the proper atmosphere in the classroom for learning.

The above definitions is proof that classroom management is the effective utilization of human and material resources as well as the curriculum within the classroom setting for the successful teaching and learning process and the attainment of the school objectives and promotion of quality education in the nation.

**Reasons for Classroom Management**

Ali (2007) asserts that the central aim of effective classroom management is to promote a classroom environment or state conducive for purposeful teaching and learning situation. Classroom management as a control strategy for effective learning is very important in that it will serve the following useful purposes in the attainment of set goals of the class, school and the educational system in general.

1. Develop the student’s sense of respect for laws and order towards constitute authority.
2. Check offenses committed by the students and punch them accordingly and appropriately.
3. Maintaining peace, order in the classroom environment.
4. Creating an atmosphere of discipline in the classroom for the learners to feel free and move freely.
5. Developing in the students the attitude of self-control and co-operation as a valuable personnel asset in meeting as well as fulfilling the duties of everyday life.
6. Establishing and maintaining conditions necessary for effective teaching and learning.
7. Generating the learner’s interest, attention and active participation in the lesson by using appropriate instructional materials and methods for qualitative lesson delivery.

Dubey and Ndogi (1985) noted that in creating the right atmosphere for learning there will be need to make efficient use of resource put in the classroom in order to produce students with academic achievement that are as high as desirable and so, attain the overall objective of the school. Dubey et al (1985) proposed this chart as a model for classroom management.

Classroom environment classroom Input Output

|  |
| --- |
| Equipments Teachers  Pupils |

|  |
| --- |
| Methodology |

|  |
| --- |
| Pupils  Academic  Achievement |

All these components are what make up the school environment and to achieve a desirable result in the school, the environment must be controlled through proper classroom management. The teacher must adjust his management role and behavior according to the characteristics of the class. When there is good classroom management, there is a positive approach to class activities. It must be though emphasized that there is classroom without small problems no matter how well managed. However, where good class management is lacking, there is chaos and teaching and learning are disrupted.

**The Process and Skills of Classroom Management**

Classroom management process is concerned with the teacher who is the instructional personnel and control manager’s abilities and skills to effectively manage the physical setting of classroom, time, class control, students interest, their well being as well as maintaining discipline and order for effective teaching and learning. Therefore, classroom management remains the key factor in the attainment of set goals of the learning process and ensuring a quality educational system.

The following areas of classroom management are among the most essentials areas that need to be put in place to ensure a smooth learning environment

1. Physical classroom atmosphere
2. Chalkboard arrangement
3. Classroom arrangement
4. Time management in the classroom activities
5. Handling instructional materials
6. Communication for effective control,
7. Sustaining of learners in the class.

Physical classroom atmosphere/arrangement: The physical arrangement of every classroom is most important point of concern in classroom management. This is because the physical setting of classroom has been viewed as an important and determining factor for motivating learner’s to learn or deterring them from learning. Harward (1973), Farrant (1991) & Adesina et al (1995) are all of the view that, if the classroom setting is orderly, beautiful and comfortable in terms of lighting, organization, temperature conditions, learners will be happy, eager and willing to learn. However, a poorly arranged classroom which is sited near a noisy area or street factory or market place and which does not have the right classroom facilities such as lighting, adequate chairs, right temperature etc can lead to lack of interest, boredom, fatigue, indiscipline and negative learning attitudes on the part of the learners. Therefore, it is necessary and important the classroom teacher understand that the physical environment of the class, and the school constitute a strong factor for effective classroom management and motivators for effective learning. Harvard (1973)

**Chalkboard Arrangement**

This is an integral part of efficient classroom management. The chalkboard is very essential part of the classroom that enables the teacher utilize the learner’s sense of sight and their sense of hearing in the teaching/learning process. The use of two or more sense instead of one, makes learning sticks and more permanent. To bring about good chalkboard arrangement, the following should be considered.

1. All work on the chalkboard should be in the style of handwriting readable and understandable to all the learners in the class.
2. Sketches/diagrams should be made quickly to illustrate the important points in the teaching process.
3. Work should be arranged neatly on the chalkboard for easier learning.

It is important to note that bad chalkboard arrangement has bad effects on the learners, but with proper management and arrangement, learners will enjoy the learning and achieve its goals.

**Classroom Arrangement**

Classroom arrangement is an important factor in the process of teachers classroom management and control. Teachers should possess the necessary skill in the class arrangement for effective utilization of classroom space that will facilitate efficient teaching and learning. However, good classroom arrangement depends on the type of furniture available in the school. In most cases the individual students desks or long benches, chalkboard and teacher desk are provided in schools classrooms. These should be well arranged in rows.

**Time Management in the Classroom Activities**

For effective classroom management and control, time management skill must be imbibed. Time management like any other skill can be learned. The degree of efficiency and success in teaching and learning in the classroom depends on the adequacy of the planning and use of time as a resource. If the time available is well managed there will be enough time for all the teacher to bring about efficiency and effectiveness in the school programme. It is important to note that the teacher should have a weekly and daily time charts showing details of what he intends to achieve every week or every day.

**Sustaining of Learners’ Interest in the Class**

Teaching is deliberate and plan activity. Therefore, the teacher must spend some time thinking about what to teach, who to teach and how to teach. The teacher must carefully select learning content, medium of instruction and how to evaluate what is taught in order to sustain the learners’ interest. This will ensure and thereby create conducive classroom climate. In sustaining the learner’s interest, the teachers should use a variety of methods and techniques of teaching.

**Handling Instructional Materials**

As part of their teaching strategy, many teachers find it necessary to provide supplementary material or notes for the students in addition to the information in the textbooks. When notes or diagrams are written or drawn on the board during the lesson, a lot of teaching time is wasted. If the school administration will allow it, notes and diagrams should be duplicated on a machine and each students get a copy. In most classrooms there are bulletin boards and host of empty wall spaces for charts, diagrams, notes and other forms of visual materials. A teacher should try to make use of such facilities as frequently as possible, otherwise he will be neglecting important dimensions in the management of learning.

**Communication for Effective Classroom Management**

Adesina (1995), considers communication as an important instrument for effective classroom management and control for the attainment for the school goals. He argues that without effective communication skills the teacher would not be able to carry the learners in the process of classroom management and instructional performance. In communication process, the teacher knows what to communicate, how to communicate when to communicate and the medium, means or channels learning/teaching process, there must be successful communication. Good communication in the classroom helps to make lesson clear and easy for students to learn. Generally, good communication make teacher’s work in classroom management process easier as well as creates an environment of the school conducive for learning.

**Keys in improving the learning environment**

The teacher’s major responsibility is that of teaching and helping the student to learn by varying his behavior to be the one who explains, listens, demonstrate etc. he also create the necessary atmosphere that enables learning and development of a good student-teacher relationship. The following will enable the teacher improve the learning environment. The teacher:

1. Explains to the student
2. Listens to the students
3. Demonstrations to the learners using the necessary materials to clarfy
4. Examines the students using different materials
5. Rewards good behavior as a correction
6. Advises
7. Punished for misbehavior as a correction
8. Counsels the learners each time they have a problem
9. Guides the learners.

**Conclusion**

Effective classroom can be used as a control strategy in promoting quality education in Nigeria. All the components in the school environment should be harmonized in order to bring about the desired results. It therefore calls on the teacher who is the instructional leader of the classroom to acquire the necessary skills needed for effecting discharge of professional responsibilities. The teacher also need to ensure that he puts in all the procedure of classroom management as well as avoid all obstacles to effective classroom control for the attainment of quality child educational growth and development in particular and education in general.

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**Toxicological Implications of Polluted Water from Makera Drain, Kaduna on Some Cereals and Horticultural Crops**

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***Abstract***

*Concentrations of some heavy metals in crops such as banana, pawpaw, maize, sugarcane and mango irrigated with water from Makera drain, Kaduna-Nigeria were investigated. These were determined by Atomic Absorption Spectrophotometer (AAS) technique. The metals were found to be in the magnitude of Zn> Pb> Cr >Cu, while that of the trace metals are Mg>Na>Ca in decreasing order of magnitude. There was varying level of significance (p<0.05) with increased concentrations of the determined metals. The high lead and chromium concentration (above WHO limit) in the irrigated crops may lead to its toxic effects as it can bio-accumulate in the tissues and muscles of human and domestic animals that utilize them as feed. It is thus observed that the water from the Makera drain used to irrigate crops may have delibetating effect on the consumers. Consumption of crops irrigated along the drain should be discouraged as it might contain high concentration of chromium and other toxic substances.*

***Keywords:*** *Polluted water, Crops, Metals*

**Introduction**

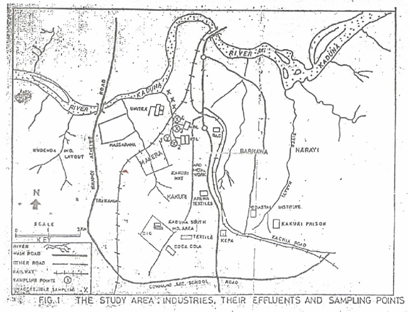
In the past, the adverse effects of human activities were dispersed over large expanse of land and sea. In recent years, particularly in many African countries, there has been a remarkable increase in urbanization, leading to exploitations of resources and industrial activities. These transformations have brought about huge increase in the quantity of discharges and a wide diversification of pollutants that are discharged into the environment through air emissions, effluent from industries and solids wastes from diverse human activities (CIFA, 1992). The presence of metals in the aquatic environment has been of concern since their toxicity was first documented in 1960s (Uchida *et al*., 1961).Metals analysis are an important part of environmental pollution studies (Loska *et al*., 2000; Chibowski, 2000; Solecki and Chibowski, 2000; Czarrnowska and Milewska, 2000**).** Some trace metals are essential in plant nutrition, but plants growing in a polluted environment can accumulate elements at high concentrations, causing a serious risk to human health (Vousta *et al*. 1996; Sharma *et al*., 2004). Metals tend to accumulate in aquatic animals and plants by absorption through body and respiratory surfaces, and by ingestion of particulate matter and food. The main sources of trace metals to plants are the air and soil from which metals are taken up by the root or foliage. The uptake of metal concentration by roots depends on speciation of metal and soil characteristics and type of plant species etc. Consequently, metal mobility and plant availability are very important when assessing the effect of soil contamination on plant metal uptake, as well as translocation and toxicity or ultra structural alterations (Chandra Sekhar *et al*., 2001). Toxicity manifests as impairment of metabolic function, with possible changes to the distribution and abundance of population (Anon, 1990). Repeated contaminated water application to soil can lead to the accumulation of trace metals in soils of the cultivated zone, and potential metal accumulation in agricultural produce and the buildup of heavy metals in soils may constitute a hazard to the consumers of harvested crops (Younas *et al*., 1998). Plants can tolerate a relatively high content of heavy metals in soils, but if they accumulate to large quantities, they may cause harmful effects not only to plant growth but also to humans and animals feeding on these plants (Gupta and Gupta, 1998).

