



JURNALOS

Volume 6, No. 16, September 2012

ISSN: 219 318 11

JASRI

Journals of Advanced Scientific
Research and Innovation

Germany, 2012

The Influence of Teachers characteristics on attitudes towards agriculture in secondary schools in Baringo County, Kenya

Corresponding author: **Shadrack K Cheplogoi**- Egerton University, department of agricultural education & Extension: e mail scheplogoi@yahoo.com : cell phone 254 0722 699 341

Co authors: **Dr Ongeti E Khaemba**, (Moi University); **Mary M Waiganjo & Viola C Kirui**- Egerton University, department of agricultural Education & Extension

Abstract

This study examined influence of Teachers characteristics on attitudes towards agriculture in secondary schools in Baringo North sub county, Kenya. Descriptive survey design was used. Self-administered questionnaire were distributed to 12 respondents selected randomly from a population of 50 teachers across secondary schools in the sub county. The results of the study were presented by way of frequency tables and percentages. The study concluded that that teachers' characteristics except academic qualification does not influence their attitudes towards agriculture.

Key word: Attitudes, Agriculture, Curriculum

Introduction

Agriculture in Kenya is considered as a critical driver of change and an engine of economic growth as it contributes to a sizable percentage (24%) of the Gross Domestic Product (Republic of Kenya, 2010). Agriculture as a subject was first introduced in secondary schools in Kenya in 1926 because it was considered more important as a means of acquiring certain attitudes of mind, and basic understanding so as to enable the students to participate in social and economic change (Republic of Kenya, 1994). Agriculture education was meant to prepare students for successful careers and a life of informed choices in the global Agricultural, food, fibre and natural resource systems (NCAE, 1999).

The feelings of teachers and learners should be taken care of if implementation of an innovation has to succeed in classroom procedures (Ferron, 1985). Ongeti (1986) asserts that a highly conceived curriculum projects have been known to fail due to lack of support from participating teachers and pupils. The implementing personnel and their attitudes have therefore an impact on curriculum implementation and once attitudes of teachers are known would help to improve the prevocational curriculum in schools (Ongeti, 1986). The attitudes of people who are engaged in the teaching and learning of any subject are important as they have a direct consequence on the teaching-learning process.

Mukweru (2006) suggests that, if teachers were change agents for increasing and sustaining Agricultural production through the teaching of Agriculture, then their attitudes would influence their effectiveness in teaching Agriculture since the Agriculture teachers' role has been very important in implementing the curriculum. Therefore, since secondary school Agriculture teachers are responsible for implementing the Agriculture syllabus, their attitudes would have a bearing on their effectiveness in implementing the teaching of Agriculture (Mukweru, 2006).

According to Shiundu and Omulando (1992) there has been a negative attitude towards technical and vocational education by a large section of the Kenyan community yet JICA (2008) says in many countries, technical and vocational Education Training (TVET) is considered as a strong vehicle for social and economic development. On the general attitude towards Agriculture in secondary school curriculum, the Ominde report (1964) states:

Apart from agriculture as vocational objective, our witnesses have rightly insisted on the need to create a more positive attitude towards the land among the generality of pupils. The main thing is not however an intimate knowledge of detail but a positive orientation towards agriculture as the principle industry of Kenya (Republic of Kenya, 1964: 84).

Attitudes are inferred from what a person says about an attitude object, from the way he feels about it and from the way he says he will behave towards it (Ongeti, 1986). Initiating a curriculum change encompasses human engineer, a strategy of modifying attitudes and feelings which often is a task of producing competence for curriculum development (Taba 1962).

Husen and Postlewaite (1994) indicate that attitudes are central to the education process both as ends and means depending on whether they are positively or negatively directed towards a particular subject. They are considered to promote or inhibit students' behaviour in the classroom, they are also considered to influence choice to attend, respond, value, participate and make commitment to educational activities.

According to Gross et al (1971), when teachers have positive attitudes towards an innovation they will be willing to spend time and efforts in the implementation process. Saylor and Alexander (1973) indicate that research has demonstrated a relationship between teacher attitude towards a curriculum and its ultimate effectiveness. Determining the reasons for any teacher dissatisfaction may suggest remedies which when implemented will bring a change of teacher attitudes and subsequently increase the effectiveness of a curriculum. Saiti (1999) further indicates that the failure to implement curriculum was attributed to negative attitudes by teachers and students and lack of management support for teachers.

Conceptual Framework

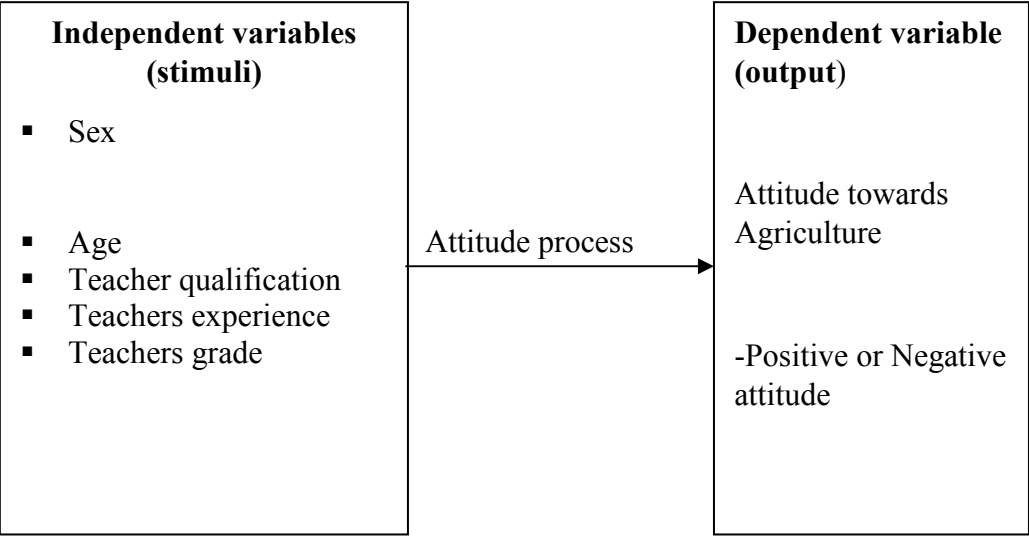


Figure 1: Conceptual framework showing the relationship between teacher characteristics and attitudes towards agriculture

Materials and methods

Self-administered questionnaire were distributed to 12 secondary school agriculture teachers in Baringo North Sub County who were selected through Simple random sampling from a population of 50 teachers. The questionnaire consisted of open and closed ended questionnaire on attitudes towards agriculture.

Results and Discussions

a) Teachers’ sex

The questionnaire was administered to 12 teachers in the sample schools. Table 1 show results of gender distribution of the respondents in the sampled schools.

Table 1: Sex of the teachers

Sex	Frequency	Percentages
Male	7	58.3
Female	5	41.7
Total	12	100

Table 1 indicate that 7 (58.3%) were male while 5 (41.7%) were female. Both gender were represented among the respondents in the study.

In order to establish whether there is a relationship if any, between sex and the attitudes of teachers towards Agriculture a null hypothesis was stated as:

H₀₁: there is no significant relationship between sex of teachers and their attitude towards Agriculture.

Contingencytable was worked out in order to test the hypothesis.

Table 2: Contingency table for teachers' sex and their attitudes towards Agriculture

Sex	Attitude			
	Positive	Negative	Neutral	Total
Male	4	2	1	7
Female	3	2	0	5
Total	7	4	1	12

The critical values of χ^2 at 0.05 level of significance at degree of freedom 2 equal to 5.99 while the results of χ^2 calculations equals to 3.77 implying that the χ^2 calculated (3.77) is less than the critical value of χ^2 (5.99) hence Null (H₀) hypothesis was accepted and a conclusion made that there is no significant relationship between the sex (male and female) of teachers and attitude towards Agriculture.

b) Teachers' Academic Qualification

Results of this study showed that all the teachers in the study were professionally trained and qualified to teach. Table 3 summarizes the results.

Table 3: Teachers' Academic qualification

Academic qualification	Frequency	Percentages
DIPLOMA	6	50.0
BSC AGED	1	8.3
BED SCIENCE	2	16.7
MED/MSC	1	8.3
OTHERS	2	16.7
TOTAL	12	100

Table 3 indicate that 6 (50%) of the teacher respondents were diploma holders, 3 (25.0%) holding Bachelors degree in Education, 1 (8.3%) holding Masters Degree while 2 (16.7%) having other qualifications such as PhD Degree or currently undertaking similar programme. All teachers were professionally trained and qualified to teach.

Hypothesis testing

Ho₂: There is no significant relationship between the teachers' academic qualification and attitudes towards Agriculture.

The contingency table for this hypothesis is shown in table 4

Table 4: Contingency table on the teachers' academic qualification and attitudes towards Agriculture.

Attitude

Academic qualification	Positive	Negative	Neutral	Total
Diploma	3	2	1	6
Degree	2	1	0	3
Others	2	1	0	3
Total	7	4	1	12

The table values were expressed as percentages prior to the chi-square calculations since the frequencies were giving small expected values of below 5. It was therefore convenient to convert into percentages.

The calculated χ^2 value obtained was 10.73 while the critical value of χ^2 at degree of freedoms 4 and 0.05 level of significance was 9.488 implying that the calculated value was greater than the critical value. A decision was thus taken to reject the Null hypothesis (Ho) implying that there is a significant relationship between teachers' academic qualification and the attitudes towards Agriculture with teachers of high academic qualification tending to favor positively agriculture more than teachers of low academic qualification. It appears that as teachers get better training and attains high academic qualification, positive attitudes are developed towards Agriculture as it becomes a career and one begins to see a sense in the career as s/he specializes on field of agriculture.

c) Teaching experience

Teachers teaching experience was established and results reflected in table 5

Table 5: Teaching experience of teachers

Teaching experience	Frequency	Percentages
Below 5 years	8	66.7
6-10years	1	8.3
11-15years	1	8.3
16-20years	2	16.7
Total	12	100

Majority 8 (66.7%) of the teachers in the study sample were found to be less experienced in teaching with less than five years' experience, 1 (8.3%) have taught for 6-10 years, 1 (8.3%) taught for 11-15 years and 2 (16.7%) have 16-20 years of teaching experience. Long period of teaching is advantageous as it enables the teacher to have a good mastery of content.

Hypothesis testing

H₀₃: There is no significant relationship between the teaching experience of teachers and the attitudes towards Agriculture.

Table 6: Contingency table on the teaching experience and the attitudes towards Agriculture.

Attitude

Teaching experience	Positive	Negative	Neutral	Total
0-15 years	4	3	1	8
6-10 years	1	0	0	1
Over 11 years	2	1	0	3
Total	7	4	1	12

The frequencies were converted into percentages for easy working of chi-square. χ^2 calculation yielded a value of 4.39 against a critical value of χ^2 of 9.488 performed at 0.05 level of significance and at 4 degrees of freedom. The calculated value (4.39) of χ^2 was found to be less(<) than the critical value of χ^2 (9.488) thus the Null hypothesis was accepted implying that there is no significant relationship between the teaching experience of teachers and their attitudes towards Agriculture. Teaching experience does not therefore

influence the teachers' attitudes towards Agriculture since No significant relationship was found to exist between teaching experience and the teachers' attitudes towards Agriculture.

Conclusions and Recommendations

No significant relationship existed between sex of teachers and their attitudes towards agriculture. It therefore implies that sex (being a male or female) does not influence attitudes of teachers towards agriculture.

However there is a significant relationship between teachers' academic qualification and the attitudes towards Agriculture with teachers of high academic qualification tending to favor positively agriculture more than teachers of low academic qualification. It appears that as teachers get better training and attains high academic qualification, positive attitudes are developed towards Agriculture as it becomes a career and one begins to specialize on the field of agriculture. It is therefore recommended that in-service courses for agriculture teachers be initiated and expanded in order to orient their attitudes positively towards Agriculture.

No significant relationship was found to exist between teaching experience and the teachers' attitudes towards Agriculture. It is recommended on the basis of this study findings that teachers attitudes need to be positively oriented towards agriculture since they have a critical role in the curriculum implementation.

References

- Ferron, K. (1985). *"Comparative study of attitudes of West Africa students and Teachers towards modern approach in teaching"*. British journal of Educational psychology vol. XXIV
- Gross, et. al. (1971). *Implementing organizational innovation*. Sociological Analysis of planned education change. New York: Basic Books Inc. publishers.
- Husen, T. and Postlewaite, T. N. (1994). *The International Encyclopaedia of Education*. Oxford: Pergamoni Press.
- JICA, (2008). *JICA in Kenya*. Annual Report 2008. JICA Kenya Office.
- Mukweru, W.M. (2006). *Perception of Agriculture teachers towards topics of environmental conservation and their implications to the teaching of Agriculture*. Un published Research project Report. Egerton University. Njoro
- NCAE, (1999). *A New era in Agriculture Re- inventing Agriculture Education for the year 2020*. National council 1988.
- Ongeti, K. E. (1986). *Attitudes of teachers on standard eight pupils towards prevocation subjects: A comparative study of Nairobi and Tongaren division (Bungoma)*. Unpublished M.Ed Thesis Kenyatta University.
- Republic of Kenya (2010). *Growth and Food Security through Increased Agricultural Productivity and Trade: A medium- Term Investment plan for Kenya's Agricultural Sector 2010-2015*
- Republic of Kenya (1994). *National Development plan 1994 – 1996*. Nairobi .Government printer.