**Materials and Method**

Kaduna metropolis is located in Northern Nigeria (lat. 10.20oN, long. 7.23oE). The wet season is characterized by torrential rainfall from May to October, while the dry season is November to April. The natural vegetation cover is tropical grassland of the Northern guinea savannah type with short scattered trees interspersed with tall grasses (Oniye *et al*., 2002). Urbanization has taken over the original vegetation of Kaduna. The soil is mainly sandy clay, which reduce infiltration and accelerate overland flow and erosion particularly where the soil surface has little or no vegetation cover.

Makera drain is located in the southern part of Kaduna; and receives effluent from United Nigerian Textile Plc, Kaduna Textile Limited (KTL), Zamfara Textile Limited, Nigerian Brewery Limited and Chanchangi oil depots. It is one of 53 drains that empty to river Kaduna.

**Studyarea:**

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**Sampling Sites**

Site 1 is a tributary that receives domestic waste from the town, dominated by macrophytes like *Tridax procambens, Ipomea hederifig L.* and *Lantana camara.* Site 2 is the beginning of the drain and receives industrial effluent from KTL with *Cassia tora* linn*, Cassia asiamea* linn and *Obtusifolia* linn as the most dominated macrophytes. Site 3 is the confluence of the tributary and the main drain, where macrohytes like Vosia cuspidate, Amaranthus spinosus and Nymphaea lotus were the most common while site 4 is the downstream which receives effluents from NBL, UNTL, Changchangi oil depot and Norspin dominated by all the macrophyes identified in the other sampling sites.

**Metal Analysis in Crops**

**Sampling and Analysis of soil and water**

Soil samples were collected monthly by manual core sampler (0-15cm) from four sampling points; stored in glass bottles and dried at room temperature. 10.0g of dry soil from each point was poured into a beaker and 100ml of 20% HNO3 was added. This was boiled gently for 10 minutes, filtered while warm to avoid reprecipitation and diluted to 100.0ml with deionised water. Water samples were collected, from the four sampling points in a two (2) liter plastic jar, the jars were screwed – tight, placed in a plastic box containing ice and transported to chemical laboratory of Kaduna Refinery Petrochemical Company (KRPC) for analyses.

Samples were then analysed for metal ions with Unicam 919 atomic absorption spectrophotometer (AAS) using 1% HNO3 as blank as described by American Standard for Testing and Materials (ASTM, 2001).

**Results and Discussion**

**Maize**

The metals concentrations of sodium, zinc, lead copper magnesium; chromium and calcium in the present study are presented in Table 1. All the metals examined were found to be present in the various selected crops. Table 1 showed Analysis of the data in the present study, where the level of concentration of lead in maize is 0.51mg/l, while the permissible limit is 0.1mg/ (WHO, 1994)). This is toxic for the consumer of maize cultivated with the drain water, considering the effect of accumulation in food chain, leading to its bioaccumulation in human body, which threatens human life. Unlike organic compounds, lead is non-degradable and persistence in nature. Too high lead intake by man (and animals) may lead to toxic effects following accumulation in liver, kidneys and bones (ATSDR, 2005**).** Largest intake under normal conditions is through food, especially in the form of vegetables and meat. Children are particularly at risk and can suffer a variety of ill effects such as hyperactivity, a lowered IQ and even brain damage (ATSDR, 2005**).** Lead contamination in spinach, tomatoes and fish in River Kaduna were reported by Igusi et al (2002). Chromium was also high but the level of Zinc and copper were less than the permissible limits while that of chromium was higher than the permissible limit. This means consumers of maize are at risk of chromium poisoning. Sodium is an essential nutrient involved in fluid and electrolyte balance and is required for normal cellular function. Dietary deficiency of sodium is very uncommon due to the widespread occurrence of sodium in foods. For sodium, the acceptable range of intakes for adults established by the Scientific Committee on Food was 25 t0 150 mmol/day (SCF, 1993). Calcium on the other hand must be ingested with the diet in sufficient amounts to allow for calcium deposition during bone growth and modeling and to compensate for obligatory intestinal, faecal and dermal losses during the life-time (SCE, 2006).

**Sugar Cane**

The level of chromium concentration in sugar cane was 0.3mg/l, while the permissible limit was 0.05 (Table 1). This result showed that chromium poisoning of sugar cane can occur where the water is used for irrigating sugar cane. Cchromium VI can produce lung tumors when inhaled and readily induces skin irritation (ATSDR, 2005). Chromium was high in analysed sugar can and the implication of consuming such crop include cancer of the skin, lung tumor, irritation of the digestive system and poisoning of the blood (ATSDR, 2005). Heavy metals accumulate in biological systems and in passing through the food chains, undergo bio-magnification. It has been reported that heavy metals contaminations found in human bodies in urban industrial areas were the result of consuming contaminated foods, rather than through air pollution (Flynn, 1999).

**Mango and Banana**

Mango and banana are among the fruits that are consumed fresh and raw and therefore concerted effort must made to ensure that consumers are not prone to risk of metal element poisoning. The level of concentration of zinc, lead and copper are below permissible limit in mango. The level of concentration of chromium was higher than the permissible limit, which implies consumers of mango irrigated with the drain water are at risk of chromium poisoning. The test results of the levels of concentration of zinc, lead and copper were below permissible limit. The concentration level of chromium was as high as 0.3mg/kg, while permissible limit is 0.05mg/l.

**Pawpaw**

Chromium concentration in pawpaw was 0.18mg/l while the permissible limit is 0.05mg/l, which implies that the water is polluted by chromium. Ingesting large amounts of chromium (VI) can cause stomach upsets and ulcers, convulsion, kidney and liver damage and even death, while skin contact results in irritation and ulcers. (ATSDR; 2005). The adverse consequences of consuming water and food containing high level of chromium VI which include lung tumors and skin irritation have also been reported (Trouser *et al*., 1994). Consequently poisoning consumers of pawpaw cultivated by water from this drain when accumulated. Zinc, lead and copper concentrations were below permissible limit of metallic contamination in food which made pawpaw consumers free of metallic element poisoning. The comparatively high calcium concentration obtained in soil and surface water could be attributed to industrial and domestic discharge, Oniye *et al*. (2002) attributed high concentration of metallic ions to composition of the catchment’s area of an aquatic environment, fertilizers, insecticides and herbicides used within the immediate vicinity

***Table 1:*** *Mean values of some metal elements in some crops irrigated with Makera drain- Kaduna, Nigeria (mg/l)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Crops** | **Metal Element** | | | | | | | | | | | | | |
|  | **Na** | | **Zn** | | **PB** | | **Cu** | | **Mg** | | **Cr** | | **Ca** | |
|  | TR | PL | TR | PL | TR | PL | TR | PL | TR | PL | TR | PL | TR | PL |
| **Maize** | 1.85 | - | 1.03 | 5.0 | 0.51\* | 0.05 | 0.03 | 5.00 | 8.34 | - | 0.25\* | 0.05 | 2.27 | - |
| **Sugar cane** | 4.92 | - | 1.28 | 5.00 | 0.64 | 2.00 | 0.28 | 5.00 | 3.26 | - | 0.34\* | 0.05 | 3.19 | - |
| **Mango** | 8.83 | - | 1.13 | 5.00 | 1.02 | 2.00 | 0.32 | 5.00 | 8.67 | - | 0.27\* | 0.05 | 2.72 | - |
| **Banana** | 4.75 | - | 1.28 | 50.0 | 2.21 | 7.00 | 0.26 | 50.0 | 8.49 | - | 0.30\* | 0.05 | 6.92 | - |
| **Pawpaw** | 4.95 | - | 1.15 | 50.0 | 0.71 | 2.00 | 0.27 | 50.0 | 9.75 | - | 0.18\* | 0.05 | 5.17 | - |

***TR*** *= test result,* ***PL*** *= Permisible limit of metallic contamination in food and \* = above PL*

***Table 2:*** *Mean Values of Some Heavy Metals in Soil and Water of Makera Drain, Kaduna-Nigeria (ppm)*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameters (ppm)** | **Months** | | | | | | | | |
| **Aug.** | **Sept.** | **Oct.** | **Nov.** | **Dec.** | **Jan.** | **Feb.** | **SE±** | **CV (%)** |
| ***soil*** |  |  |  |  |  |  |  |  |  |
| Na | 37.35 | 38.88 | 14.30 | 8.95 | 3.6 | 16.70 | 39.89 | 3.00 | 0 |
| Zn | 11.3 | 0 | 4.41 | 1.43 | 1.35 | 146 | 2.20 | 0.83 | 60.2 |
| Pb | 0.01 | 0.10 | 0.15 | 1.63 | 0.81 | 1.65 | 0.38 | 0.83 | 55.5 |
| Cu | 20.40 | 0.28 | 0.60 | 0.55 | 0.14 | 0 | 0 | 43.10 | 0 |
| Mg | 35.43 | 4.53 | 8.48 | 7.54 | 5.33 | 8.10 | 18.98 | 1.46 | 118.8 |
| Cr | 0.73 | 0.80 | 0.42 | 0.38 | 0.41 | 0.31 | 2.66 | 3.30 | 37.4 |
| Ca | 4.05 | 14.08 | 5.22 | 3.00 | 5.95 | 6.75 | 12.02 | 176 | 135 |
| ***Water*** |  |  |  |  |  |  |  |  |  |
| Na | 0.40 | 49.28 | 38.86 | 29.98 | 21.11 | 37.93 | 38.20 | 3.03 | 16.4 |
| Zn | 0.12 | 0 | 1.03 | 0.72 | 0.01 | 0.03 | 0.33 | 0.09 | 7.6 |
| Pb | 0.18 | 0.22 | 0.11 | 1.51 | 0.50 | 1.96 | 0.49 | 0.16 | 0.0 |
| Cu | 0,24 | 1.88 | 0.28 | 0.35 | 0.28 | 0 | 0 | 0.16 | 41.69 |
| Mg | 0.35 | 5.62 | 4.53 | 7.17 | 5.33 | 8.10 | 8.10 | 0.80 | 65.48 |
| Cr | 0.86 | 0.33 | - 0.71 | 0.03 | 0.30 | 0.54 | 3.04 | 0.22 | 0.2 |
| Ca | 7.67 | 4.45 | 8.52 | 6.36 | 11.94 | 13.74 | 13.74 | 1.31 | 84.5 |

The monthly levels of the metal concentrations and the mean metal concentration of the four sampled stations showed that Cr>Cu>Pb>Zn in water while it was Cu> Cr>Pb>Zn in soil that is, in decreasing order of magnitude as shown in table 2. The trace metals on the other hand was sodium>Magnesium>Calcium in that order of decreasing magnitude as shown in table 2. Balarabe (2001) reported alkalis and alkaline metals concentration in this order of decreasing magnitude Na>Ca>Mg>K at Kwangila pond. Lead concentration was high during the dry season compared to wet season, this could be due to textile and brewery effluents which contain this element, low dilution due to absence of rain and higher evaporation during the dry season. Other plausible sources of lead into the drain may be used engine oil and automobile exhaust discharges, cells of batteries and fumes from industrial chimneys. The concentration of Pb was above WHO limit for drinking water (0.01mg/l) consequently the direct use of water from this drain by rural dwellers without treatment could be detrimental to human health, as it may result in possible neurological damage to foetuses, abortion and other complication in children under three years old (Pacific, 2005).

**Conclusion**

High lead and chromium (above WHO limit) in irrigated crops revealed in this study may lead to toxic effects following accumulation in liver, kidneys, bones, and also hyper activity, lowered IQ and even brain damage in human and domestic animals that feed on the crops. Hexavalent chromium observed can cause lung tumors and induce skin irritation.

**Recommendation**

Consumption of crops irrigated along the drain should be discouraged as it might contain high concentration of chromium and other toxic substances.

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Perception of Undergraduates About Agricultural Extension Education and Agricultural Development Linkage in Nigeria

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Abstract

This paper examines the perception of undergraduates toward Agricultural Extension Education (AEE) and Agricultural Development linkage in Nigeria. 188 agricultural students in College of Agriculture, Olabisi Onabanjo University, Aiyetoro, Ogun State and School of Agriculture, Lagos State Polytechnic, Ikorodu were used for the study using percentage, mean score, standard deviation and t-test to analysis data obtained through a questionnaire that was validated by Agricultural extension experts. Result from the study showed that 62.8% of students were male and community was most influencing factor considered in choosing agriculture. 38.3% of respondents perceive AEE as means of developing agriculture. Result also shows that training in agricultural extension (M=2.83) would increase farm output and national income. At 95% confidence interval (p<0.005), there is significance relationships in the students’ perception towards AEE as they agreed that training in extension leads to transformation in agriculture. It is recommended that, there is need for pragmatic youth development and educational programmes of extension for food security and development of agriculture in Nigeria.

**Keywords:** Perception, undergraduate, Agricultural Extension Education, Agricultural Development, Linkage

Introduction

One of the major problems facing developing countries today is the production of sufficient food and fibre, for their large population (Ayanwale and Laagye, 2007). Agriculture therefore, provides the means of increasing food and fibre production. Koyenikan (2008) exposed that agriculture is important to the Nigerian economy as it engages about 70% of the labor force and contributes over 40% of the Gross Domestic product (GDP). It provides food for the teeming population and raw materials for industries. The sector is faced with diverse problems which militate against optimizing its potential. Some of the constraints include low productivity, poor marketing and distribution, infrastructures, and inadequate access to credit, weak extension services and inadequate database among others. An attempt to ameliorate the constraints by the Federal Government was the adoption of the Agricultural Policy for Nigeria in 1988 (Koyenikan, 2008).

To achieve significant agricultural productivity in the country, there is need to involve young citizens in agricultural education. Unfortunately, today many students look down on agriculture, even despising it, resulting in non-challant attitude to agriculture (Ayanwale and Laagye, 2007). Though, schools, colleges and universities of agriculture were established in the country to address the problem of agricultural growth. These schools were mandated with coordinated and mission oriented research; rural development targeted extension services; direct production activities; and more importantly, provide comprehensive and harmonized training of students, who will engage in farming upon graduation (Ladebo, 2004). Student upon graduation would bring a change into agriculture of the nation; a changing agriculture requires public and private institutions that are resilient and adaptable to new opportunities to come to terms with the reality. That means we must go beyond the drawing board and face the reality to bring food to the ordinary people (Bokor, 2005).

Agricultural extension education (AEE) by undergraduates would bring desirable change through education and communication in farmers’ attitude, knowledge and skills. The role of agricultural extension has revealed by literatures involve dissemination of information, building capacity of farmers through the use of a variety of communication methods and help farmers make informed decisions. Sinkaye, (2005) has cited by Koyenikan (2008) equates help in extension to empowering all members of the farm households to ensure holistic development. Bokor (2005) raised a question on what does agricultural extension mean if it is to bring about a desirable change and tangible results into food production and improved national economy? He gave an opinion which showed a link between AEE and Agricultural Development (AD); “Agricultural extension is an applied behavioral science, which is applied to bring about desirable changes in the behavioral complex of farming community, usually through various strategies and programmes of change, by applying latest scientific and technological innovation”. This link is also evidence as undergraduates in schools and colleges of agriculture are exposed to a compulsory farm practical year programme. Oloruntoba (2008) revealed that the roles of Faculties/Colleges of Agriculture in producing agricultural graduates for academic and professional leadership and management are critical to national social progress and economic growth.

Undergraduates of Olabisi Onabanjo University (OOU) undergo a farm practical year (FPY) programme during their forth year on campus while those at Lagos State Polytechnic (LASPOTECH) participated in four month compulsory Student Industrial Work Experience Scheme (SIWES) after their first year of National Diploma (ND) and one year Industrial Training (IT) after second year of ND programme before they are admitted for their Higher National Diploma. The FPY is supervised by SIWES as a prerequisite for degree and Higher National Diploma (HND) certificate respectively. Oloruntoba (2008) also assumed that the provision of farm practical would make undergraduate agricultural students favorably disposed to it, hence, the connection between AEE and AD in Nigeria. Since no meaningful agricultural productivity could be achieved without a pragmatic extension education by agricultural students. It is against the backdrop that the study sought to provide answers to the following research questions: What are the factors undergraduates considered in selecting agricultural extension/agricultural related courses? How agricultural student perceive AEE? And how does AEE contribute to AD in Nigeria?

The purpose of the study was to examine the perceptions of undergraduates toward AEE and AD nexus in Nigeria. The specific objectives were to:

* Identify factors considered by undergraduates in selecting agricultural extension/agricultural related course;
* Measure perception of agricultural students towards AEE and
* Ascertain the contribution of AEE to AD in Nigeria.

The research hypotheses were:

H1: There are significant relationships in the students’ perceptions towards AEE.

H2: There are significance relationships among students in terms of contribution of AEE towards AD in Nigeria.

**Methods and Procedures**

The population for this study included all undergraduate agricultural students enrolled in School of Agriculture, Lagos State Polytechnic, Ikorodu and College of Agriculture, Olabisi Onabanjo University, Aiyetoro-Ogun State. Stratified random sampling technique was used to select the respondents for the study. A total of 100 undergraduates were selected from second (200L) to fifth (500L) year at OOU and 140 students from National Diploma (ND) studying Agricultural Technology (AGT) and Higher National Diploma (HND) studying Agricultural Extension and Management (AEM) and other agriculture programmes at LASPOTECH. Out of 325 students in 200L to 500L at College of Agriculture, Aiyetoro, 42 are studying Agricultural Extension and Rural Sociology (AXR), 32 students of AXR provided usable data for this study. While, 48 students studying agricultural related courses at OOU also provided usable data for the study. As well, 50 students in ND studying AGT and all the 29 students in AEM department and other 29 HND students of School of Agriculture, LASPOTECH provided responses for the study. Thus, out of the total 240 students population selected for this surveyed, 188 students (sample size) filled the measuring scale and returned appropriately.