-
- Republic of Kenya (1964). *Kenya Education Commission* Report Nairobi. Government printer.
- Saiti, M.B. (1999). *Implementation of the 8-4-4 primary school music curriculum*. A case study of Gatembe and Wanjare Divisions of Kisii District. Un published MED thesis. MoiuniversityEldoret, Kenya.
- Saylor, J.G. and Alexander, W. (1973). *Planning curriculum for schools*. New York Holt. Rinehart and Winston.
- Shiundu, J.S. and Omulando, S.J. (1992). *Curriculum theory and practice in Kenya*. Nairobi. Oxford University press.
- Taba, H. (1962). *Curriculum Development: Theory into practice*. New York: Harcourt Bracea and world Inc.

PRODUCTIVE EFFICIENCY OF WOMEN FOOD CROP FARMS IN THE DERIVED SAVANNAH ZONE IN NIGERIA

BY

T.M. YUSUF¹, OKUNMAEDEWA F. Y², AND TIAMIYU S.A²

¹Kwara state college of education Oro. Department of Agricultural Education.

²University of Ibadan. Department of Agricultural Economics

tmvusuf@yahoo.com.

08036846332 or 08056680929

ABSTRACT

In Nigeria, there is increasing food insecurity occasioned by low food-crop productivity of farms and low purchasing power of consumers. In spite of this, women play significant role in food crop production. However, the extent of productive efficiency among women food-crop farms has not been fully documented. This study evaluated productive efficiency measures of a sample of women farms in the derived savannah region of Nigeria. One hundred and eighty (180) women farmers producing food crops on their independent farms were randomly selected for interview through a well structured questionnaire. Data were analyzed using descriptive statistics, data envelopment analysis (DEA) and one-stage least squares regression method. The major finding showed that the farm holdings are small ranging between 0.4 – 3.0 hectares. Majority of the women farmers are poor and illiterate they relied more on family for labour and land. However, they were relatively efficient with the productive efficiency measures of 0.948 TE, 0.890 AE and 0.844 EE showing that they have little or no tolerance for resource wastage. Factors found contributing to low productive efficiency were land fragmentation and excessive use of farm inputs. Active participation in more agricultural organizations would assist the women in the management and use of farm resources which would result into tremendous increase in food production in the study area.

KEY WORDS: Productive efficiency, Women farmers, food crops, Derived savannah and Data Envelopment Analysis (DEA).

INTRODUCTION

The agricultural sector in Nigeria is vital to the economy for incomes and food security. The sector accounted for more than 60% national income, generated 88% of non-oil foreign exchange and provided paid and self employment to more than 70% of the population in the 60s (Agric.policy, 2001). However, the performance of the sector was undermined by disincentives created by various macroeconomic policies of various governments in Nigeria. The scenario led to decline in agricultural productivity. It declined to about 42% in 2010 (NBS, 2010). The low agricultural output has led to the poor performance of the food sector. Food production has not been able to keep pace with the demand. This has induced tremendous increase in the country's import bills from about ₦195.8 Billion in 2001 to about N1.6 Trillion in 2011 (Coker and Adebayo, 2012) This has subsequently increased the prices of major food staples over the years. As a result most Nigerians spend high level of their income (65%) on food (Akoroda, 2014).

In an effort to combat food shortage in the country, Government embarked on several programs and schemes including National Accelerated Food Production Project (NAFPP) in 1974, the World Bank Assisted Agricultural Developments Projects, (ADPS) 1975; Operation Feed the Nation (OFN) 1976; others are the River Basin Development Authorities (RBDAS) 1977. The Back to Land Programme (BLP) and the Directorate of Food, Roads, and Infrastructures (DFRRI) both in 1988, the National Land Development Authorities (NALDA) 1991, and Special Foods Security Programme (SFSP) 2001. However, these efforts have failed to yield satisfactory results because the problems are still persisting.

Satisfactory results could not be attained because of the persistent failure to recognise the role of women in agriculture and refusal to involve them in the various agricultural programs. Policy makers, development planners and agricultural service deliverers in Africa are gender insensitive. They still generally perceive farmers as male (Durno and Stuart, 2005). This is because traditionally, African women are only to provide a helping hand in the production of crops and livestock, a profession, perceived to be men's job. They failed to realize that there has been a paradigm shift of responsibility resulting from a number of reasons including; adverse economic conditions, wars and migration of some men away from home in the villages to the cities for non-agricultural jobs (FAO, 2005). The responsibility of farm ownership and management has now been shifted to women. Everywhere in the world most especially in the developing world, women have been actively involved in farming, food processing and preservation. Food and Agricultural Organization (FAO 2005) reveals that women farmers make up more than 40 percent of the developing world's agricultural labour force and grow at least half of the world's food supply. In Nigeria, studies have shown that women make up some 60-80 percent of agricultural labour force, and produce two-thirds of the food crops depending on the region (Ogunlela and Muktar 2009, Awoyemi and Adekanye 2005, World Bank 2005). Women are involved in land clearing, crop planting and spraying, as well as in post harvest management of agricultural produce. Despite their enormous contributions to agricultural production not much has been documented in relation to their production efficiency this study is therefore, focusing on the productive efficiency of women farmers.

The theoretical framework for this study rests on the theory of production since efficiency is the major concern in production economic analysis. Efficiency in production is a way of ensuring that products of firms are produced in the best and most profitable way. Measurement of production efficiency is often in a relative

term. It is measured as the distance between observed input-output combinations and the best – practice frontier. The best - practice frontier represents the maximum output attainable from each input level. Several approaches, which fall under two broad groups of parametric and non-parametric methods, have been used in empirical studies to estimate the best practice production frontier. Of these, the parametric stochastic frontier approach (SFA) (Aigner et al.1977; Meeusen and Van den Broeck 1977) and the non-parametric approach, data envelopment analysis (DEA) (Charnes et al. 1978) are the two most popular techniques. Because DEA is less data demanding, works with multiple inputs and multiple outputs in the absence of market prices and does not require knowledge of the proper functional form of the frontier, error and inefficiency structures (Ceolli,2005), it has been preferred over stochastic frontier analysis.

The objectives of this study include, determining farm level productive efficiency measures for women food – crop farms in the derived savannah of Nigeria, identifying important factors causing differentials efficiency among woman farms and developing policies based on these productive efficiency measures and their determinants.

The outcome of the research is to provide some of the missing link - farm-level factors preventing the achievement of the broad objective of the Nigeria agricultural policy of food self sufficiency. The study is different from similar efficiency studies in literature because it considers agricultural activities of only women farmers on the assumption that both male and female farmers do not face the same input and output markets as well as level of technology and risks.

The concept of DEA

DEA provides a comprehensive analysis of relative efficiency of a farm (or a decision making unit (DMU)). It evaluates each DMU and measures its performance relative to an envelopment surface composed of other DMUs. Units that lie on the surface are deemed efficient, those that do not lie on the surface are termed inefficient and the analysis provides a measure of their relative efficiency. In the DEA, the envelopment surface and the efficient projection path depend on the type of model specified which could be input or output oriented. The choice of the model depends upon optimization production process characterizing the firm; input oriented DEA determines how much of the inputs mix a firm would have to change to achieve the output level that coincides with the best practice frontier. Output oriented DEA on the other hand is used to determine a firm's potential output given its inputs mix if operated as efficiently as firms along the best practice frontier. The envelopment surface will also differ depending on the scale assumptions that underline the model. This could either be constant return to scale (CRS) or variable return to scale (VRS). For the purpose of this study, input – oriented under VRS DEA model was used to determine productive efficiency of women food crop farms. This is because farms tend to have greater control over their inputs than over their outputs (Helena 2005)

Research Methodology

This study was conducted in the derived savannah zone of Nigeria. Two states including Kwara and Kogi States were used. Kwara State lies within 7°45'N and 6°40'E and Kogi State lies within 7°30'N' and 6°42'E. Kwara State has a total population of 2,701,056 with males being 1,550,548 and females 1,150,508. Total population in Kogi State is 3,278,495 comprising of 1,691,737 males and 1,586,758 females (NPC, 2006)

. The study area is basically agrarian more than 80 percent of the population are farmers and more than 50 percent of the farmers according to (NBS, 2006) are women in the two states. The region is blessed with suitable ecological and climatic conditions for the production of various agricultural products including cash crops and food crops such as yam, cassava, soya bean, cocoyam, maize, millet, rice, guinea corn, palm produce and cowpea.

Primary data were collected using structured questionnaires. Information was collected on quantity and value of output, quantity and cost of inputs, market and farm gate prices, hired labour and family labour. Others are socio-economic characteristics of farmers such as age, level of education, family size, farming experience, marital status, income level, source of farm credits and loans. Secondary data were also collected through record books and year books.

The selection of respondent women farmers involved four stages. The first stage was a random selection of four ADP administrative zones from the eight ADP strata in the two states. The second stage involved random selection of four extension blocks one from each selected ADP's stratum. These included Aiyetoro-gbede and Kotankerfi from Kogi State. Ilorin East and Igbaja from Kwara State. The third stage of sampling was a purposeful selection of four villages with a high concentration of women from each block with the help of the list of women farmers provided by the state ADPs. In the fourth, 10 to 16 women farmers were randomly selected from each selected villages on the basis of probability proportionate to size. A total of 180 samples were used for analysis. Three analytical techniques including; descriptive statistics, Data Envelopment Analysis (DEA), and One- stage least square regression analysis were employed to analyze the collected data.

Analytical Framework

Descriptive Statistics

This involves mainly the use of means, percentage, frequency distributions, minimum and maximum values to show the various findings about the respondents in the study area. The mean and percentage are derived from the following formula:

$$\text{Mean} = \bar{x} = \text{mean} = \frac{\sum X_i f}{\sum f}$$

$$\begin{aligned} X_i &= \text{Observed Variable} \\ f &= \text{Number of time the variable occurs} \end{aligned}$$

$$\text{Percentage} = \frac{X_i}{\sum X_i} \times \frac{100}{1}$$

Data Envelopment Analysis Model

Following Farrell (1957) it is possible to describe the productive efficiency of a farm through the determination of technical, allocative and economic efficiency of firms. From the output perspective, technical efficiency measures potential increase in output keeping the level of input constant, allocative efficiency under same perspective is a revenue maximizing problem. However, under input perspective, technical efficiency measures the ability of a firm to produce a maximum level of output from a given level of inputs while allocative efficiency measures the ability of a firm to combine inputs in optimal proportion to minimize cost.

The combination of these two measures yields a measure of overall economic efficiency used to explain the productive efficiency of women food crop farms in the study area.

To determine the productive measures, we constructed an input-oriented DEA model assuming that each food crop farm produces quantity of output (y_i) using multiple inputs (x_i) and that each farm (i) is allowed to set its own set of weights for both inputs and output. The data for all farms are denoted by the $K \times N$ input matrix (X) and $M \times N$ output matrix (Y). Using piecewise technology, the input-oriented measure of technical efficiency (TE) was calculated as a solution to the following programming problem;

$$\begin{aligned}
 &\text{Min } \Theta_{\lambda} \quad \Theta \\
 &\text{Subject to } -y_i + Y\lambda \geq 0 \\
 &\quad \Theta x_i - X\lambda \geq 0 \\
 &\quad \lambda = 0 \\
 &\quad \Theta \in (0, 1)
 \end{aligned} \tag{Eq. 1}$$

Where,

Θ_i is farm i 's index of technical efficiency relative to other firms in the sample

y_i and x_i represent output and input of farm i respectively

$Y\lambda$ and $X\lambda$ are the efficient projections on the frontier

λ is an $n \times 1$ vector of variable weights attached to be estimated

A measure of $\Theta_i = 1$ indicates that the firm is completely technically efficient. $1 - \Theta_i$ therefore, measures the relative technical efficiency of the firms. It also indicates how much firm i 's input can be proportionately reduced without loss in output.

The above DEA model was constructed under the assumption of constant return to scale (CRS). However, Coelli et al (2005) had pointed out that the assumption of CRS model is only appropriate when farms are operating at an optimal scale that factors such as imperfect competition and financial constraints may prevent some farms from operating at optimal scale. Using the CRS DEA model therefore, when farms are not operating at their optimal level will cause TE measures to be influenced by scale inefficiencies and makes the measures incorrect. Since food crop farms in the research area conducted their activities under imperfect condition due to imperfect information about market such as input and output prices and because the size of farms made them ineligible for institutional loans, we transformed (Eq 1) to variable returns to scale (VRS) model by adding convexity constraint; $\sum \lambda = 1$. This decomposes the TE (CRS) into two components; Pure technical efficiency (PTE) which reflects the ability of the farm to obtain maximal output at an optimal scale and Scale efficiency (SE), which reflects the distance of an observed farm from the -most productive scale size. Farms that are scales efficient are of appropriate size and do not need to be re organized to improve output or earnings.