A four-part structured questionnaire was designed based on review of literatures and researchers experience to obtain pertinent information from the respondents. The instrument was tested for content and face validity by Agricultural Extension expects, few corrections were raised and were corrected based on recommendations. A pilot test was conducted with 80 agricultural students at School of Agriculture, Lagos State Polytechnic, Ikorodu in 2011. Thus, responses were used to improve the content validity of the measuring instrument. Reliability estimate of the instrument was calculated using Cronbach’s Coefficient (α=0.89). Part one extract personal data (attributes) which include sex, age, educational qualification in view, preferred course of study and present course of study. Part two to four of the scale were used to test research objectives and hypotheses stated above. In parts two of the questionnaire, an attribute with five levels/scales or values (Vincent, Olaegbe & Sobona, 2006) was used to determine what influence respondents’ decision in studying agriculture and eleven attributes with five-point Likert type scale of very weak, weak, medium, much and very much with nominal values 1, 2, 3, 4 and 5 respectively was used to obtain quantitative measure of the factor (s) considered by undergraduates in selecting agricultural extension/agricultural related course.

Part three measure the perception of undergraduates to AEE using six attributes. The attributes sought to find out the background knowledge, first experience of respondents in AEE, interest in farming operation and teaching rural farmers. While part four ascertain the contribution of AEE to AD in Nigeria using ten variables/attributes. This attributes was measure with five point Likert type scale of strongly disagree (1), disagree (2), indifferent (3), agree (4) and strongly agree (5). Data gathered from the survey were analyzed with descriptive statistical tools; mean score, standard deviation, percentage and inferential statistics using parametric tool (t-test) to determine the differences between the perception of agricultural extension students and other agricultural students surveyed towards AEE and its contribution to agricultural development in Nigeria.

**Results**

The results show that 62.8% agricultural undergraduates surveyed are male and 37.2% are female and that majority of respondents (81.9%) are within 20 – 30 years of age also, majority (76.6%) preferred studying agriculture as a course. While, about 42.6%, 29.8%, 13.8%, 7.4% and 6.4% of the respondents are presently studying agricultural extension, agricultural technology, agricultural economics, crop/horticulture production and animal/fishery production respectively. The gender distribution of the study is in consonance with the report of Oloruntola (2008) who reported that most of the agricultural students surveyed at University of Agriculture, Abeokuta are male (60%). However this report is contrary to the work of Movahedi & Chizari (2007) who reported that 74% of agricultural students of Bu Ali Sina University (BASU), Iran were female and 26% were male. It therefore shows that most of the students studying agriculture in higher school in Nigeria are male and that of Iran are female. Average age of undergraduates of agriculture in Nigeria is in the range of 20-30 years as revealed in the study and studies of Oloruntola (2008) and Ayanwale and Laagye (2007) who reported age range of 21-25 years and 21-32 years respectively for agricultural students.

The influencing conditions that guide decision of respondents in choosing agriculture/agricultural extension as a field of study are community (33%), parents/relative (20.2%), secondary school teachers (14.9%), mass media (11%) and internet/social network (7%). Results presented in Table 1 shows that majority of undergraduates (81.9% & M=4.22) considered agriculture as a course because of much important, interest and willingness towards agriculture. This is in agreement with community as a major condition that influence respondents decision to choose agriculture and the report of Movahedi & Chizari (2007) that ranking factors for undergraduate importance towards agriculture and interest/willingness toward Agriculture at BASU were (M=3.20 & 2.83 out of 5). Also, the study of Ayanwale and Laagye (2007) revealed that majority of respondents agreed that life is meaningless without agriculture and this imply great importance, interest and willingness of undergraduate in selecting agriculture as a course of study to provide food for the community. Furthermore, means of acquiring more income after graduation (M=4.20), interests in giving new ideas to farmers (M=4.16) and eligibility for continuing on graduate courses (M=4.05) are some of the strong factors considered by respondents in choosing agriculture. Secondary school and television programs about agriculture (M=3.37), interest toward working with rural farmers (M=3.26), public sector supporting for agricultural graduates (M=3.15) and limitation for admission in other study fields (M=2.88) are some of the attributes listed to determining factors considered in choosing agriculture, undergraduates therefore were averagely disposed to these factors. However, about 35.6% of respondents considered advise from secondary teachers as a factor while, 34.4% and 26.9% were much disposed to order from father and mother respectively in selecting agriculture. Analysis of all the eleven factors/attributes listed shows standard deviation of mean ranged from 0.90 to 1.28 and mean difference ranged from 2.88 to 4.22 with an average mean of 3.55, thus, attributes 1 to 4 in Table 1 are the factors that undergraduates considered much in choosing agriculture. As well, respondents shows much interest in giving ideas to farmers (extension service) and interest towards agriculture (agricultural productivity), thus, if these factors are incorporated as a motivating factors into the course curriculum of students, it will aid positive development in agriculture.

***Table 1:*** *Factors undergraduates considered in choosing agriculture*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/n | Variable | Much1  Cumulative (%) | Medium2 (%) | Mean3 | SD4 |
| 1 | Importance, interest and willingness towards agriculture | 81.9 | 12.8 | 4.22a | 0.94 |
| 2 | Means of acquiring more income after graduation | 83.9 | 9.6 | 4.20b | 0.97 |
| 3 | Interests in giving new ideas to farmers | 80.9 | 12.8 | 4.16c | 0.90 |
| 4 | Eligibility for continuing on graduate courses | 73.4 | 21.3 | 4.05d | 0.94 |
| 5 | Secondary school and TV programs about agriculture | 52.2 | 18.1 | 3.37e | 1.28 |
| 6 | Interest toward working on rural areas | 39.3 | 35.5 | 3.26f | 1.20 |
| 7 | Public sector supporting for agricultural graduates | 39.8 | 26.6 | 3.15g | 1.26 |
| 8 | Order from teacher and advisors in secondary school | 35.6 | 25.5 | 2.94h | 1.28 |
| 9 | Limitation for admission in other study fields | 24.4 | 40.4 | 2.88i | 1.13 |
| 10 | Order from father and male relatives | 34.4 | 26.6 | 2.84j | 1.19 |
| 11 | Order from mother and female relatives | 26.9 | 30.9 | 2.80k | 1.18 |

*Superscripts 1 & 2; response level of respondents, 3 & 4 mean score and standard deviation of respondents’ responses and subscripts a - k; ranking factors of undergraduates’ choice of agriculture*

Result gathered shows that about 80.9%, M=1.19 respondents affirmed that they have background knowledge of AEE whereas 45.7% and 52.1% had there first experience in AEE during their secondary school education and after secondary school respectively. However, 2.1%, 4.3%, 23.4%, 28.7% and 38.3% perceive AEE as a means of liberating the mind, means to secure job, means of improving rural farm family, means to improve in skill and knowledge and means of developing agriculture respectively. Respondents highly perceived AEE as means of developing agriculture (38.3%) and this response is related to the study of Obuh (2007) that reported that respondents have favorable perception about the importance of Agricultural Extension in agricultural development. Undergraduates’ agreement that training in AE would increase farm output and national income (2.83%) further confirms agricultural students’ perception towards AEE, this is in consonant with the report of Ayanwale and Laagye (2007) that majority of the respondents (99%) disagreed with the idea that the money spent on agricultural training is a waste. As well, high interest in farming operation (78.7%) and teaching rural farmers (70.2%) further affirmed perception of undergraduate about AEE as means of developing agriculture. The corresponding t-test values computed for the six parameters used in measuring perception of students toward AEE as shown in Table 2 were statistically significance with 95% confidence interval (p<0.005) which leads to acceptance of H1 since there are significant relationships in the students’ perceptions towards AEE.

***Table 2:*** *Statistical relationship among variables of undergraduates’ perception towards AEE*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S/n | Variable | t-value | DF5. | Sig.  (2-tailed) | (%) | SD6 | MD7 | 95% confidence interval of the difference | |
| Lower | Upper |
| 1 | Background knowledge of AEE | 41.409 | 187 | 0.000 | 80.9 | 0.40 | 1.19 | 1.13 | 1.25 |
| 2 | First experience in AEE | 34.909 | 187 | 0.000 | 52.1 | 0.61 | 1.57 | 1.48 | 1.66 |
| 3 | Perception about AEE | 28.013 | 181 | 0.000 | 38.3 | 1.28 | 2.66 | 2.47 | 2.85 |
| 4 | Training in AE by undergraduates would increase output of farming & national income. | 89.318 | 185 | 0.000 | 84.0 | 0.43 | 2.83 | 2.77 | 2.89 |
| 5 | Interest in farming operations | 30.000 | 187 | 0.000 | 78.7 | 0.86 | 1.87 | 1.75 | 2.00 |
| 6 | Interest in teaching rural farmers | 28.255 | 187 | 0.000 | 70.2 | 0.98 | 2.02 | 1.88 | 2.16 |

*5Degree of freedom, 6Standard deviation and 7Mean difference*

In Table 3, greater number of respondents agreed that AE brings change through education and communication in farmers attitude, knowledge and skills (95.8%, M=4.57). This is in agreement with Ibrahim, Muhammad, Yahaya and Luka (2008) who reviewed that Agricultural Extension has often been conceptualized as an education process, which promotes learning. It uses the combined findings of biological sciences and the principles of social science to bring about changes in knowledge, skills, attitude and practices in and out of school setting. Also, this result is in line with review of Ozor and Nnaji (2011) that agricultural extension is a series of embedded communicative interventions that are meant, among other things, to develop and/or induce innovations which supposedly help to resolve problematic situations.

Majority of respondents also, agreed that role of AE involves dissemination of information, building capacity and help farmers make informed decision (M=4.60). This was further ascertained by observation of Ozor and Nnaji (2011) that agricultural extension is involved in public information and education programmes that could assist farmers in mitigating the effects of climate change.

Contribution of AEE towards AD in Nigeria was also ascertained by respondents as they agreed that AEE is a means towards desired transformation in agriculture (M=3.92). This is in agreement with report of Bokor (2004) that the fundamental objective of agricultural extension is the development of the farming community and the overall development of rural economy in general. Transformation is therefore void if research findings are not undertaking by Agricultural extension expects who link farmers with new technology of farming practices. However, about (88.3%, M=4.30) of respondents agreed that research findings will be meaningless unless accepted by farmers and the strategic means of farmers having desired technological packages and programmes is through extension services. Thus, there is need for healthy coordination between extension departments and research institution as majority of respondents (92.6%, M=4.47) agreed to this statement. This result is confirmed by the assessment of Harder, Mashburn and Benge (2009) who reported that, the lack of research directed toward extension education curriculum may be because the need for such a program is misunderstood. Also, 86.2%, M=4.22 of the respondents agreed that extension system needs to develop a coordinated, internet-based information system where clients will have round-the-clock access to trustworthy, balanced views of specialized information and education. And respondents agreed (85.1%, M=4.22) that through this, extension system will continue to ensure national and international leadership in agricultural productivity.

The result from this study further ascertained the contribution of AEE towards AD as respondents agreed (89.4%, M=4.30) that development in the sector required articulated and comprehensive Agricultural Extension Policy (AEP). The study of Koyenikan (2008) is in agreement with this result as reported that, the goal of the proposed AEP could be to achieve a well organized extension system for efficient and effective extension delivery in all aspects of sustainable agriculture and rural development towards the attainment of food security, poverty reduction, rural empowerment and environment management. Also, respondents further agreed that there is need to have a more consistent, pragmatic, practical youth development and educational programmes of extension for food security (85.1% M=4.23). As well as, community driven development of extension service that will allow participation of farm members in formulating sustainable extension programmes (95.0%, M=4.30).

The result in Table 3 also shows, measure of the distance6 between each score and the mean that ranged from 0.56 to 0.88 andmean difference7 ranged from 3.92 to 4.60, with an average mean of 4.26. Thus, students agreed to the variables used in measuring the contribution of AEE towards AD in Nigeria. At 95% confidence interval of the difference in means as shown in the table below, results of significance (2 tailed) equal 0.000< 0.005 using t-test to compare, which leads to acceptance of H2 since there are significance relationship among students in terms of contribution of AEE towards AD in Nigeria.

***Table 3:*** *Statistical relationship among variables of contribution of AEE towards AD in Nigeria*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S/n | Variable | t-value | DF5. | Sig.  (2-tailed) | (%) | SD6 | MD7 | 95% confidence interval of the difference | |
| Lower | Upper |
| 1 | AE brings change through education and communication in farmers attitude, knowledge and skills | 63.774 | 186 | 0.000 | 95.8 | 0.70 | 4.57 | 4.43 | 4.72 |
| 2 | Role of AE involves dissemination of information, building capacity and help farmers make informed decision | 64.314 | 186 | 0.000 | 95.7 | 0.69 | 4.60H | 4.45 | 4.74 |
| 3 | AEE is a means towards desired transformation in agriculture | 41.514 | 184 | 0.000 | 79.8 | 0.91 | 3.92L | 3.74 | 4.11 |
| 4 | Research findings will be meaningless unless accepted by farmers | 47.470 | 186 | 0.000 | 88.3 | 0.88H | 4.30 | 4.12 | 4.48 |
| 5 | There is need for healthy coordination between extension departments and research institution | 58.268 | 186 | 0.000 | 92.6 | 0.74 | 4.47 | 4.32 | 4.62 |
| 6 | Extension system need to develop a coordinated internet-based information system where clients will have access to trustworthy and information | 54.599 | 186 | 0.000 | 86.2 | 0.75 | 4.22 | 4.32 | 4.62 |
| 7 | With the above extension system will continue to ensure national leadership in agricultural productivity | 50.822 | 182 | 0.000 | 85.1 | 0.80 | 4.22 | 4.05 | 4.38 |
| 8 | Articulated and comprehensive agriculture extension policy is required for development of the sector | 55.991 | 182 | 0.000 | 89.4 | 0.74 | 4.30 | 4.15 | 4.46 |
| 9 | There is need for consistent and practical youth development in extension for food security | 50.208 | 180 | 0.000 | 85.1 | 0.80 | 4.23 | 4.06 | 4.40 |
| 10 | Community driven development of extension service that will allow participation of farm members in formulating extension programmes which is sustainable | 48.230 | 78 | 0.000 | 95.0 | 0.56L | 4.30 | 4.12 | 4.48 |

*5Degree of freedom, 6Standard deviation and 7Mean difference*

*H & L; higher and lower value of 6 & 7*

**Conclusion**

The study shows that most of the undergraduates studying agricultural related courses in Nigeria are male and their average age range from 20 – 30 years. Community was the most influencing factor that guides decision of respondents in choosing agriculture. This is evidence as the result showed that undergraduates’ willingness towards agriculture is much because of their interest in providing food for the society. However, four important factors have been ranked much by respondents for selecting agriculture (see a – d in Table 1) while public sector and order/advises from secondary school agriculture teacher were ranked averagely. Therefore, it is recommended that stakeholders in agricultural education sector should plan on how these factors will influence more students into agricultural courses and also equip public sector support for agricultural graduates.

In determining the perception of undergraduates towards AEE, majority of the respondents have background knowledge of AEE from secondary school and after secondary school respectively. Also, more of the respondents perceive AE as a means of developing agriculture and agreed that training in AE would increase farm output and national income. Therefore, it is infer from here that, AEE should be review and reorganized from secondary school to prospecting undergraduates who will aid in manpower requirement for sustainable agriculture and food security in the a nation.

The result of the study ascertain the contribution of AEE to AD in Nigeria, as respondents strongly agreed that AE brings change through education and communication in farmers’ attitude and acquisition of skill towards farming operation. Change in farmers’ attitude and skill come in form of either formal or informal education process which transform and develop farm community. Change in farming operation is made possible through research that links farmers with new technology and this was confirmed by respondents as majority agreed that research findings will be meaningless unless accepted by farmers. Therefore, it is recommended that, there should be a healthy coordination between extension departments/institutions and research stations in regards to clients’ needs. Furthermore, it is infer from this study that, there is need for articulated and comprehensive agricultural extension policy, a practical and pragmatic youth development and educational programmes of extension for food security and community driven development of extension service to aid development of the sector.

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The Economics of Environmental Protection in Nigeria:

Challenges and Prospects

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Abstract

In the course of business and economic activities in Nigeria, the environment both air, land and sea] is polluted and degraded. The firms involved in the exercise seem not to care on how best to reduce if not total stoppage of such environmental devastations nor do the Nigerian goods and services consumers seem to care. The subject matter here is to what extent could the present and future Nigerian environment be protected from further pollution realizing the economic costs involved, the legal and administrative setups in existence and all other policies and strategies so far adopted. Though hurdles do exists, challenges are facing the policy formulators and programme executors on how best to protect the Nigerian now is becoming environmental friendly in theory and practice.

**Keywords:** environmental protection, economics, pollution and degradation

**Introduction**

The environment is the surrounding, the earth which human beings live and interact with one another; exploiting in the process, natural resources or endowment, for the benefit of mankind. It comprises the living houses including the courtyard in the countryside, the municipality, the lithosphere (land/soil medium), atmosphere (air zone) and water or hydrosphere (moisture, ground water and surface water) as well as their inherent resources (Okereke 2006:1). It is the source of living for all creatures (man and animals) and power point for industrial growth as all economic activities of every nation depend on the environment.

To achieve economic growth by any nation means that the environment has to be sustainable and protected. Sustainable development here means meeting the needs of the present without compromising the welfare of future generations. This concept recognizes the economic growth and environmental protection are inextricably linked and that the quality of present and future life rests on meeting basic human needs without destroying the environment on which all life depends. To achieve this goal means that new forms of cooperation between government, business and society are required.

This view agrees with the opinion of Schidheiny (1992: iii) who posits that economic growth in all parts of the world is essential to improve the livelihoods of the poor, to sustain growing populations, and eventually to stabilize population levels. New technologies will be needed to permit growth while using energy and other resources more efficiently and producing less pollution. Open and competitive markets, both within and between nations, foster innovation and efficiency and provide opportunities for all to improve their living conditions but such markets must give the right signals; the prices of goods and services must increasingly recognize and reflect the environmental costs of their production, use recycling, and disposal. This is fundamental, and is best achieved by a synthesis of economic instruments designed to correct distortions and encourage innovation and continuous improvement, regulatory standards to direct performance and voluntary initiative by the private sector.

It was in recognition of the importance of environmental protection that the seventh Millennium Development Goal of the United Nations Millennium Declaration – environmental sustainability - came into existence. Ensuring the sustainability of the environment demands putting in place a sustainable development pattern and preserving the productive capacity of the natural eco-system for future generations. This demand poses two challenges; addressing natural resources scarcity for the world’s poor people and reversing the environmental damage which has occurred owing to high consumption and over exploitation of natural endowments by the rich countries (UNDP: 2003).

Unfortunately, all these economic activities or human endeavour to create wealth for the overall well being of a society invariably bring about waste generation which lead to environmental pollution and human beings undoing. These wastes in the form of gaseous, liquid, semi0solid and solid forms and their reckless disposal into the environment bring environmental pollution and the associated health hazards and other costs to the society.

To reduce these problems of environmental pollution in the Nigerian society requires not only in making beautiful policy statements by the government and its agencies as in the past but in taking pragmatic, practical and pro-active steps and programmes that are geared towards curbing the menace of global warning, climate and environmental disasters as they affect Nigeria as a country and its citizens; and this is the subject matter of this exercise.

In this exercise, the following issues are addressed:

* The nature and concept of environment and environmental pollution;
* Causes and effects of environmental pollution in the Nigeria society;
* Environmental protection as an economic problem;
* Alternative solutions to environmental pollution; and
* The future of environmental protection in Nigeria.

**The Environment: Nature, Concept and Pollution**

The physical environment, according to Nwabude (2007), refers to all the living and non-living aspects of life including the atmosphere, soil, water, forest and other renewable and non-renewable natural resources. Environment therefore means the natural systems that provide the underpinnings or the setting (or both) for human activity. These systems include \not only forest ecosystems and watersheds, but geophysical systems such as meteorological systems and coastal systems. Natural resources equally include a wide array of physical endowments provided by nature: soil, water, minerals, timber, and wild animals. They may be living (timber) or nonliving (fossil fuels).