The VRS DEA model is presented as;

$$\begin{aligned}
 &\text{Min } \Theta_{\lambda} \quad \Theta \\
 &\text{Subject to } -y_i + Y\lambda \geq 0 \\
 &\quad \Theta x_i - X\lambda \geq 0 \\
 &\quad \sum \lambda = 1 \\
 &\quad \lambda = 0 \\
 &\quad \Theta \in (0, 1)
 \end{aligned} \tag{Eq 2}$$

Where

$N1'\lambda = 1$ is the new constraint

$N1$ is a $N \times I$ vector of ones

The economic efficiency measure was derived through VRS assumptions by solving the following cost-minimization problem;

Min $w_i x^*_i$

subject to

$$-y_i + Y\lambda = \geq 0$$

$$x^*_i - X\lambda = \geq 0 \quad (EQ\ 3)$$

$$N1'\lambda = 1$$

$$\lambda \geq 0$$

Where

w_i represent firm i 's vector of input prices

x^*_i is the cost- minimizing input bundle faced by farm i . The economic efficiency for farm i was then solved by computing

$$EE_I = \frac{w_I' x_I^*}{w_I' X_I} \quad (Eq\ 4)$$

This is the ratio of observed cost to the minimum cost the farm faces if using the optimal input bundle.

The allocative efficiency was then calculated as;

$$AE_I = \frac{EE_I}{TE_I} \quad (Eq\ 5)$$

Which measures farm i 's relative ability to allocate the input-bundle in the cost minimizing way, given the estimated technology.

The variables of DEA model include:-

Y_{ij} = Vector of outputs including maize, sorghum, yams, cassava and cowpea

X_{ijs} = Vector of inputs - these include:-

X_1 = Planting materials (GE)

X_2 = Family labour (days)

X_3 = Hired labour (days)

X_4 = Farm size (Ha)

X_5 = Fertilizer (kg)

Measurement of Inputs and Output Variables

Maize, sorghum and cowpea seeds were measured in kg on the field. Yam seeds are not common in the area of study; the farmers therefore planted yam setts. A standard yam sett planted weighed about 250 gms. Total yam setts for each farmer were summed up and converted to kg. Similarly, cassava stems were obtained in bundles. One standard bundle contains 50 cassava sticks of 1.0 m each and weighed 5.0 kg. The quantity of each planting material was later converted to grain equivalent for the sake of aggregation by using grain equivalent conversion factors by Clark and Haswell (1970). Labour was measured in standard man day - eight – hour work period. Farm Size measurement was in hectares. Since small scale farmers usually cultivate their

crops on various plots, the numbers of plots cultivated by each woman farmer were measured and summed up to get the total farm size. Ffertilizer was in kg.

Maize, sorghum and cowpea outputs from each farm were measured in kg right from the farm. The outputs of yam and cassava crops were measured in tons on the field then converted to kg and later adjusted to Grain Equivalent (GE) using the conversion factors.

Table 1.0: Summary Statistics on Farm Inputs Used Per Woman Farmer in the Study Area

Statistics	Total			
Variables	Mean	Stddev	Min	Max
Farm size (ha)	0.79	0.5	0.5	10
Farm plots (No)	2.1	0.84	1	5
Family labour (days)	134.54	36.8	1	170
Hired labour (days)	132.55	66.4	0	809
Maize seeds (Ge)	13.6	51.24	0	60
Sorghum seeds(Ge)	1.06	3.11	0	14.4
Yam setts(Ge)	167.77	197.92	0	937
Cassava(Ge)	11.51	7.26	0	16.50
cowpea(Ge)	6.68	23.21	0	28
Fertilizer (Kg)	95.20	150.18	0	500
Agrochemical (Litres)	1.64	2.12	0	14
Farm tools (no)				
(i) Hoes	3.84	1.85	1	15
(ii) Cutlass	2.46	1.68	1	10
Extension visits	14	12.23	0	48

Table 2.0: Summary Statistics on Farm outputs Per Woman Farm in the Study Area

Statistics	Total			
Variables	Mean	Stddev	Min	Max
Maize (GE)	932.50	129.30	0	1000
Sorghum (GE)	55.92	13.6	0	806
Cassava (GE)	1.48	2.0	0	13.5
Yam (GE)	409.48	116.62	0	800
Cowpea (GE)	43.04	19.1	0	168.0

Regression Analysis

Literature specified four major approaches to assessing environmental factors influencing efficiency of a farm. These include; the approach of Banker and Morey (1986), the method proposed by charnes et al (1981), the approach of adding environmental variables directly into the linear programming formulation and the two-stage method (Coelli et al 2005). The two-stage method was used in this study to assess the influences of farm-based factors on measures of productive efficiency. Cobb-Douglas production function was used to estimate the potential determinants of the productive efficiency measures (PEM). These include: Years of schooling, farming experience, family size, Membership of an Organization (MBO) and number of plots and access to credit. The function is expressed as:

$$PEM_i = a Z_1^{b_1} Z_2^{b_2} Z_3^{b_3} Z_4^{b_4} Z_5^{b_5} Z_6^{b_6} Z_7^{b_7} e \dots\dots\dots (Eq. 7)$$

Where

PEM_i = Productive efficiency measure (is EE measure being the product of TE and AE)

Z₁, = Years of schooling (years)

Z₂, = Farming experience (Years)

Z₃, = Family size (No)

Z₄, = Membership of organization (No)

Z₅, = number of plots (No)

Z₆ = Access to credit (Dummy Variable Yes = 1 otherwise = 0)

Z₇ = Access to extension (Dummy Variable Yes = 1 otherwise = 0)

b₁ – b₇ = coefficients to be determined

a₀ = constant term

e = error term

For the Cobb-Douglas production function to be easily applied in a form amenable to practical purposes it has to be linearised through conversion into double logarithmic function expressed as;

$$\ln EE_i = a_0 + b_1 \ln z_1 + b_2 \ln z_2 + b_3 \ln z_3 + b_4 \ln z_4 + b_5 \ln z_5 + b_6 \ln z_6 + b_7 \ln z_7 + e \dots\dots\dots (Eq 8)$$

Where,

EE_i, Z₁ – Z₆, b₁ – b₇, a₀ and e are as defined above

ln = natural logarithm

RESULT AND DISCUSSION

Socio-Economic Characteristics of Women Farmers

The summary of the socio-economic characteristics is presented in Table 3.0. The table reveals the average household size of 7 persons consisting 4 adult members and 3 children. Women farmers were experienced with an average farming experience of 20 years, had an average of 4.5 years of formal education, a number of farm plots raging between 1 and 5 and belonged to one or two or more agricultural associations with less than half of the sample having access to credit facility.

Table 3.0: Descriptive Statistics for Selected Socio-economic characteristics of Women Farmers

Variable	Min	Max	Mean	Std. Dev.
Farming Experience (Years)	1	50	20.42	12.26
Years of schooling	0	14	4.5	1.58
Family Size (No)	2	20	7.80	4.72
Adult Members (No)	1	17	4.6	2.98
Children (≤ 15 years) (No)	0	10	3.06	2.43
No of plot	1	5	2	0.84
Access to extension	0	48	14	12.23
Membership of association	0	4	2	1.23
Access to credit	0		45	

PRODUCTVE Efficiency

The efficiency measures for the sample women food crop farms are presented in Table 4.

Table 4.0: Efficiency measures for sample women farms (N = 180)

Efficiency measures	Mean	Maximum	Minimum	No. of efficient farms
Economic Efficiency (EE)	0.844	1	0.12	2
Allocative Efficiency (AE)	0.890	1	0.29	5
Technical Efficiency (TE)	0.948	1	0.41	12
Pure Technical Efficiency (PTE)	0.846	1	0.20	137
Scale Efficiency (SE)	0.936	1	0.10	13

The mean efficiency measures of the farms including technical, allocative and economic efficiency measures are 0.948, 0.890 and 0.844 respectively. The fact that the means for all the measures are more than 80% implied some degrees of productive efficiency on the part of the women farms and this tends to show that the women farmers would not allow much waste of resources. However, the result showed some levels of inefficiency in the use of farm resources implying that the input mix of the women farmers in the study were not consistent with cost minimization, as such; they could not obtain maximum possible output from the use of resources and technology available to them. The mean technical inefficiency of (1 -0.948) or 5.2%, allocative inefficiency of (1 – 0. 890) or 11% and economic inefficiency of (1 – 0.844) or 15.6% implies overutilization of some resources as a result of wrong mix resulting into excessive cost of production. To be productively efficient and achieve an output level that will coincide with the best practiced frontier, an average inefficient farm would have to reduce the level of input used by 5.2% which will consequently reduce cost of production by 15.6%. In other words the farms should adopt appropriate mix of resources with least costs. The outcome of this study agrees with Awoyemi and Adekanye (2005); Gender analysis of economic efficiency in cassava-based farm holdings in South-Western Nigeria, they discovered that female cassava farms were not cost effective, their input mix were not consistent with cost minimization.

The scale efficiency of 0.936 showed that an average woman farm was yet to get to the optimal level. The main reason may be because of the relatively small scale production of the women farms in the research area.

Most (87%) of the farms were still at the stage of increasing return to scale (IRR) where there is more proportionate change in output with a little change in input level. These findings showed that there is still some room for improvement in food crop production in the study area without necessarily changing the present available technology. This finding conforms with Vedat and Kerem (2010) . They found out that all their sample farms exhibited increasing returns to scale. The samples farm were also relatively small.

Result of One - Stage Least Squares regression analysis

The factors affecting productive efficiency of women food crops farms in the Derived Savannah of Nigeria was determined through the factors influencing the overall farm efficiency - the economic efficiency which is the product of technical and allocative efficiency. This was done by estimating the earlier stated Cobb-Douglas function and the explicit result is given as:

$$\begin{aligned} \text{Log EE} = & -0.5360 + 0.0071 \ln x_1 - 0.027 \ln x_2 + 0.194 \ln x_3 + 0.1061 \ln x_4 \\ & (-4.60)^{***} \quad (0.48) \quad (-2.97)^{**} \quad (4.01)^{***} \quad (1.99)^* \\ & -0.4092 \ln x_5 + 0.0492 \ln x_6 + 0.089 \ln x_7 + e \quad \text{-----} \quad (4.0) \\ & (-5.17)^{***} \quad (0.46) \quad -0.325) \end{aligned}$$

The result is presented in table 5

**Table 5.0 Estimates of the One - stage Least Squares Regression Analysis
Function n = 180.**

Variables	Parameters	Coefficients	t values
Constant	a ₀	-0.5360	-4.60***
Education	b ₁	0.007127	0.488342
Year of farming	b ₂	0.027134	(-2.972891)**
Family size	b ₃	0.194	4.01***
Membership of association	b ₄	0.1061	1.99*
Number of plots	b ₅	-0.4092	-5.172***
Access to credit	b ₆	0.0492	0.46
Extension	b ₇	-0.089603	-0.325835
F cal		23.33	
Prob > f		0.0000	
R²		53.37	

Note; *** = 1%, ** = 5% and * = 10%

Factors affecting productive efficiency of Women Farms

The result of the OLS Regression shows that four of the six variables have significant impact on the productive efficiency of the farms. These include – family size (P<0.01), farming experience, membership of association, and number of plots (P<0.05). Family size is positively correlated with the efficiency and it is significant at 1%level, implying that a large family size enhances productive efficiency on women farms. This

signifies the importance of family size in the provision of cheap family labour for food production. Larger farm families provide farmers with a variety of labour (children, youth, men and women), which leads to division of labour and specialization. This finding agrees with Seidu (2008) that large family size enhances efficiency on non-irrigated lands

Number of plot is significant at 1% level and is negatively correlated with productive efficiency. This shows that land fragmentation causes decline in efficiency. It makes mechanization and cost of production more expensive and adds to the distance that will be covered by the farmers. This agrees with Parikh et al (1995): Kebede, (2001) and Adewuyi (2002) that land fragmentation leads to inefficiency. Similarly the coefficient of Year of farming is significant at 5% level and also had negative effect on the efficiency of the women farms. A possible explanation for the estimated effect is that new entrants are more knowledgeable about recent technological advances than their older counterparts. They are more likely to adopt new and better techniques than older farmers. This result is consistent with the findings of Mario (2006), Yusuf and Malomo (2007), Adewuyi (2002) They found out that increase in farming experience caused efficiency of farms to decline. However, membership of farmers association is positively significant. This implies that women farms who are members of farmers association tend to be more productive presumably due to their enhanced ability to acquire technical knowledge through sharing of information on crop husbandry, marketing channels and others at association level. This finding agrees with Seyoun et al (1998) and Yusuf and Malomo (2007), Binma et al (2004) and Chirwa (2007) on Membership of association.

The estimated coefficients of both years of education and extension visits are not significantly related to the efficiency of women farms. This is because it is not higher education or number of extension visits that matter in economic efficiency but technical ability to achieve optimal combination of inputs. The finding is consistent with Sharma et al., (1999) findings. The coefficient of access to credit though positive is not significant suggesting that it does not contribute much to efficiency of women farmers in the study area. The fitness of the model is confirmed by the significance of f-statistics at 1%. This implies that all the variables had a joint impact on the dependent variable.

CONCLUSION

Women farmers in the study are predominately illiterates and small-scale food producers who cultivate on fragmented farm land and learn the art of farming from their experience and those of their forefathers. They relied largely on family labour, their input mix were not consistent with cost minimization, as such; they could not obtain maximum possible output from the use of resources and technology available to them. Factors found contributing to the shortfalls in productive efficiency among women farms are land fragmentation and years of farming.

7.4 RECOMMENDATIONS

Following from the findings and conclusion the following recommendations are made.

The strong relationship existing between economic efficiency and family size, an important source of family labour is a pointer to the fact that women farmers have to rely heavily on family labour to satisfy the household needs, this may have negative implication on the rural children who are suppose to be in schools considering their age, but been used to provide farm support. Therefore, for a better tomorrow of the rural children and economic development of the country, labour substituted modern farm implements specifically designed for female farmers should be provided.