Due to economic and other human activities in Nigeria and other developing and even the developed countries, the environment is exploited, degraded and therefore polluted and not properly protected. Today, the capacity of the environment to sustain current population is seriously strained. As ma and the industries try to stretch this capacity through extensive use of t he earth’s resources and technological advances, the problems of resources depletion and environmental destruction rear their ugly heads.

Both the developed and the developing nations, due to economic activities, have turned to “throwaway economies”. As Bryns and Stone (2008: 792) put is, energy and raw materials are fed into the maw of production/consumption system at one end; overtime, the final output decomposes to little more than heat, waste matter, and pollution. Since t he earth’s resources are finite and a few seem on the verge of disappearing, some people believe that we must cleanup, recycle, and reuse our resources if a uniformly high quality of life is to be attained. The only alternative may be technological advances based on resources that are unusable at present.

An anatomy of the Nigerian business environment will reveal these different sources of pollution and their impacts on the society.

**1. Air Pollution**

A scenario in which gaseous and particulate emissions generated from various sources such as industries are discharged into the atmosphere to the extent that air quality is impaired to a detrimental or potentially dangerous level. The atmospheric air is subjected to pungent pollution through the gases, dust; smoke emitted into the air by auto-exhausts, manufacturing industries, incinerators, kitchens and burnt coal. In the oil producing areas in Nigeria is the case of gas flaring that brings acid rain that destroys the roofs of building, crops and even the waster generally.

The consequences of air pollution are human health problems such as respiratory disorder, crop production, animals and biodiversity and climatic changes. Others are greenhouse effect leading to global warming, ozone depletion and gas flaring causing human health problems such as thermal shock and skin burn or dryness. It furthermore destroys ecological balance, affects plant performance and causes wild life disturbance, migration or relocation. The greenhouse emission from various sources and their implications are presented in Table A.

***Table A.*** *Green house gas emissions, other pollutions, efficiency and sustainability compared.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fuel | Green house gas | Other pollutions | Efficiency | Sustainability |
| Coal | Very bad, large production of Co2 | Smoke can be a problem especially in the cities. In an efficient stove, burning high correctly, smoke will not be great. Ash must be disposed of | An open, old-style, fireplace is probably no more than 10% efficient, a well designed stove is 50% to 70%; possibly 80% when new. | Not sustainable coal is a fose fuel |
| Electricity | Depends entirely on how the electricity is generated | No pollution where the electricity is consumed, but possibly major pollution where the electricity is generated. | 100% or better in the home, bit the efficiency is in the electricity generation process. | Depends entirely on how the electricity generated. |
| Firewood | Excellent, as long as trees are planted at the same rate as they are burnt. | Smoke can be a problem, especially in cities. In an efficient stove, burning dry wood and run correctly, smoke should not be great. Ash must be disposed. | Similarly for coal fired heating, an open, old-style, fireplace is probably no more than 10% efficient. A well designed stove is 50% to 70%; possibly 80% efficient when new. | Fully sustainable, so long as trees are planted the same rate as they are burnt. |
| Gas | Fair if natural gas, very bad if “town gas”. | Little pollution of no consequence outside the house. | Non-flue types are 100% efficient in that all the heat is retained inside the house. However, they release combustion products (Co2, possible Co, possible Nox) inside the house.. | Not sustainable Gas is a fossil fuel, whether the gas if “town gas” or nation gas. |
| Oil | Poor (better than coal, worse than natural gas) | Some air pollution, may be some So2 depending on the oil | About 60%? | Not sustainable or is a fossil fuel. |

*Source: Okereke, C.D. (2006), Environmental pollution control, P. 21.*

**2. Water Pollution**

Water is said to be pollution if at a stage, it fails to recuperate to its original quality following discharge of contaminants to it from point or diffuse sources of pollution. Water is polluted through the allowance of untreated sewage to the rivers, oceans and streams; solid wastes are dumped into the water, industrial wastes are released into the rivers and streams, and faming wastes such as sediments from soil erosion, animal dungs pesticides and fertilizers get into the streams, rivers, ocean and lagoons.

The entry of such substances into a water body potentially has a deleterious effect which manifests in terms of decrease in dissolved oxygen (DO) or increase in acidity, alkalinity or toxicity as well as exaggerated biochemical oxygen demand (BOD) or chemical oxygen demand (COD). Others are change to the depth and width of river for navigation, creation of flood control ponds or runoff detention storage, construction of reservoirs (dams) for water supply, diversion of river or part of it for irrigation purposes, and damming of river for hydroelectric power generation.

**3. Land Pollution**

Environmental deterioration as it relates to land is in varying dimensions. These include toxic wastes or radioactive wastes, heavy metals and by-products of plastics; mineral resources found in the country that desecrate the natural beauty of the landscape where they are located (such as mineral oil or petroleum, natural gas, coal, tin and columbite), and emission of atmospheric pollutants such as carbon monoxide, sulphur oxides, nitrogen oxide and hydrocarbons from chemical and petroleum industries.

The makeshift shacks all over the whole place in the village and urban areas equally contribute to environmental degradation; the littering of the surroundings of buildings whether residential, school, office, market and other outdoor areas with garbage that produce filthy environment and offensive odour, and the irregular trimming to size of flowers and bushed around our homes, schools, offices, markets and other business premises result in rats, mosquitoes and all kinds of reptiles make them their habitats and live with man.

**4. Forest Destruction**

Deforestation comes in the form of man cutting down and burning bushes as well as moving down a vast number of trees for firewood, land cultivation and to have hectares of land for building his houses or business premises; use of harmful chemical release by man-made manufacturing industries to kill the trees which hold together the soil and keep moisture in the earth for the growth of crops and for the growth of gasses for the feeding of cows, and the killing of certain plants or trees in the process of the over-use of their juices and barks by fishermen and medicine men in killing and catching fishes, and in curing all sorts of ailments respectively. Others are in the process of over tapping their by-products for the making of gums, fibres, ropes, dynes, etc.

The many negative sides of deforestation are loss of absorb carbon dioxide, thereby causing global warming and disappearance of certain species of plants, the potential source of lifesaving medicines and loss of the country’s source of economic wealth; etc.

**5. Noise**

Another aspect of environmental abuse, according to Mezieobi (1996) is noise emanating from audio and audio-visual media, amplifiers utilized for advertisement of records and political programmes, ambulance sirens, sirens used as protective device to clear the way for the Chief Executive and conveyances carrying money. Others are noise form auto bikes, bunking of horns, tinkering, building and demolition of solid matter, etc.

The import of all these sources and causes of environmental pollution is that through dirty air, global warming, polluted waters and toxic wastes and the rest, the earth is ill and its health poor, and as such majority of people are affected, particularly the poor. It is now the duty and responsibility of man, industry, government degradation to regreen the environment degreened by them so that is could go back to its greened nature as God created it and this is the subject matter of environmental protection and sustainability. This is because, to waste, to destroy, our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought to right to hand down to them amplified and developed (Rossevelt, 1907).

**The Costs and Economics of Environmental Protection in Nigeria**

Environmental abuse, as earlier stated, is the misuse, spoilage, destruction, desecration, degradation, impoverishment and contamination of man’s physical and biotic environments (natural resources) such as land, minerals, water, good soil, forest and air which are caused by either man or other natural phenomena or both. In any way it appears, it has some costs associated with it. The costs may be in the form of monetary expenditure, that is, the sum total of the amount of money (Naira) spent by the government and other fighting or averting the abuse or the expected future income lost in its combatment. The anticipated income may be from industrial, commercial establishments, highways, farmlands and aquatic life destroyed by flood or erosion, or lives lost.

These and other associated cost (that is, the direct or indirect negative consequences of environmental abuse on man and his biotic environment) have resulted in the adoption of different policies, programmes and measures by both the Nigerian government, industries, institutions and other agencies to fight against or prevent environmental abuse in Nigeria. While some of these measures are legal and regulatory in nature, others are mere administrative framework but the extent they have been able to reduce or prevent environmental abuse in Nigeria, protect and sustain the environment and create futures for it is another question to be answered by all the parties concerned. A roll call of some of these measures is made here.

**Moral Suasion**

Moral Suasion (or persuasion) affects the market the least because it carries no legal authority. The basic aim is to persuade polluters to reduce or eliminate pollution voluntarily. It may be effective in educating and sensitizing people to the problem. Examples are such environmental campaigns like: “Don’t” Be a Literbug”, “Keep the Nigerian Environment Clean”, “Be Environment Friendly”, and the Monthly Sanitation Campaign.

These and other similar campaigns have been partially successful in reducing the amount of trash on public highways, directing the people on where the dump refuse and wastes for government agencies to evacuate them to the “appropriate site, etc. In more advanced societies, where a particular company can be singled out, it might be persuaded to reduce pollution via adverse publicity or consumer boycotts of the polluter’s products”.

This approach is not especially effective because many products are marketed nationwide, public relations campaigns are very expensive and voluntary boycotts call for people to act against their own pecuniary interests.

**Market Solutions to Pollution though Assigning Pollution Rights**

This involves the public sector selling individuals license to discharge wastes. An advocate of this measures, Coase (1960), observed that efficiency will be the same (the pollution level will be optimal) no matter who is assigned the rights, polluter or harmful party, as long as the parties affected are easily identified, have roughly the same bargaining power (income), and can bargain without costs. To note is that the demand to pollute by business should reflect the contribution of the pollution to the revenues and profits of the firm.

This approach has several advantages. Firstly polluters have considerable incentives to clean up their effluents. Administratively, such a plan requires very little except monitoring. If the government decides later that it desires a reduction in pollution, it can enter the market and buy existing rights. This may be a cheap and attractive alternative to direct regulation.

Unfortunately, to operate this system effectively requires a relatively enclosed environment, like a lake or river or oil production centre under the control of the local authorities, the government. As spillovers become more prevalent, this method becomes more difficult to administer. Another major shortcoming is that some voters and electorates and politicians seem to equate pollution with sin and become outraged at the idea of allowing economic reasoning to dominate who is, for them, a moral issue. This was and is still the measure adopted by the Federal government of Nigeria on the oil and gas sector where from 1969 to 1979 it had no penalty for gas flaring by the oil companies operating in the country but charged 2 kobo per 1000 scf, 50 kobo per 1000 scf and N10 per 1000 scf of gas flared by the companies through the Associated Gas Injection Decree 99 of 1979 as amended in 1985, 1990 and 1998 respectively.

**Using Prices: Efficient charges and subsidies for abatement:**

In this instance, the government simply sets the fee (charge) on pollution or the reward for reducing pollution, and the market is allowed to adjust without overt coercion. This, it could do through effluent charges and output taxes (where the community could tax the outputs of the polluting firms).

Pollution charges and output taxes face several problems. For these devices to be useful in moving towards an optimal level of environmental protection, the specific damages and appropriate charge must be determined. In the real world, pollution is pervasive, and the exact damages associated with a given pollutant are quite difficult to determine. But it is equally necessary to know about damages in order to prescribe optimal regulations. Continually monitoring and administering effluent charges can be especially difficult and costly, so output taxes might seem to be preferable on efficiency grounds.

Unfortunately, output taxes provide no incentives for firms to clean up their manufacturing processes so that more outputs would be available with less pollution. Pollution and output are reduced proportionally. Since the tax is paid regardless of the individual firm’s level of pollution, there is no incentive for the firm to adopt environmentally advantageous technologies unless they simultaneously reduce costs. This is what the firms in the petroleum industry in Nigeria are doing at present to reduce environmental problems in the Niger Delta Region through the Clean Nigeria Association (CAN) formed by them to manage the cases of oil spillage, pollution and the damaged environment of their operational zone.

**Subsidizing Pollution Abatement**

The government might use subsidies (the opposite of taxes) to encourage the elimination of pollution. Outright grants to pay for pollution-control equipment by the federal government, primarily for State or Local government sewage facilities as done by the Nigerian Federal Government Agency in the Niger Delta Region, the Niger Delta Development Commission (NDDC) and the Imo State Government through ENTRACO are assisting much in environmental pollution reduction in the region and state respectively.

**Other Administrative Frameworks**

Some other agencies created by the federal government to monitor and enforce pollution control laws in Nigeria are the:

* Federal environmental Protection Agency (FEPA) currently replaced with National environmental Standard and Regulation Agencies (NESREA);
* Federal Ministry of Environment (FMF) and with particular case of the Niger Delta Region are:
* Federal Ministry of Petroleum Resources 9FMPR);
* Nigerian National Petroleum Corporation (NNPC);
* Department of Petroleum Resources (DPR); and
* National Oil Spill Detection and Response Agency (NOSDRA), etc. and some state agencies and commissioners like the ENTRACO and Imo State Oil Producing Areas Development Commission (ISOPADEC) and similar ones in other states.

**Lawsuits for Damages from Pollution**

An extensive body of common laws and in this case antipollution laws has been developed to resolve conflicts between property owners. If property rights were assigned to protect you from being damaged by pollution, then you could sue harmful polluters. On the other hand, if a firm is given the right to pollute, you might pay the firm to reduce pollution if it were worth it to you. This approach seems to work fairly well when the pollution can be traced directly to a given polluter and the damage can be shown to be caused by that party’s effluent.

Using the courts to enforce rights to be protected from pollution or to pollute has several disadvantages. First, legal remedies are slow and costly. Furthermore, such solutions may be unfair if the individual damaged does not have the resources to bring a suit. These solutions alone may leave society saddled with excessive waste. A slightly different problem is that where there are numerous polluters and “pollutes,” it may be difficult to determine who harmed whom, and to what degree. Obviously, lawsuits would not be the best way to solve the problems of fouled air in crowded industrial areas.

This approach seems to work best where the number of polluters is small and their victims are few and easily identified.

**Government Regulation and Prohibition**

One of the most politically popular and appealing methods for reducing environmental damage is direct regulation or prohibition. Complete prohibition may be desirable in the case of extremely dangerous materials. For example, complete bans on discharge are the normal procedure for some radioactive wastes. A good example was the deposition of objectionable toxic waste drums in koko coastal area of Delta State by Italian waste disposal businessman in the early eighties that led the federal government to establish the Federal Environmental Protection Agency (FEPA) in 1988 to regulate the industrial effluent and pollutant emissions standards to control disposal of waste into any receiving river or environment. There after state chapters of FEPA called SEPA (State Environmental Protection Agencies) were formed to police the various states territorial waters and guard against toxic (hazardous) waste disposal into the waters or land or air by the foreign waste industries or even local companies, among other functions and responsibilities.

In some situations when it is too expensive to totally eliminate some form of pollution relative to the benefits, the government tries to limit noxious wastes through regulations and standards. A good example is the policy issue on gas flare stoppage in Nigeria where the various governments and administrations have made policy statements on when the oil multinational companies should stop the socio-economic menace and do something better with the would have been flared gas. For instance, in 2002 the Ministry of environment set a Gas Flare Out Date of 2004. The then vice President Atiku Abubakar later announced the extension of the date to 2008. Soon after, Obasanjo announced that the date has been moved backwards to 2004 and later set another date for 2008. While the NNPC and NPDC set a date of 2008, both Exxon, Mobil, chevron and total and the Nigeria Agip Oil Company (NAOC) had 2006 as the gas flare out date and the confusion continues to date with the gas being flared unabated.

Of note is that regulations are costly to administer and provide firms no incentive to reduce pollution once a standard is met. When a new rule is established, there are incentives for firms to discover legal loopholes around it. This typically results in a highly specific and incredibly complex patchwork of directives to prevent cheating or avoidance.

Realizing that there are no acceptable alternatives to direct regulation, it should be recognized that the quality of life depends at least as much on production and economic growth as it does on environmental purity and that there are trade-offs between these goals.

A summary of the various environmental policy options that could be used in protecting the Nigerian environment is shown in Table B.

***Table B:*** *Summary and Evaluation of the Various Environmental Policy Options*

|  |  |  |
| --- | --- | --- |
| **Policy Option** | **Advantages** | **Disadvantages** |
| Moral suasion | Least disruptive of market processes. Educates and sensitizes people to nature of environmental problems; permits individuals choice. | Ineffective in reducing pollution levels. |
| Market solutions (lawsuits and pollution “rights”) | Requires very little government intervention. Reduces pollution to a given level depending upon the policy established. Relatively easy to administer. Private lawsuits enable individuals harmed to recover. | Sometimes hard to develop “good” estimates of external costs for particular pollutant and polluters. “License” to pollute is politically unpopulated. It may be difficult to prove it to lawsuit who damaged whom lawsuits can be costly and expensive. Typically require “closed” environment to administer effectively. |
| Tax penalties and subsidies (effluent charges, output taxes and subsidies) | Relatively easy to administer. Largest polluters have greatest incentives to reduce pollution. Generates revenue to further clean up environment. | Sometimes difficult to estimate appropriate charge or to monitoring compliance can be expensive, especially when large numbers of polluters involved. Output taxes proved no real incentives to clean pollution or adopt new technology. |
| Direct regulation | Can be used to keep extremely harmful pollution below dangerous levels. Possibly more flexible policy than others. Standards can preserve horizontal equity of the program. Politically most popular. | Once standard is set, polluter has no incentive to reduce pollution below standard (important if standard is less than socially optimal level. Administrative regulation often quite complex and cumbersome. In interventionist in scope. Large bureaucracy is created to administer program. Does not generate its own revenue. Can become captive agency on particular special-interactive groups. |

*Source: Byrns, R.T. and Stone, G.W. (2008) Economics, 2nd ed. P. 800*

**Hurdles and Challenges of Environmental Protection in Nigeria**

With the presence of legislations against environmental degradation in the country, the financial expenditures made and other resources spent by the government on the subject matter etc, one would have expected that the Nigerian environment would have been free from abuse and degradation and fully protected and sustainable, but this is not so.

The environment is not fully protected as expected because those who are supposed to protect it are the major polluters and its destroyers – the government, manufacturing sector, the consumers of goods and services and the members of the general public. Among the obstacles to proper environmental protection in Nigeria are:

1. **Corruption on the part of the government and its officials.** It is not enough to establish commissions and agencies and change their names over and over again when their operators are corrupt in themselves. The misappropriation and mismanagement of funds belonging to these agencies created to protect the environment by the officials is the first hurdle to better environment in the Nigerian society.
2. **Illiteracy and Unenlightenment.** Many Nigerians are uneducated, illiterate and unenlightened. To them, the environment is God-given and nature takes care of itself because whatever is within the environment goes back to it. As such anything done to exploit the environment is a mere symbiotic relationship between man, animals and the plants and there is nothing in it.
3. **Costliness.** To some business organizations and individuals in the society, environmental friendly activities are more of increased costs than any other thing. As such, taking care of the degreened environment is additional costs to them and if possible should be avoided while the resources to that channeled to other profitable ventures.
4. **Population Explosion.** Both the urban and rural areas are fast being over populated with increase in manufacturing and technological developments that have their associated environmental problems. Because the cities are either not properly planned but population keeps on increasing or the already planned ones have been over taken by the increase in population, the problems are still the same.
5. **Government Inertia.** Most of the laws and policies made by the government towards environmental protection in Nigeria could be better described as mere text book theories as putting them into serious practice are difficult. Some of the policies and programmes are short-lived, have political undertones, lack continuity, are not properly planned, executed and monitored and as such they become ineffective and inefficient. In most cases, the government is the greatest polluters of the environment and could therefore not punish itself.
6. **Problems of Recycling Facilities.** With the exception of Lagos and few states in the country that have built recycling facilities to turn the “waste” to wealth, the facilities are still not enough in the other states of the federation.
7. **Poverty.** Many Nigerians derive their source of livelihood from the natural environment which are already polluted. They are essentially farmers and fishermen. With the contamination and pollution of the environment, they lose their source of income and become more impoverished. They live in dirty environments they have already contaminated, use wood from the forests they destroyed for energy, urinate and defecate anywhere because they could not afford better latrines, etc, and the effect of poverty continues to be the cause of their poverty and as a result of this, they deplete the environment with no plans of replenishing it.