Also the negative but significant relationship between economic efficiency and farming experience has shown that experience alone is not enough for appropriate combination of resources for maximum output. There is therefore, the need for the policy makers to make adequate provision for technical training for the purpose of increasing food productivity in the study area in particular and Nigeria in general.

The positive relationship between economic efficiency and membership of farmers associations shows that women farmers gain technical skills from cooperative activities. Formation of more cooperative societies should therefore be encouraged.

REFERENCES

- Adewuyi, S.A. 2002, Resource-Use Productivity in food crop production in Kwara State. Nigeria. Unpublished Ph.D. thesis, Department of Agricultural Economics, University of Ibadan.
- Akoroka, M.O 2014. Agricultural transformation agenda: Prospects for the African youth. A lead paper presented at the 17th annual symposium of International Association of Research Scholars and Fellows (IASAF), Institute of Tropical Agriculture (IITA), Ibadan
- Aigner, D.J; C.A.K. Lovell and P. Schmidt, 1977. Formulation and Estimation of Stochastic Frontier Production Function Model.*J. Econs.*, 6(1):21-37.
- Awoyemi, T.T. and Adekanye 2005. "Gender Analysis of Economic Efficiency in Cassava-based farm holding in Southwestern Nigeria: *J. Economic and Rural Development*. 14(2) 15-35
- Banker, R.D, and Morey. R.C. 1986. Efficiency analysis of exogenously fixed inputs and outputs. *Operations Research*. 34: 513-521.
- Binam, J.N., J. Tonye, M. Wandji, G. Nyambi and M. Akoa. 2004. "Factors affecting the technical efficiency among small holder farmers in the slash and burn agriculture zone of Cameroon". *Food Policy*, 29(15): 531-45.
- Central Bank of Nigeria, 2005.Statistical Bulletin Vol. 16.CBN publications.
- Charnes, A., Cooper, W.W.Rhodes, E. 1978. Measuring Technical efficiency of decision making units. *Eur. Operational res.* 2: 429-444
- Charnes, A.,W.W. Cooper and E. Rhodes, 1981. "Evaluating Program and Managerial efficiency: An Application of Data Envelopment Analysis to Program Follow Through". *Management Science*, 27, 668-697

- Chirwa, E.W. 2007. "Sources of Technical Efficiency Among Smallholder Maize Farmers in Southern Malawi" Draft Final Report presented at the African Economic Research Consortium Biannual research Workshop, Nairobi Kenya May.
- Coelli, T.J., Rao, D.S.P., Odonnell, C.J. and Battese G.E, 2005. *An introduction to efficiency and productivity analysis*. 2nd Edn. Springer. New York. pp:350
- Coker, A.A and Adebayo, C.O 2012. A review of the existing agricultural policies and changes needed to enhance effective implementation of the agricultural transformation agenda in Idowu E.O, A.B Ayanwale, A.S Bamire and A.O Adejobi (Ed.) Agriculture in the national transformation agenda: The policy mix. Proceedings of 2012 annual conference of the Nigerian Association of Agricultural Economists. Ile – Ife, Nigeria
- Durno, J. and R. Stuart, 2005. Gender Issues in Sustainable Agriculture. In Overholt, C. (Ed). *Gender Roles in Development Projects*. New Delli: Fox Publications.
- FAO 2005. "The Special Programme for Food Security Agenda 21, United Nations Conference on Environment and development.
- Farrel, M.J. 1957. The Measurement of Productive Efficiency, *J. Royal Stat. Society*; 120:253-81.
- Federal Ministry of Agriculture and Rural Development, 2001, New Agricultural Policy Thrust, Abuja Nigeria
- Helena Johansson 2005. Technical, allocative and economic efficiency in Swedish dairy farm:- The data envelopment analysis versus stochastic frontier approach. Poster background paper prepared for presentation at the XI:th International Congress of the European Association of Agricultural Economists (EAAE), Copenhagen, Denmark, August 24 – 27 2005
- Kebede, T.A. 2001. Farm Household Technical Efficiency: A Stochastic Frontier Analysis. A Study of Rice Producers in Mardi Watershed in The Western Development Region of Nepal. Unpublished Masters project in the Department of Economics and Social Sciences. Agricultural University of Norway.
- Mario, O. 2006. "Determinants of Technical Efficiency Differentials Amongst Small-and Medium-Scale Farmers in Uganda: A case of Tobacco Growers." Executive Summary presented at the African Economic Research consortium Biannual Research Workshop, Nairobi, Kenya, February.
- Meeusen, W. and J. Van den Broeck, 1977. "Efficiency Estimation from Cobb-Douglas Production Function with composed Error". *International Economic Review*, 18; 435-444.
- National Bureau of Statistics, 2010. Sector Statistics. Retrived Dec. 2010. <http://www.nigerianstat.gov.ng>
- National Bureau of Statistics (NBS) (2006) Report of the Nigeria Core Welfare Indicator Questionnaire (CWIQ) Survey of 2006.
- National Population Commission (Nigeria) (NPC) (2006): Report on the Survey of Demographic and Health survey.
- Ogunlela, I.Y, and Muktar, A.A. 2009, "Gender issues in agriculture and rural development in Nigeria: The role of women. *Humanity and Social Sciences Journal* 4 (1):19-20
- Parikh, A., F. Ali and M.K. Shah. 1995. Measurement of economic efficiency in Pakistani agriculture' *American J. Agric. Econ* 77 (August); 675-85

- Seidu, A. 2008. Technical efficiency of rice farmers in Northern Ghana. AERC Research Paper No. 178. The African Economic Consortium, Nairobi.
- Seyoun, E.T., G.E. Battese, and E.M. Flemming. 1998. "Technical Efficiency and Productivity of Maize Producers in Eastern Ethiopia: A Study of Farmers within and outside the Sasakawa Global 2000 Project. *Agricultural Economics* 19: 341-348.
- Sharma, K.R., Ping Sun Leung and Halina M. Zaleski (1999) "Technical, allocative and economic efficiencies in Swine Production in Hawaii: a comparison of Parametric and non parametric approaches. *Agricultural Economics*; 20():23 – 25..
- Thompson R.G., F.D. Dharmapala, R.M. Thrall, and B.A. Smith. 1986. "Comparative Sites Evaluations for Locating a high- Energy Physics Lab in Texas. *Interfaces*, 16(6): 35-49.
- Vedat C and Kereem H 2010. Economic efficiency of cattle fattening farms in Amasya province, Turkey. *J. of animal and veterinary advances* 9 (1): 60 – 69. ISSN: 1680 – 5593, Medwell Journals
- World Bank, 2005. Gender and Development, University Press, Baltimore.
- Yusuf, S.A. and O. Malomo 2007. "Technical Efficiency of Poultry Egg Production in Ogun State: A Data Envelopment Analysis (DEA) Approach. *Int. J. Poultry Sc.* 6(9): 622-629

Effects of Acid Scarification on Germination of the Genus *Brachiaria* grass Cultivars

Susan Nguku^a, Nashon Musimba^b, Donald Njarui^c, Royford Mwobobia^d and Eric Kaindi^e

^aSouth Eastern Kenya University

School of Agriculture and Veterinary Sciences

P.O. Box 170 – 90200. E-mail: susannguku2008@gmail.com

Kitui-Kenya

^bSouth Eastern Kenya University

School of Agriculture and Veterinary Sciences

P.O. Box 170 – 90200. E-mail: nashon.musimba@yahoo.com

Kitui-Kenya

^cKenya Agricultural Research Organisation

P.O. Box 340 E –mail: donaldnjarui@yahoo.com

Machakos- Kenya

^dSouth Eastern Kenya University

School of Agriculture and Veterinary Sciences

P.O. Box 170 – 90200. E-mail: mmurangiri@gmail.com

Kitui-Kenya

^eSouth Eastern Kenya University

School of Agriculture and Veterinary Sciences

P.O. Box 170 – 90200. E-mail: erickaindi@gmail.com

Kitui-Kenya

Research: This work is a collaborative project between KALRO and BecA and was funded by Sida.

Abstract

Germination rates of Brachiaria cultivars; B. decumbens cv. Basilisk, Brachiaria hybrid Mulato II, four Brachiaria brizantha cultivars Marandu, Xaraes, Piata, MG4 and two Brachiaria humidicola cultivars Humidicola and Llanero were monitored under controlled conditions in the laboratory over a period of 14 days with Chloris gayana cv. KATR3 as controls. Treatments included soaking seed in concentrated sulphuric acid (>95%) for 10 minutes and another set of the same seed in water only. Acid treatment had no significant effect ($p>0.05$) on germination although cultivars Mulato II, Piata, Humidicola and Llanero recorded increased germination. Marandu, MG4, Mulato II and Xaraes had above 50% germination percentage and were superior to the rest of the cultivars in water treatment. Chloris gayana KATR3 had the lowest germination percentage in both treatments.

The Brachiaria cultivars demonstrate superior germination rates. Actual field establishment rates may however be better indicators of their performance.

Key words: Climate smart; *Brachiaria*; Grass; Semi-arid; arid; Livestock; Nutrition; Pasture

1.0 INTRODUCTION

Livestock is the dominant source of livelihood in the ASALs and involves many players along the value chain, starting from primary/ farmers/pastoralists producers all the way to the consumption level (Mnene et al, 2009). Mnene et al (2009) further report that it is critical that all the players along the value chain are effective for a chain to be efficient and that nutrition is an important factor at the production level, which eventually determines the quality of beef produced. Feeding constitutes a substantial proportion of the cost components of a production system. Attention should therefore be given to ensuring a sufficient supply of feed resources of adequate quality (Gueye, 2002). Beef production is pasture-based, therefore sufficient feed supply can be achieved through utilization of available natural pastures (Preston, 1992). Grasses commonly found growing in the semi arid lands include Buffel grass (*Cenchrus ciliaris*), Rhodes grass (*Chloris gayana*), *Panicum Maximum*, Masai love grass (*Eragrostis superba*), Horse tail (*Chloris roxburgiana*) and *Entropogon machrostachys*. These grasses' nutritional and yield status decline with changing climatic conditions in the year making them incapable of meeting the needs of livestock (Gitunu *et al*, 2003). Introducing climate smart pasture species in these areas can be a major boost for the beef industry in Kenya. The physical characteristics of pasture seeds and often low germination can hinder good pasture establishment. Most tropical grasses have small, light seeds, with some species having fluffy seeds, making planting difficult (Song and Kalms, 2007). Many grass seeds are subject to post-harvest dormancy, which means germination improves for up to 12 months after harvest, as germination inhibitors in the glumes break down (Cook et al, 2005). According to Song and Kalms (2007), germination percentages of 5-20% have been reported in some tropical pasture species which include *Cenchrus ciliaris* even though their viabilities can remain at 70-90%. There is therefore potential to improve germination by reducing dormancy. Seed treatment methods to improve germination include scarification and inoculation (for pasture leguminous plants). Scarification can be achieved; mechanically using sand paper or any other abrasive method and chemically with concentrated sulphuric acid, or with hot water or dry heat. Different methods are however, more appropriate with different species (Cook et al, 2005). The paper reports the findings of a study carried out to establish germination percentages of 8

Brachiaria grass cultivars subjected to both acid/water and water only treatment with *C.gayana* cv. KATR3 as controls.

2.0 Materials and Methods

The germination percentages of the grass seeds of eight *Brachiaria* cultivars namely; *B. brizantha* cultivars Marandu, Xaraes, Piata and MG4, *B. decumbens* cultivar Basilisk, *B. humidicola* cultivars Llanero and Humidicola, *Brachiaria* hybrid cv. Mulato II with *Chloris gayana* cultivar KATR3 as controls was examined under controlled conditions in a growth chamber as described by (Rao et al, 2006). The seeds were drawn randomly from storage bags and soaked in concentrated sulphuric acid (>95%) for ten minutes after which they were rinsed in running distilled water. The rinsed seed were then divided into 3 replicates with 100 seeds per replicate for each cultivar and spread uniformly on top of Whitman filter paper placed in dry and sterilized 90mm petri dishes. The filter papers were then moistened with distilled water and covered with snugly fitting lids to prevent excessive moisture loss. Care was also taken to ensure that none of the seeds was in contact with the other. A permanent marker to label the petri dishes indicating the name of seed under test and the replication number was used. The same procedure repeated for another set of seeds but these were not soaked in acid hence serving. In total 54 petri dishes were placed in the growth chamber such that three replicates of each grass seed were acid treated and three were not. The seeds were kept at alternating temperatures of 30⁰C for 8 hours and 20⁰C for 16 hours daily and seed germination was monitored for 14days. Each day, the petri dishes would be removed from the growth chamber to record the number of seed of each cultivar that had germinated. The germinated seeds were then removed from the petri dishes after which the petri dishes were randomly rearranged back into the growth chamber. The petri dishes were kept moist with distilled water throughout this period. Seed germination is defined as the resumption of growth of the embryo and emergence or protrusion of the radicle from the covering structures (Rao et al, 2006), therefore a protusion of the radical from the seed was counted as a sign of germination and the seedling removed from the Petri-dish.

2.1 Statistical analysis

Data on germination were subjected to ANOVA based on the model designed for a randomised complete block design (RCBD) according to Gomez and Gomez (1984). To compare significant differences in response variables, ANOVA analysis was done using SAS package (SAS Institute Inc., 2001). Duncan's Multiple Range Test was carried out for subsequent comparison of means as described by Steel and Torrie (1986).

3.0 Results

The mean germination percentages based on treatments are shown in table 1. Seed treated with acid resulted in mean percentage germination of 34.4% compared to 39.5% with water only treatment. Although seed treatment had no significant effect on mean germination percentage ($p>0.05$) there were observed differences in germination rates among cultivars. Cultivar MG4 (0%) and *C.gayana* KATR3 (2%) had very low germination when subjected to acid treatment. However, when MG4 was subjected to water only treatment, it ranked second after Marandu at 67.3% germination rates. Mulato II (acid-70.7%; water-66.7%), Piata (acid-47.7%; water-31%), Humidicola (acid -23%;water-16.7%) and Llanero (acid-20.3%;water-15.7%) also showed a greater response to acid treatment as compared to water only treatment. For both water and acid, the

best variety in terms of germination percentage was Marandu with 76.3% germinating within the 14-day period under investigation.

Figure 1 shows seed germination percentages (for water only treatment) among the grasses during a 14 day period. On day 2, 36% of MG4 and 21% of Marandu seed had already germinated. By day 10, Marandu, MG4, Mulato II and Xaraes had recorded 50% germination. The plateaus observed on the germination curves were the period during which no further germination was observed. Marandu recorded the highest germination percentage at 76% followed by MG4 at 67%. *Chloris gayana* KATR3 and Basilisk recorded the lowest germination percentage at 10% by day 14.

4.0 DISCUSSION

This study shows that *Brachiaria* species demonstrate different levels of seed germination. The differences observed among the grass cultivars may be explained by the intrinsic properties of the grass seeds such as dormancy and tegumental hardness (Opiyo, 2007). Acid treatment of seed for 10 minutes did not have a significant effect on average seed germination. This however, does not mean that dormancy may not have been present. Treatment time exposure may have had an effect in the acid/water trials. Mulato II, Piata, Humidicola and Llanero recorded comparatively higher seed germination in acid/water treatment than in water only treatment. Marandu demonstrated superior germination rates overall in both acid and water treatment. Observations of germination in Mulato II agree with studies by Vendramini et al (2011) which report that Mulato II seed has good vigour when placed in a moist firm seed bed and has been shown to germinate in 5-10 days. The findings for *Chloris gayana* KATR3 in this study of low germination percentage (10%) by the 14th day contradict studies by Loch et al (2004) which report that *Chloris gayana* seed seem not to suffer seed viability difficulties and have been found to germinate in 1-7 days.

5.0 CONCLUSION

Brachiaria species demonstrate superior germination percentage with *Brachiaria brizantha* cultivars Marandu, MG4, Xaraes and *Brachiaria* hybrid Mulato II achieving 50% by day 14. Field establishment rates of the cultivars may however be able to show a better picture of the vigour of the seeds.

REFERENCES

Cook, B.G., Pengelly, B.C., Brown, S.D., Donnelly, J.L., Eagles, D.A., Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M. and Schultze-Kraft, R. Franco, M.A., Hanson, J., Mullen, B.F., Partridge, I.J., Peters, M. and Schultze-Kraft, R. (2005). *Tropical Forages: an interactive selection tool*. [CD-ROM], CSIRO, DPI&F(Qld). Brisbane, Australia: CIAT and ILRI.

Gitunu, A.M., Mnene W.N., Muthiani, E.N., Mwacharo, J.M., Ireri R., Ogillo, B.P and Karimi S.K. (2003). Increasing the productivity of livestock and natural resources in semi-arid areas of Kenya. A case study from the southern Kenya rangelands. *proceedings for end of programme conference, agriculture/livestock research support programme, phase II held from 11-12 November 2003 at KARI headquarters Nairobi, Kenya*. Nairobi, Kenya: Kenya Agriculture Research Institute.

- Gomez, K. A. and Gomez, A. A.(1984). *Statistical Procedures for Agricultural Research. 2nd Edition*. New York, USA : John Wiley and Sons.
- Gueye, E. (2002). Family poultry research and development in low-income food deficit countries. *Approaches and prospects. Outlook on Agriculture, Vol.31* , 13-21.
- Inc., S.(2001). SAS/STAT. *Users guide version 8.2. SAS Institute Inc.cary* , 3884.
- Loch D.S., Rethman N.F.G. and Van Niekerk. (2004). Rhodes Grass. In B. G. Cook, *Warm Season(C4) Grasses, Agronomy Monograp Vol. 45* (pp. 833-871). Madison, Wisconsin: American Society of Agronomy, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America.
- Mnene, W.N., Kimiti, R. Kubasu,D. and Kidake, B. (2009). *Proceedings of Training of Trainers Workshop for the Mandera Triangle in Community Based Range Forage Seed System*. Makindu, Kenya: Kenya Agricultural Research Institute. Kiboko Research Centre.
- Opiyo, F. (2007). *Land treatment effects on morphometric characteristics of three grass species and economic returns from reseeding in Kitui District, Kenya*. Nairobi, Kenya: University of Nairobi, Kenya: Unpublished MSc Thesis.
- Preston, T. (1992). The role of multipurpose trees in integrated farming systems for the wet tropics. In A. a. ed. Speedy, *Proc. FAO Expert Consultation on Legume Trees and Other Fodder Trees as Protein Sources for Livestock. 14-18 October, 1991* (pp. 193-210). Mardi, Malaysia,: FAO Animal Prod. and Health Paper No. 102.
- Rao, N.K., Hanson, J., Dulloo, M.E., Ghosh, K., Nowell, D. and Larinde, M. (2006). Seed Quality Testing. In Kameswara Rao, J. H. *Manual of Seed Handling in Gene Banks.Handbooks for Genebanks No. 8* (pp. 50-76). Rome, Italy: Biodiversity International.
- Rao, N.K., Hanson, J., Dulloo, M.E., Ghosh, K., Nowell, D. and Larinde, M. (2006). *Manual of seed handling in genebanks. Handbooks for Genebanks No. 8, 56-77*. Rome, Italy: Bioversity International.
- Song, L. and Kalms, I. (2007). Improving Germination of Tropical Grasses with New Seed- Coating Technologies. *Tropical Grasslands. Vol. 41* , 242.
- Steel, R. D. G. and Torrie, J. H. (1986). *Principles and Procedures of Statistics. A Biometrical Approach. 5th Ed*. New-York: McGraw-Hill International Book Company.
- Vendramini, J.M.B., A.T. Adesogan, M.L.A. Silveira, L.E. Sollenberger, O.C. Queiroz, and W.E. Anderson. (2010). Nutritive value and fermentation parameters of warmseason. *Professional Animal Science. 26* , 193-200.

Numerical simulation of the effect of surface tension and viscosity on the shape of GTA weld bead

K. Touileb, R. Djoudjou

Department of Mechanical Engineering

Prince Sattam Bin Abdulaziz University, KSA

Dr. Kamal Touileb :

Email: touilebk@yahoo.com,

Tel: 00966507900460

Dr. Rachid Djoudjou:

Email: djoudjour@yahoo.com

Tel: 00966502022898

ABSTRACT:

Studies have shown that two heats of steel of the same grade welded in GTA under the same conditions lead to dissimilar welds aspects. This difference is related to the presence of Minor elements in the weld pool. To describe and integrate the forces involved in the weld pool like: the surface tension, Buoyancy force and electromagnetic force, the mathematical tool is necessary. In this paper, the effect of viscosity on the shape of the weld bead is discussed on the basis of numerical simulation

Keywords: GTA welding, Weld shape, Viscosity, Marangoni, Surface tension, Simulation

1. Introduction

The convective movement in the weld pool plays a decisive role in the transfer of heat. The intensity of the velocity and direction of the flow affect the geometric as well as the structure obtained. The convection of liquid metal in the weld pool has been the subject of many studies [1-5]. Athey[6] is the first to take an interest in convective movement in the weld pool considering only the effect generated by electromagnetic Lorentz force. Nevertheless, he emphasizes the importance of the effect of the thermal surface tension gradient in the formation of the weld bead. Oreper[7] emphasized the importance of thermo capillary effect taking into account all the coexisting forces in the weld pool. Several studies have followed, each one treating a particular aspect in TIG welding [8-10]. All results of these investigations show that the effect of surface tension temperature gradient is the most determinant factor.

The purpose of the present work is to study the effect of viscosity on the morphologic weld bead. Special emphasis is placed on the investigation of the influence of viscosity on the flow, in the presence of a heat gradient of positive or negative surface tension, by taking into account other forces in presence in the weld pool.

2. Formulation

In order to develop the mathematical model the term viscous dissipation has been introduced as a source term into the energy equation where the viscosity is considered constant and homogeneous. The physical phenomenon is described by a series of equations. The following assumptions have been adopted for simplification:

- 1- The welding arc is steady.
- 2- The liquid metal is Newtonian type.
- 3- The fluid is incompressible following Buoyancy approximation.
- 4- The Properties are supposed to be constant in both liquid and solid phase.
- 5- The flow is laminar.
- 6- The flow is in 2-D.

2.1. Governing equations[11-12]:

According the above assumptions the equations governing the weld pool may be written as follows:

Mass conservation equation:

$$\vec{\nabla} \cdot \vec{V} = 0 \quad , \quad \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0$$

Conservation equation of the amount of movement (Navier-Stokes equations):

$$\rho \cdot \frac{dV_i}{dt} = - \left(\frac{\partial P}{\partial x_i} \right) + (\rho \cdot g_i) + \left(\frac{\partial \tau_{ij}}{\partial x_j} \right) + F_i$$

\downarrow
 Amounts of
acceleration

\downarrow
 Forces related
to the pressure

\downarrow
 volume
forces

\downarrow
 viscous
forces

\downarrow
 electromagnetic
forces

This equation becomes:

$$\rho \left(\frac{\partial U}{\partial t} + U \cdot \frac{\partial U}{\partial X} + V \cdot \frac{\partial U}{\partial Y} \right) = - \left(\frac{\partial P}{\partial X} \right) + \left(\frac{\partial J}{\partial Y} \right) \cdot \left(\frac{\partial B}{\partial Z} \right) + \mu \cdot \left(\frac{\partial^2 U}{\partial X^2} + \frac{\partial^2 U}{\partial Y^2} \right)$$

$$\rho \left(\frac{\partial V}{\partial t} + U \cdot \frac{\partial V}{\partial X} + V \cdot \frac{\partial V}{\partial Y} \right) = - \left(\frac{\partial P}{\partial Y} \right) + \rho \cdot g \cdot \beta (T - T_0) + \left(\frac{\partial J}{\partial X} \right) \cdot \left(\frac{\partial B}{\partial Z} \right) + \mu \cdot \left(\frac{\partial^2 V}{\partial X^2} + \frac{\partial^2 V}{\partial Y^2} \right)$$

The Energy Equation:

$$\rho \cdot C_p \cdot \left(\frac{\partial T}{\partial t} + U \cdot \frac{\partial T}{\partial X} + V \cdot \frac{\partial T}{\partial Y} \right) = \lambda \cdot \left[\frac{\partial^2 T}{\partial x^2} + \frac{\partial^2 T}{\partial y^2} \right] + 2 \cdot \mu \cdot \left[\left(\frac{\partial U}{\partial X} \right)^2 + \left(\frac{\partial V}{\partial Y} \right)^2 \right] + \mu \cdot \left[\frac{\partial V}{\partial X} + \frac{\partial U}{\partial Y} \right]^2$$

Using both the stream formulation and the vorticity formulation, which are adapted for cross linking flow and for 2 D studies, it can be shown that:

The Stream function equation:

$$U = \frac{\partial \varphi}{\partial y} , \quad V = - \frac{\partial \varphi}{\partial X}$$

$$\omega = \frac{\partial V}{\partial X} - \frac{\partial U}{\partial Y}$$

$$\omega = - \left[\left(\frac{\partial^2 \varphi}{\partial y^2} \right) + \left(\frac{\partial^2 \varphi}{\partial x^2} \right) \right]$$

The vorticity equation:

$$\rho \cdot \left[\frac{\partial \omega}{\partial t} + \frac{\partial \varphi}{\partial y} \cdot \frac{\partial \omega}{\partial x} + \frac{\partial \omega}{\partial y} \cdot \left(- \frac{\partial \varphi}{\partial x} \right) \right] - \mu \left[\frac{\partial^2 \omega}{\partial x^2} + \frac{\partial^2 \omega}{\partial y^2} \right] = F_2 - F_1$$

$$F_2 = - \frac{\partial (J_x \cdot B_z)}{\partial x} + \rho \cdot g \cdot \beta \cdot \left(\frac{\partial T}{\partial x} \right) ; F_1 = \frac{\partial (J_y \cdot B_z)}{\partial y}$$

The Energy Equation becomes:

$$\rho \cdot c_p \cdot \left[\frac{\partial T}{\partial t} + \frac{\partial T}{\partial x} \cdot \frac{\partial \varphi}{\partial y} + \frac{\partial T}{\partial y} \cdot \left(- \frac{\partial \varphi}{\partial x} \right) \right] = \lambda \cdot \left[\frac{\partial^2 T}{\partial x^2} + \frac{\partial^2 T}{\partial y^2} \right] + \xi(x, y)$$

$$\xi(x, y) = \left[2 \cdot \mu \cdot \left[\left(\frac{\partial}{\partial x} \left(\frac{\partial \varphi}{\partial y} \right) \right) - \left(\frac{\partial}{\partial y} \left(\frac{\partial \varphi}{\partial x} \right) \right) \right] + \mu \cdot \left(\frac{\partial^2 \varphi}{\partial y^2} - \frac{\partial^2 \varphi}{\partial x^2} \right) \right]$$

Where ρ is the density, ϕ is the electric potential, ω is the rotation, ψ is the stream function, η is the performance of the arc, λ is the thermal conductivity, h is the convective heat transfer coefficient, μ is the dynamic viscosity, g is the acceleration of gravity, T_f is the melting temperature, T_e is the arc voltage, C_p is the calorific capacity, μ_0 is the magnetic permeability, σ_e is the electrical conductivity, β is the volume expansion coefficient, $\left| \frac{\partial \gamma}{\partial T} \right|$ is surface tension gradient.