The hurdle notwithstanding, the remediation and restoration of the Nigerian environment is a huge challenge to the government, manufacturers of goods and services (the industrial sector) and the Nigerian citizens as a whole. It is a common knowledge that it is easier to destroy than build as protecting and sustaining the environment in the midst of such obstacles as stated above is not an easy task. The challenge before these parties is to see a date when the costs of environmental abuse in the country are reduced. Among them are the felling of trees, bush burning, over-grazing of available grassland and injection into the air of certain industrial harmful chemicals; emission of smoke, gases and dust into the air by auto-exhausts, manufacturing industries, incinerators, kitchens, burnt coal and oil and gas, and the pollution of water bodies by industrial and human wastes containing toxic substances in order to kill and catch fish.

In addition are the excessive, deafening and continuous noise pollution and when such other causes of environmental abuse in the country are properly taken care of. These are ignorance, inadequate environmental awareness, unwholesome health and sanitary habits, lack of appreciation on the impact of man on misused biophysical environment and peripheral commitment to environmental protection, poor planning etc.

**Futures of Environmental Protection in Nigeria and Recommendations**

In spite of the identified obstacles to environmental protection in Nigeria, hopes are there now and in the future that the Nigerian environment will be really sustainable.

1. Environmental education and awareness is more expanding in the Nigerian society. Many Nigerians are becoming more interested in environmentally sound products while products produced in non-environmentally sound say are rapidly deteriorating.
2. The emphasis on the government that every project before taking off in Nigeria should have an authorized certificate of Environmental Impact Assessment (EIS) from the Minister of Environment is a decision in the right direction. This will go a long way in reducing environmental pollution in the country.
3. In the oil and gas sector, the combination of legislations, administrative frameworks and projects like gas turbines being built in most of the communities will help much in reducing gas flare but generate energy for the members of the society. In addition is the liquefied natural gas (LNG) project by the joint efforts of the oil companies and the government represented by the NNPC.
4. The Ecological fund set aside from the federal Account is a measure to control erosion menace in some of the states usually devastated by erosion (South East) wind (Northern region) and flood (South-South zone of the country).
5. The creation of the Ministry of Environment at both the federal and State levels and their implementation and monitoring agencies is equally a welcome exercise. What they require is proper funding with men of integrity that could be transparent and accountable put to manage them.
6. The building of recycling plants in most of the states to convert “waste” to wealth, like in Lagos and Ondo States where locally made push-carts and government trucks move from house to house to collect refuse and move them to the dumpsites for fertilizer plants owned by the government is a success story. They are equally making serious plans and arrangements to generate biogas from human waste; the biogas that will be used to generate electricity.
7. The Nigerian press is leaving no stone unturned as their familiarization with the international best practices on environmental protection and reporting same in the Nigerian society is seriously helping matters. What is needed now is the creation of community press to bring home the messages of how to check environmental pollution to the people in their own local languages.
8. Because of the relationship between poverty and environmental abuse, the efforts of the federal and state governments and even the Millennium Development goal (MDGs) to reduce poverty in the societies is a catalyst to environmental protection in the world; Nigerian inclusive. The same is the global war on climate change or global warming which Nigeria should not sit at the corridor watching but join in the race now with much commitment.

To sustain these hopes and futures, the following recommendations are made for environmental protection in Nigeria:

1. Proper Resource Pricing whereby the government should use pricing policy that can exacerbate resource shortages or encourage unsustainable methods of production.
2. Community involvement where programmes to improve environmental conditions work in tandem with community networks, and ensure that programmes designed are consistent with both local and national objectives.
3. Clearer Property rights and Resource Ownership. Because the lack of security tenure on rural or urban property greatly hinder investment in environmental upgrading, there is much need for new legislation for land tenure in the country to help in improving the living conditions for the poor and increases in agricultural investments.
4. Programmes to improve the economic alternatives of the poor in the country should be made more functional and efficient. This is because further environmental devastation in the Nigerian rural areas may be avoidable in many cases through on-farm investments in irrigation and sustainable farming techniques, the use of alternative fuels, and the creation of barriers to erosion.
5. Enforcement of industrial emission abatement policies, regulations and Acts to reduce industrial pollution, including the taxation of emissions, tradable emissions permits, quotas and standards.
6. Raising the economic status of women through educational attainment and increasing their range of economic alternatives. With these, they will be more properly informed about child nutrition and hygiene, sustainable management of water and fuel supplies.
7. Proactive stance toward climate change and environmental degradation. This involves the nation implementing and continuously improving early warning systems to anticipate environmental emergencies; promote reforestation; restore natural ecosystem barriers such as mangroves; improve micro-insurance programmes, and construct storm shelters, flood barriers, and protected roads and bridges.
8. Proper environmental management whereby environmental considerations are integrated into decision making at all levels in the Nigeria society is equally a leap way forward. To achieve this, steps should be taken to prevent pollution at source, encourage, develop and apply the best available technical solutions, ensure that the polluter pays for pollution, and involve the public in decision making.
9. Government should tackle in reality the challenge of educating her citizens. Because of the direct link between population growth and environmental pollution, curricular on population education should be designed for all levels of education, primary, post primary and tertiary. This will help to inculcate the habit of a clean environment on the children right from childhood.
10. The developed countries should equally help the developing nations like Nigeria through trade policies, debt relief and development assistance while the later should assist itself through emission controls, research and development and import restrictions on goods and services (like fairly used vehicles, refrigerators, cars, and/trucks, televisions, etc,) that cause more environmental pollution in the country. This means that international environment concerns should be dealt with through international agreements, not by unilateral trade barriers.

In all, to more from vision to reality demands strong leadership from the top, sustained commitment throughout the organizations and society, and the ability to translate challenge into opportunities, and this is the subject matter of environmental protection and sustainability in Nigeria. Thus, environmental purity will come about in Nigeria as a consequence of a combination of the concerted efforts of the government and its agencies, the introduction of a district environmental Education Curriculum (formal education), complemented with informal education and a social reorientation of the Nigerian people to positive environmental education.

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1. *1 In this perspective, micro factors are those that are learned in the process of interaction. Social deviation and criminality are learned through peer pressure, family members, on the street, at school, contact with criminal justice agents, mass media, individual frustration etc.* [↑](#footnote-ref-1)
2. *2**In this context, macro factors signify factors that predispose people to social deviation and criminality which are structural, such as social disorganization, weak social control, a host of social problems caused by social structure, population heterogeneity, environmental factors, inequality, unemployment, poverty, broken homes etc.* [↑](#footnote-ref-2)
3. *3 These are crimes/offences motivated by the need for money or goods to buy drugs. In other words crime committed by drug abuser in order to obtain money or property to buy drugs. Examples of such crimes could include theft of different kinds, stanching, robbery, kidnapping handling stolen goods, etc.* [↑](#footnote-ref-3)
4. *4 The question was a proving question, i.e. question that was twisted in order to find out whether those filling the questionnaire had really understood the wording as well as what the question/item seek to measure. In the above case, it is impaired that the item was clearly understood by the respondents. The primary reason is because the percentages obtained are similar see Table 4.8 and 4.9. For strongly agree 40 and 43 respondents; for agree 58 and 55; for undecided 63 and 71; for disagree 87 and 88 and for strongly disagree 26 and 26.* [↑](#footnote-ref-4)
5. *5 In fact, this was the initial position adopted in this study. That even in situations where abusers of drug get themselves involved in criminal activities, abusing the drug alone is insufficient to fully example the reason, as well as the causes, of their criminal activities. The results obtained in this research and the results of other empirical researches had actually arrived at the foregoing conclusion, see for example (Ramsay and Percy 1996; Parker 1996;**Otero-lopez, et al. 1994;**Farrigton et al. 1986 and McCarthy and Hagan 1991 among several others).* [↑](#footnote-ref-5)
6. *6 The table shows the number of offences, not the number of respondents. It should, therefore, be noted that the number of offences agreed too N=118 exceed by 5 N=113 respondent who answered yes. The explanation is that three respondents reported to have committed one offence more others, and a respondent reported to have committed two offences more than the others* [↑](#footnote-ref-6)
7. *Asian Development Outlook, 2001, Asian Development Bank, Oxford University Press.* [↑](#footnote-ref-7)
8. *a total of seven(07) channels were pointed including financial contagion, trade and trade prices, remittances, foreign direct investment, commercial lending, aid and other official flows(Te Velde, 2008).* [↑](#footnote-ref-8)
9. *They use commodity price shocks as indicator of trade on a set of 22 non-oil exporting African countries.* [↑](#footnote-ref-9)
10. *in a set of 18 developed countries* [↑](#footnote-ref-10)
11. *especially sudden stops and currency crashes* [↑](#footnote-ref-11)
12. *(Bank, (COR), & Group, 2011)* [↑](#footnote-ref-12)
13. *Here there are countries of Central African Economic and Monetary Community (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon) and countries of West African Economic and Monetary Union (Benin, Burkina Faso, Guinea Bissau, Ivory Coast, Mali, Niger, Senegal, Togo).*  [↑](#footnote-ref-13)