2.2. Boundary conditions:

To complete the mathematical description of the problem, the boundary conditions are specified as follows:

Energy Equation:

Fig. 1 shows the calculation domain for energy equation

$$Q_{imp} = \frac{3 \cdot \eta \cdot T_e \cdot I}{\pi \cdot a} \cdot e^{-3\left(\frac{x}{a}\right)}$$

The Stream function equation:

Fig. 2 shows the calculation domain for equation of stream function

The vorticity equation:

Fig. 3 shows the calculation domain for vorticity equation

$$\omega = f(T, x) = -\frac{1}{\mu} \cdot \left(\frac{\partial \gamma}{\partial T}\right) \cdot \left(\frac{\partial T}{\partial x}\right)$$

Equation of potential:

Fig. 4 shows the calculation domain for potential equation

3. Solution Technique

During a welding operation, the area of the work piece exposed to the arc welding is heated until it reaches the melting temperature and the formation of the weld pool starts. To simulate the transition from a solid state to the liquid solid state, a prior calculation was done by pure conduction model, once we get enough points where melting temperature is overtaken; we pass to calculation by the convection model. During a period of time ΔT , we calculate the speed (U, V) and the thermal field (T), once convergence is satisfied on the current function and on the transfer equation of weld pool as well as on the temperature equation, we will get other points that will have reached the melting temperature which indicate the displacement of melting front. We increment the time until the fixed time which is 1 second is reached.

Fig.5 describes the overall solution algorithm of the equations of flow and energy. For the resolution of equations, the method of finite difference and the ADI (Alternative Direction Implicit) method which presents an unconditional stability have been chosen, therefore the convergence is ensured. The solution is satisfied when the absolute error on the temperature and the current function and the rotational is less than 1%. The half-width is equal to 10 mm and the thickness is 3 mm. The total number of mesh point in the part is $(20 \times 18 = 360 \text{ points})$. The parameters used in the simulation are shown in table 1.

4. Results and Discussion:

The effect of viscosity on the behavior of the liquid metal in the presence of positive thermal gradient with appositve surface tension= 10^{-5} N/m.k is illustrated inFig. 6 and fig. 7.

The results show that the flow velocity inthe weld pool decreases as the viscosity increases.Thus, when theviscosityis 2.10^{-3} kg/m.s the maximum velocity in the weld pool is 8.2cm/s.On the other hand, when the viscosity is raise to 9.10^{-3} kg/m.s, the flow velocity in the weld pool decreases to5.33cm/s. This result confirms thatthe increase in viscosity makes the flow slow and less energetic.

With regard to the evolution of geometrical characteristics of the weld beads, the half width remains constant. On the other hand, the depth of the weld bead increases; it passes from 1.25 mmforaviscosityof 2.10^{-3} kg/m.s to a depthof1.58mm for a viscosityof 9.10^{-3} kg/m.

The effect of viscosity on the behavior of the liquid metal in presence of a negative thermal gradient of surface tension- 10^{-5} N/m.kis illustrated in Fig. 8 and Fig. 9.

It can be seen that the increase in viscosity slows the flow velocity in the weld pool. It is also shown that the half-width of the weld bead decreases in favor of the weld bead depth which increases. Thus, the depth of the weld bead gradually changes from 0.35mm at a viscosity of 2.10^{-3} kg/m.s to 0.53mm for a viscosity of 9.10^{-3} kg/m.s. On the other hand the half width of the weld bead which was 6.84mm at a viscosity of 2.10^{-3} kg/m.s is reduced to 6,31mm for a viscosity of 9.10^{-3} kg/m.s.

The results show that as the viscosity increases, the depth of the weld bead increases to the detriment of the weld bead width in the case of negative surface tension of the thermal gradient. On the other hand, the weld bead width remains constant in the case of positive thermal gradient of surface tension. It indicates that the increase in viscosity could foster a centripetal flow. This result can be explained with the help of calculation of the Peclet and Reynolds numbers. The Peclet number represents the ratio of heat transfer by convection to conduction transfer.

$$P_e = \frac{U \cdot D}{\alpha}$$

$$R_e = \frac{U \cdot D}{\mu}$$

Where U is the characteristic speed, D is the characteristic distance, α is the thermal diffusivity, μ is the dynamic viscosity.

The evolutions of Reynolds and Peclet number as function of the viscosityin the caseof negative and positive temperature gradient of surface tension are shown in Fig. 10 and 11.

The results reveal in both cases that the Reynolds number decreases when the viscosity increases, what at tests that the flow of the metal liquid in the weld pool slows down by the viscosity, which is due to the forces of viscous friction.

Concerning the evolution of the Peclet number, it says that this number decreases when the viscosity increases, which means that the increase in viscosity causes a decrease in transfer by convection in favor of transfer by conduction. Knowing that the thermal variations caused by conduction transfer are less significant than those caused by convection transfer [11]; therefore, all the forces which are dependent to thermal gradients in the weld pool are dwindling. Thus, the role of Buoyancy force as well as the thermal gradient of surface tension will be altered and reduced. On the other hand, the centripetal effect of the electromagnetic force is not affected. This explains the increasing depth of the weld in both cases, when the viscosity increases.

5. Conclusion:

-In the case of positive thermal gradient of surface tension, the flow rate of liquid metal gradually decreases as the viscosity increases. For different values of viscosity simulated, the half width remains constant. On the other hand the depth of the weld bead increases.

-In the case of negative temperature gradient of surface tension, when the viscosity increases, the depth gradually decreases to the detriment of the width.

-The increase in viscosity reduces the effect of the Buoyancy force as well as the temperature gradient of surface tension. This is due to the effect of viscous forces that slow the rate of flow and temperature differentials, the source of Buoyancy and Marangoni convection, will be diminished by the transfer by thermal conduction. On the other hand, the effect of electromagnetic forces remains unaffected.

References

- [1] H.G. Fan, H.L. Tsai, S.J. Na: Heat transfer and fluid flow in a partially or fully penetrated weld pool in gas tungsten arc welding. *International Journal of Heat and Mass Transfer* 44, 417-428, 2001.
- [2] Yaghi, A. H. and Becker, A.A: State of the art review. *Weld simulation using finite element methods*, NAFEMS, Glasgow, 2005.
- [3] Wu, C.S , and Yan: Numerical simulation of transient development and diminution of weld pool in gas Tungsten arc welding. *Modeling and Simulation in materials science and engineering* 12, 13-20, 2004.
- [4] Fenggui Lu, Shun Yao, Songnian Lou, Yongbing Li: Modeling and finite element analysis on GTAW arc and weld pool. *Computational Materials Science* 29 (3), 371-378, 2004.
- [5] Fenggui Lu, Xinhua Tang, Hailiang Yu, Shun Yao: Numerical simulation on interaction between TIG welding arc and weld pool. *Computational Materials Science* 35 (4), 458-465, 2006.
- [6] D.R. Attey: A mathematical model for fluid flow in a weld pool at high currents, *Journal Fluid Mech.* 98 (4), 787-80, 1980.
- [7] G.M. Oreper, T.W. Eagar, J. Szekely: Convection in arc weld pools. *Welding research development supplement* 307, 1983.
- [8] A. Traidia, F. Roger, J. Schroeder, E. Guyot, T. Marlaud: On the effects of gravity and sulfur content on the weld shape in horizontal narrow gap GTAW of stainless steels. *Journal of Materials Processing Technology* 213 (7), 1128-1138, 2013.
- [9] I.S. Kim , J.S. Son , H.J. Kim , B.A. Chin: Development of a mathematical model to study on variation of shielding gas in GTA welding. *Journal of Achievements in Materials and Manufacturing Engineering* 19 (2), 73-80, 2006.
- [10] I.S. Kim, J.S. Son, H.J. Kim, B.A. Chin: A study on variation of shielding gas in GTA welding using finite element method. *Worldwide Journal of Achievements in Materials and Manufacturing* 17 (1-2); 249-252, 2006.
- [11] G.B. Deng, J. Piquet, P. Queutey , M. Visonneau: Navier-Stokes equations for incompressible flows: Finite-difference and finite-volume methods. *Hand book of computational Fluid Mechanics*, pp25-97. academic press, 1996.
- [12] Max D. Gunzburger: Navier-Stokes equations for incompressible flows: Finite-element methods, *Handbook of Computational Fluid Mechanics*, pp99-157. academic press, 1996.
- [13] N. Ozisik: Heat transfer, McGraw-Hill Book Company, 1998.

Tables

Table 1
Parameters used in the simulation

Symbol	Nomenclature	Value
η	The performance of the arc	0,8
λ	Thermal conductivity	20W/k.m
h	Theconvectiveheat transfer coefficient	0,4(w/k ⁻¹ .m ²)
μ	Dynamicviscosity	6.10 ⁻³ (kg/m.s)
g	Accelerationof gravity	9,8(m/s ⁻²)
T_f	Melting temperature	1800 k
T_e	Arc voltage	13,2 (volts).
C_p	Calorific capacity	753 (j/kg.k).
μ_0	Magnetic permeability	126 . 10 ⁻⁶ (H/m)
σ_e	Electrical conductivity	7,14 . 10 ⁻⁶ (Omh ⁻¹ . m ⁻¹)
β	Volume expansioncoefficient	7,14 . 10 ⁻⁶ (Omh ⁻¹ . m ⁻¹)
$\left \frac{\partial \gamma}{\partial T}\right $	Surface tension gradient	10 ⁻⁵ (N/m.k).
ρ	Density	7200(kg/m ³)

Figures

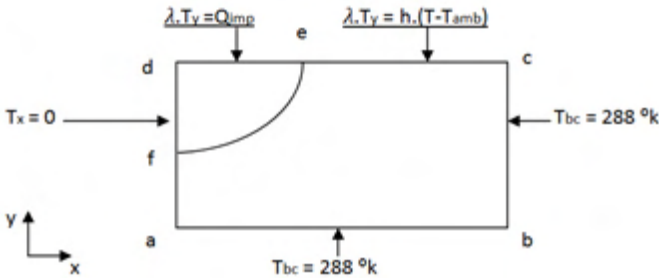


Figure 1: Calculation domain for energy equation

LOCUS STANDI AND ADMINISTRATIVE LAW IN NIGERIA: NEED FOR CLARITY OF APPROACH BY THE COURTS

Oyelowo Oyewo

Professor of Law

Department of Public Law

Faculty of Law

University of Lagos

Akoka, Lagos

Nigeria

E-mail: eyewo@unilag.edu.ng

oyewooyelowo@yahoo.com

Tel: +234-(0)802-311-6766

ABSTRACT

The article examines the concept of locus standi, its application in Nigeria, the nuances of the court's approach arising from the importation of justiciability, the application of the sufficient interest test, and the nature of locus standi that ought to apply in public interest litigation. The bearing of all these on jurisdiction is discussed before the conclusion and recommendation for clarity of approach by the Nigerian courts.

KEYWORD

Locus standi, justiciability, sufficient interest, public interest litigation, action popularis, jurisdiction

1.0. Introduction

Locus Standi is a threshold issue in litigations that affects access to justice, jurisdiction, judicial powers and remediation of civil wrongs in the field of constitutional and administrative law. The Supreme Court's decision in *Abraham Adesanya v President, Federal Republic of Nigeria*¹ stands as the watershed for the modern approach for the application of locus standi in Nigeria. Interestingly, the apex court's subsequent decision in *Gani Fawehinmi v Akilu*² that was supposed to have liberalized the restrictive approach of the court in the *Adesanya* case did not overrule it. Indeed, the approach of the apex court on the subject needs clarity as there are discordant notes in its decisions and that of the Court of Appeal on the subject. The importation of section 6(6)(b) of the 1979 and 1999 Constitution, and justiciability into the subject of locus standi, blur the 'sufficient interest' test now applicable to administrative law cases.

The article examines the concept of locus standi, its application in Nigeria, the nuances of the court's approach arising from the importation of justiciability, the application of the sufficient interest test, and the nature of locus standi that ought to apply in public interest litigation. The bearing of all these on jurisdiction is discussed before the conclusion and recommendation for clarity of approach by the Nigerian courts.

2.0. Concept

The term '*locus standi*' denotes the legal capacity to institute proceedings in a court of law and is used interchangeably with terms like 'standing' or 'title to sue'. It has been held in several cases to be the right or competence to initiate proceedings in a court of law for redress or assertion of a right enforceable at law.³

The concept of *locus standi*, or standing, is particularly relevant to administrative law, although it also has importance in relation to constitutional law, and human rights and civil liberties law. Standing has long been a feature of English law, for example it was the subject of the 1858 case of *Ware v Regent's Canal Co*,⁴ but it is

¹ (1981) 5 SC 112

² (1987) 1 NWLR (PART 67)@797 See *A-G Anambra v A-G Federation* [2007] 12 NWLR (Pt. 1047) 4 93-94; *Emezi v Osuagwu* [2005] 12 NWLR (Pt. 939) 340 347; *Sobiee Ojimba & 4 Others v Peter Ojimba & 4 Others* [1996] 4 NWLR (Pt. 440) 32 39; *Oredoyin v Arowolo* (1989) 4 NWLR (Pt. 114) 172; *Obaba v Military Government of Kwara State* (1994) 4 NWLR (Pt. 336) 26; *Bronik Motors Ltd v Wema Bank Ltd* (1983) 1 SCNLR 303; *Adefulu v Oyesile* [1989] 5 NWLR (Pt. 122) 377.

³ *Owodunni v Reg. Trustees of CCC* (2000) 2 WRN 29; *Ladejobi v Oguntayo* (2004) 7 SC (Pt. 10 159 at 170; *Sunday v INEC* [2008] 33 WRN 141 at 164

⁴ (1858) 3 De G & J 212

equally present in many other commonwealth jurisdictions, including Nigeria.⁵ *Locus standi* focuses on the question whether an applicant/claimant/plaintiff/petitioner or party instituting or originating an action for remedies or judicial review is entitled to invoke the jurisdiction of the court.

It is generally treated as a threshold issue that must be resolved in favour of the applicant/claimant/plaintiff/petitioner or party before the jurisdiction of the court can be invoked. The approach of the courts in resolving the question of *locus standi* varies from country to country and case to case. Essentially, *locus standi* is the way in which the courts determine who may be an applicant for judicial review or remedies. If a particular applicant is found to have standing then they will be permitted to have their request heard (though determining that an applicant has *locus standi* will not necessarily mean that they will be successful in their final application). On the other hand, if the applicant is not found to have standing to bring the action, the court will not hear their complaint.⁶

Locus standi as applied in Nigeria has its root in common law as developed in England. The doctrine has been argued to have developed in the first place, under both English and Roman-Dutch law, to ensure that courts play their proper function of protecting the rule of law among others. Traditionally, under common-law, the *locus standi* requirements for judicial review differed according to the remedy sought. At common law, a person who approaches a court for relief is required to have an interest in the subject matter of the litigation in the sense of being personally adversely affected by the alleged wrong. The applicant/plaintiff must allege that his or her rights have been infringed. It is not enough for the applicant/plaintiff to allege that the defendant has infringed the rights of someone else, or that the defendant is acting contrary to the law and that it is in the public interest that the court grants relief.⁷ Thus, under the common law, a person could only approach a court of law if he or she has sufficient, direct and personal interest in the matter. A plaintiff must in general show that he or she has some special interest or has sustained some special damage greater than that sustained by an ordinary member of the public.

The rule relating to *locus standi* developed primarily to protect the courts from being used as a playground by professional litigants, meddlesome interlopers and busy bodies who really have no real stake or interest in the subject matter of the suit.⁸ The common law position on *locus standi* has, however, been criticized as rather restrictive.⁹

Moreover, the *locus standi* threshold for the various administrative law remedies via the judicial review procedures varied from remedy to remedy. The threshold was low for a prohibiting order: an applicant had to show only that he was “adversely affected”. The threshold was also low for a quashing order - it was sufficient that there had been an abuse of power that inconvenienced someone. It was harder to show standing for a

⁵See Akintunde Emiola, *Remedies in Administrative Law* (2000) pp. 161-164;

<http://www.lawteacher.net/free-law-essays/administrative-law/basic-idea-of-locus-standi.php#ixzz3u3XdyomB>

⁶*ibid.* See also Justice C. K. Thakker (Takwani), *Lectures on Administrative Law*, 3rd edition (Eastern Book Company, Reprinted 2001) p. 294

⁷Elijah Adewale Taiwo, “Enforcement of fundamental rights and the standing rules under the Nigerian Constitution: A need for a more liberal provision”, AHRLJ Vo.9 No. 2 (2009) 546-575. See also P Vrancken & M Killander ‘Human rights litigation’ in A Govindjee & P Vrancken (eds) *Introduction to human rights law* (2009) 251 257; I Currie & J de Waal *The Bill of Rights handbook* (2005) 80; *Massachusetts v Mellon* (1923) 262 US 447 448; Currie & De Waal (n 20 above) 81.

⁸*Taiwo v Adegboro* [2011] 11 NWLR (Pt. 1259) 562 at 579 per Rhodes-Vivour JSC (SC)

⁹ *supra*. See also *Ajao v Sonola* (1973) 5 SC 119; *Okoye v Lagos State Government* [1990] 3 NWLR (Pt. 136) 125; *Sken Consult (Nig) Ltd v Ukey* (1981) 1 SC 6; *Gambioba v Insesi* (1961) All NLR 584.

mandatory order, as the applicant had to have a “specific legal right”, have a “direct and substantial interest at stake”, or at the very least be “adversely affected”. Prohibiting, quashing, and mandatory orders are prerogative remedies. In contrast, a declaration is a non-prerogative remedy. The standing requirements for a declaration were stricter than those for the prerogative remedies. The applicant had to show that the declaration he sought related to a right that was personally vested in him and that he had a “real interest” at stake,¹⁰ and that test was affirmed by the House of Lords in *Gouret v Union of Post Office Workers*.¹¹

Apart from the restrictive approach of the common law courts to *locus standi*, it was confusing for each remedy to prescribe its own standing requirements. Hence in 1978, England reformed its procedural rules. The prerogative remedies and declaration could be obtained under a single procedure with a unified standing requirement: the applicant had to show a “sufficient interest”. Accordingly, in the subsequent case of *R v I.R.C. ex parte National Federation of Self-Employed and Small Businesses*¹², the House of Lords broadly favoured a unified test for standing. The *IRC* case was the first important decision after the adoption of the sufficiency of interest test in Ord. 53 r.3(7) that was incorporated in what was previously the Supreme Court Act 1981, but renamed the Senior Courts Act 1981, s.31(3) of which states that:

No application for judicial review shall be made unless the leave of the High Court has been obtained in accordance with the rules of court, and the court shall not grant leave to make such an application unless it considers that the applicant has **sufficient interest** in the matter to which the application relates.¹³

The English reform on *locus standi* was not immediately followed in Nigeria, however, the courts in Nigeria have substantially moved away from the strict legal injury or legal interest tests towards a more liberal test of sufficient interest in the subject matter, especially in cases for judicial review, as was articulated by the Supreme Court in *Gani Fawehinmi v Akilu*.¹⁴ The general approach is that the applicant/claimant must have something to show, *prima facie*, that the action of the defendant has adversely affected his own right or interest, in the subject matter of the claim.¹⁵ Thus like the English courts, Nigerian courts apply a test akin to the sufficient interest rule. However, since Nigeria has a written constitution, the application of the

¹⁰ Paul Craig, *Administrative Law*, 7th edition, (2012, Sweet & Maxwell Thomson Reuters) 770 – 773, for further discussion on *locus standi* before the 1978 reform in England. See also S.M. Thio, *Locus Standi and Judicial Review* (1971) pp. 84-86. Tham Lijing, “Locus Standi in Judicial Review: Two Roads Diverge in a Singapore Wood”, at: <http://www.lawgazette.com.sg/2013-02/674.htm>.

¹¹ [1978] AC 435 Later followed by the Singapore Court of Appeal in *Karaha Bodas Co LLC v Pertamina Energy Trading Ltd* [2006] 1 SLR(R) 112

¹² [1982] AC 617

¹³ (Emphasis mine) According to Paul Craig, the “general thrust of the House of Lords interpretation of these provisions in the *IRC* Case (*supra*) was that standing should be developed to meet new problems, and that there should not be an endless discussion of previous authorities. This furthered the tendency towards a unified conception of standing based upon sufficiency of interest, notwithstanding the ambiguity in the judgment.” – *Administrative Law*, 7th edition (Sweet & Maxwell Thomson Reuters, 2012) 777-786, at 779

¹⁴ (1987) 1 NWLR (PART 67)@797 See *A-G Anambra v A-G Federation* [2007] 12 NWLR (Pt. 1047) 4 93-94; *Emezi v Osuagwu* [2005] 12 NWLR (Pt. 939) 340 347; *Sobiee Ojimba & 4 Others v Peter Ojimba & 4 Others* [1996] 4 NWLR (Pt. 440) 32 39; *Oredoyin v Arowolo* (1989) 4 NWLR (Pt. 114) 172; *Obaba v Military Government of Kwara State* (1994) 4 NWLR (Pt. 336) 26; *Bronik Motors Ltd v Wema Bank Ltd* (1983) 1 SCNLR 303; *Adefulu v Oyesile* [1989] 5 NWLR (Pt. 122) 377.

¹⁵ *Adesanya v The President* (1981) 2 NCLR 338 14 385; (1981) 12 NSCC 146 at 160; (2002) 44 WRN 80; *Oloriode v Oyebe* (1984) 5 S.C 1 at 16; *Attorney-General, Kaduna State v Hassan* (1985) 2 NWLR (Pt. 8) 483; *Thomas v Olufisoye* (1986) 1 NWLR (Pt. 18) 669; *Emezi v Osuagwu* (2005) 12 NWLR (Pt.939) 340 at 361; *Ajayi v Adebisi* (2012) 11 NWLR (Pt. 1310) 137 at 176; *Ofole v Obiorah* [2015] 18 WRN 138.

constitutional provision, especially section 6(6)(b), pertaining to jurisdiction and justiciability has meant that certain interpretative peculiarities were initially imported into the *locus standi* test in Nigeria.¹⁶ Be that as it may, the sufficient interest test of the English Senior Courts Act 1981 s. 31(3), has been adapted by way of reform in the various High Court (Civil Procedure) Rules of the States of the Federation,¹⁷ as exemplified by Order 40 r. 3(4) of the High Court of Lagos State (Civil Procedure) Rules 2012, that provides that the “Judge shall not grant leave unless he considers that the Applicant has a sufficient interest in the matter to which the application relates” in an application for judicial review.

3.0. *Locus Standi* in Nigeria

A lot of scholarly writings and expositions have been done on the subject of *locus standi* in Nigeria,¹⁸ that have chronicled the development of the different approaches employed by the courts in the determination of the *locus standi* of applicants/plaintiffs in cases before them. Essentially the courts’ approach followed the common law until the coming into force of the 1979 Constitution and its provisions, especially sections 6(6), 33 and 42(1) (now sections 6(6) 36 and 46(1) of the 1999 Constitution). According to the decisions of the Nigerian courts *locus standi* is predicated on the assumption that no court is obliged to provide a remedy for a claim in which the applicant has a remote, hypothetical or no interest.

Locus standi has been held to be the legal right of a party to an action to be heard in litigation before a court of law, thus the term as earlier observed entails the legal capacity of instituting, initiating or commencing an action in a competent court of law.¹⁹ For a person to have *locus standi*, he must have sufficient interest and be able to show that his civil rights and obligations have been or are in danger of being infringed. In effect, the person instituting an action before the court must have legal capacity otherwise the court is robbed of the necessary jurisdiction to entertain the matter.²⁰

In *Thomas v. Olufosoye*²¹ the Supreme Court discussed whether or not the requirement of *locus standi* is a product of judicial expedience and public policy, and referred to its earlier decision in *Adesanya's case*, where Fatayi-Williams, CJN, quoting from Thio, at page 1 of her book titled “*Locus Standi And Judicial Review*”, observed pertinently that:

¹⁶ *Senator Adesanya v President of the Federal Republic of Nigeria* (1981) 2 NCLR 358

¹⁷ Fidelis Nwadialo, *Civil Procedure in Nigeria*, 2nd edition (University of Lagos Press, 2000) pp. 31-44, 1057

¹⁸ Akogun Fatai Oluwatayo, *Doctrine of Locus Standi and Access to Justice in Nigerian Court*, Journal Of Law And Global Policy Vol. 1 No.5 2015; Godwin N. Okeke, *Re-Examining the Role of Locus Standi in the Nigerian Legal Jurisprudence*, Journal of Politics and Law; Vol. 6, No. 3; 2013; Elijah Adewale Taiwo, “Enforcement of fundamental rights and the standing rules under the Nigerian Constitution: A need for a more liberal provision”, AHRLJ Vo.9 No. 2 (2009) 546-575; Ese Malemi, *Administrative Law*, 3rd edition (Princeton Publishing Co., 2008) pp. 358-373; Fidelis Nwadialo, *Civil Procedure in Nigeria*, 2nd edition (University of Lagos Press, 2000) pp. 31-44, 1057

¹⁹ *ASUU v BPE* [2013] 14 NWLR (Pt. 1374) 398 T 423

²⁰ *Ofole v Obiorah* [2015] 18 WRN 138 at 154-155; *Centre for Oil Pollution Watch v NNPC* [2013] 15 NWLR (1378) 556 at 574; *Ogundipe v Oduwaiye* [2013] 15 WRN 130 at 146-147; *Nwokocha v Azubuike* [2013] 4 NWLR (Pt. 1343) 197 at 210-211; *F.U.T., Yola v A.S.U.U.* [2013] 1 NWLR (Pt.1335) 249 at 274-277; *Adetona v Zenith Int’l Bank Plc.* (2011) 18 NWLR (1279) 627; *Chijuka v Maduwesi* [2011] 16 NWLR (Pt. 1272) 181 at 204-205; *K.T. & Ind. Plc. V Tug Boat “M/V Japaul B”* [2011] 9 NWLR (Pt. 1251) 133 at 155; *Basinco Motors Ltd. v Woermann-Line* (2009) 13 NWLR (Pt. 1157) 149; *Sunday v I.N.E.C* [2008] 33 WRN 141 at 146; *A-G., Anambra State v A-G., Federation* (2005) 9 NWLR (Pt. 931) 572; *UBA Plc. V BTL Industries Ltd* (2004) 18 NWLR (Pt. 904) 180; *A-G., Kaduna v Hassan* (1985) 2 NWLR (Pt. 8) 483; *Adesanya v President, F.R.N.* (1981) 2 NCLR 358

²¹ (1986) LPELR-3237(SC) Per Obaseki, J.S.C at pp. 28-29; *Adesanya v The President* (1981) 2 NCLR 338 14 385; (1981) 12 NSCC 146 at 160; (2002) 44 WRN 80 at p128-129

There quirement of locus standi is mandatory in some jurisdictions where the judicial power is constitutionally limited to the determination of a "case" or controversy or a "matter" which is defined by reference to criteria which include the legal capacity of the parties to the litigation." I pause to observe that this is the position under our law. Continuing, the learned author said: "In other jurisdictions, the requirement is a product of judicial expedience and public polity." I find nothing under our law to indicate that there quirement of locus standi is a product of judicial expedience and public policy. I think I have cause to repeat here what I said in *Adesanya's* case. It is at page 174 of there port. It reads: "Locus standi or standing to sue is an aspect of justice ability and as such the problem of locus standi is surrounded by the same complexities and vagaries inherent in justice ability. The fund a mental aspect of locus standi is that it focuses on the party seeking to get his complaint before the court flat on the issues he wishes to have adjudicated.

It must be noted that the Supreme Court's earliest post-independence approach on *locus standi* was no more than an adaptation of the common law restrictive approach especially on applications or claims for declaratory relief. Thus in *Olawoyin v A-G., Northern Region of Nigeria*²² where the Plaintiff was asking for a declaration that Part VIII of the Children and Young persons Law, 1958, had been rendered void and unenforceable by the provisions of sections 7, 8, and 9 of the Sixth Schedule of the 1960 Constitution; and he asked that direction be given under section 245(1) of the 1960 Constitution that Part VIII of the Law should no longer be enforced. Brown C.J. on the material point of the *locus standi* of the plaintiff raised a question, 'Can proceedings of this nature be brought *in vacuo* when nobody's right has been alleged to have been infringed?' Then assuming the plaintiff's counsel's assertion of evidence that the plaintiff has children whom he wishes to educate politically was unchallenged was there a danger of plaintiff's rights being infringed. After noting that for the first time the courts in Nigeria were being called upon to determine question of policy, his Lordship examined the practice in India and USA where it is only a person whose rights has been affected by legislation can challenge its constitutional validity.

His Lordship then held that courts of law exist to determine, and where necessary to protect, the rights of persons, and it will be contrary to principle to make the declaration asked for *in vacuo* in the case. The plaintiff appealed to the Supreme Court that also refused to grant the declaration and dismissed the action, for reasons eloquently espoused by Unsworth F.J. thus:

The appellant did not in his claim allege any interest, but his counsel said evidence would be that the appellant had children whom he wishes to educate politically. There was no suggestion that the appellant was in imminent danger of coming into conflict with the Law or that there has been any real or direct interference with his normal business or other activities.... The appellant failed to show that he has a sufficient interest to sustain a claim. It seems to me that to hold that there was an interest here would amount to saying that a private individual obtains an interest by mere enactment of a law with which he may in the future come in conflict.²³

Also in *Onyia v Governor in Council*²⁴ the plaintiff instituted a declaratory action to declare that the Governor acted contrary to law in amending the instrument establishing Asaba Urban District Council. The defendant's preliminary objection on point of law that the plaintiff had no particular or special interest in the matter or that

²² (1961) 2 SCNLR 5 at 10

²³ *ibid.*

²⁴ (1961) 2 All NLR 174; (1962) WNLR 86

the act of defendant complained of is one that entitled him to sue... in a private capacity, to enforce a public right, were accepted by the court, and consequently, the action was dismissed.

The Supreme Court's approach during this era was that the plaintiff's legal right or interest must be shown to be in danger of being infringed. This approach was reiterated in *Gamioba v Ezezi*²⁵ where the Supreme Court referred with approval to its earlier decision in *Olawoyin v A-G., Northern Region*.²⁶ In this case the plaintiffs brought an action against the defendants in the High Court of the Western Region, claiming a declaration that a certain Trust Instrument was either invalid or void and an injunction restraining the defendants from implementing the Instrument. The writ of summons submitted four grounds for holding the Instrument invalid or void, stating them in the alternative. Two of the four alleged that the Instrument were made in the exercise or purported exercise of powers ultra vires the Nigeria (Constitution) Order in Council or inconsistent with it; the other two were that the Instrument was invalid as an improperly constituted trust or was void for uncertainty. Brett F.J. delivering the judgment held that the plaintiff's locus standi in the present case has not yet been disclosed, and if he has none, his claim must be dismissed on that ground, and it will be unnecessary to decide the question involved in the declaration he claims. For this reason also it is not yet clear that the question set out in counsel's application arises.²⁷

Clearly, the courts' approach on locus standi focused on the plaintiff's legal rights or interest that are in imminent danger of being infringed. The coming into force of the 1979 Constitution, and subsequently the 1999 Constitution, impacted the courts' approach, which will now be examined and clarified under the following sub-headings.

4.0. Locus Standi and Justiciability

The *Abraham Adesanya v President, Federal Republic of Nigeria*²⁸ decision of the Supreme Court is the locus classicus on the modern approach of the courts on *locus standi*. In that case, Abraham Adesanya, then a serving Senator in the National Assembly, instituted an action against the President of the Federal Republic of Nigeria challenging the appointment of Justice Ovie-Whiskey as the Chairperson of the Federal Electoral Commission (FEDECO). The appointment had passed through the process of confirmation by the National Assembly. In the confirmation process, Senator Adesanya objected to the appointment, claiming that it violated certain provisions of the 1979 Constitution, but he was not successful as the Senate confirmed the appointment. He thereafter approached a Lagos High Court seeking a declaration and injunction. In its judgment, the court declared the appointment unconstitutional and held that Justice Ovie-Whiskey was not competent under the Constitution to be appointed a member and Chairperson of FEDECO at the time the appointment was made.

There was an appeal against this decision to the Court of Appeal. At the hearing of the appeal, the President of the Court of Appeal raised the question of whether or not Senator Adesanya had standing to have instituted the action, and therefore invited counsels to address the Court on the issue. In its ruling, the Court of Appeal held that Senator Adesanya had no *locus standi* to have challenged the appointment. Aggrieved by this decision, he appealed to the Supreme Court. The apex court dismissed the appeal and affirmed the judgment of the Court

²⁵ (1961) All NLR 584 per Brett F.J

²⁶ (1961) All NLR 269

²⁷ supra

²⁸ (1981) 5 SC 112

of Appeal on *locus standi*. The Court held further that Senator Adesanya, having participated in the deliberations of the Senate in connection with the subject matter over which his views in Senate were not accepted by majority of his fellow Senators before instituting the suit, had no *locus standi* to challenge the constitutionality of the appointment in the court.

Fatayi-Williams CJN read the leading judgment that explained the approach applicable in determining locus standi in Nigeria thus:

Admittedly, in cases where a plaintiff seeks to establish a "private right" or "special damage", either under the common law or administrative law, in non-constitutional litigation, by way of an application for certiorari, prohibition, or mandamus or for a declaratory and injunctive relief, the law is now well settled that the plaintiff will have locus standi in the matter only if he has a special legal right or alternatively, if he has **sufficient or special interest** in the performance of the duty sought to be enforced, or where his interest is adversely affected. **What constitutes a legal right, sufficient or special interest, or interest adversely affected, will, of course, depend on the facts of each case.** Whether an interest is worthy of protection is a matter of judicial discretion which may vary according to the remedy asked for.²⁹

His Lordship made a distinction between administrative law or non-constitutional litigation locus standi test, that requires the plaintiff to establish 'sufficient or special interest, which in his opinion is the same as that under common law. The locus standi test for constitutional litigation was then stated in liberal terms thus:

Finally, in the Nigerian context and having regard to the detailed provisions of our 1979 Constitution, the point which, I think, needs to be stressed is that there are explicit provisions therein which dealt with the locus standi which is required in order to sustain a claim that there has been an infringement of particular provisions of the Constitution. Consequently, other infractions of the provisions of the said Constitution, to which no restrictions are attached, should not be fettered by the common law or the administrative law concepts of locus standi. ...

As a person, the plaintiff/appellant is, in my view, one of those persons who not only have the right but are also under an obligation, under section 6 (6) (b) of the Constitution to go to court to complain about any infraction of the Constitution. But he is also more than that. He is a special person. He is a Senator, a member of that august body known as the Senate established under section 43 of the 1979 Constitution.³⁰

However, it was Bello JSC whose judgment injected a liberal dose of justiciability requirement of section 6(6)(b) of the Constitution into *locus standi* when he stated as follows, (quoting him extensively):

It is a common ground in all the jurisdictions of the common law countries that the claimant must have some justifiable interest which may be affected by the action or that he will suffer injury or damage as a result of the action. In most cases the area of dispute, and some time, of conflicting decisions has been whether or not on particular facts and situation the claimant has sufficient interest or injury to accord him a hearing. In the final analysis, whether a claimant has **sufficient justiciable interest or sufferance of injury or damage** depends on the facts and circumstances of each case:

²⁹ ibid at 128-129 (emphasis mine)

³⁰ ibid

The section material to the issue is section 6 (6) (b), which reads:

"6 (6) The judicial powers vested in accordance with the foregoing provisions of this section (b) shall extend to all matters between person, or between government or authority and any person in Nigeria, and to all actions and proceedings relating thereto, for the determination of any question as to the civil rights and obligations of that person;"

It may be observed that this sub-section expresses the scope and content of the judicial powers vested by the Constitution in the Courts within the purview of the sub-section. Although the powers appear to be wide, they are limited in scope and content to only matters, actions and proceedings "for the determination of any question as to the civil rights and obligations of that person". It seems to me that upon the construction of the sub-section, it is only when the civil rights and obligations of the person, who invokes the jurisdiction of the court, are in issue for determination that the judicial powers of the courts may be invoked. In other words, standing will only be accorded to a plaintiff who shows that his civil rights and obligations have been or are in danger of being violated or adversely affected by the act complained of. The Appellant has not alleged that the appointment of the 2nd Respondent has in any way affected or is likely to affect his civil rights and obligations.³¹

The importation of the requirement of justiciability via section 6(6)(b) of the Constitution, has been adopted as the law in several cases, although, this approach has been criticized. Tunde Ogowewo³² argued that:

“A close study of the case will reveal that the Adesanya court was in fact divided on this issue with no discernable majority. It will be apparent by now that there were two aspects to the (Fatayi-Williams) C.J.N’s construction of section 6(6)(b): first he saw the provision as creating an *actio popularis* in non-Chapter IV constitutional litigation; secondly, he did not see the provision as laying down a standing requirement.”

It has also been pointed out that close reading of Adesanya’s case will reveal that the court was not unanimous in holding that section 6(6)(b) of the Constitution of Nigeria laid a test for *locus standi* in Nigeria. The reasoning of Fatayi Williams CJN (as he then was) and Justice Bello each commanded equal support on this point. While Justices Nnamani and Idigbe agreed with Justice Bello that section 6(6)(b) of the Constitution laid a test for *locus standi*, Justices Sowemimo and Obaseki were on the side of Fatayi Williams CJN. Justice Uwais who could have resolved this deadlock took the view that the interpretation to be given to section 6(6)(b) will depend on the facts and circumstances of each case and that no hard and fast rule should be set-up.

It is submitted with respect that subsequent decisions of the court including those of the Supreme Court which treated Adesanya’s case as deciding that section 6(6)(b) of the Constitution laid down the test for *locus standi* in Nigeria exhibit a misunderstanding of that decision.³³

³¹ *ibid* at 161-162 (emphasis mine)

³² The problem with Standing to Sue in Nigeria” (1995) *Journal of African Law* Vol. 39 No. 1 at p 9

³³ Okey Ilofulunwa, “Locus Standi in Nigeria: An Impediment to Justice”, *Lex Primus*, @ www.lexprimus.com visited on

Moreover, Oputa JSC (as he then was) in *A-G., Kaduna State v. Hassan* admitted this lack of consensus in Adesanya's case when he said that:

"It is on the issue of locus standing that I cannot pretend that I have not had some serious headache and considerable hesitation in views on locus standi between the majority and minority judgments – between Justice of equal authority who were almost equally divided."³⁴

Interestingly, most of the later decisions of the courts did not put this assertion into considerations. In most of the cases, the courts proceeded from the premise that for a plaintiff to have locus, he must show that his civil rights and obligations have been or are likely to be affected by the action as held in the Adesanya's case.

A clear perception and understanding in the blurred confusion on locus standi is the dissenting decision of Ayoola JCA (as he then was) in *F.A.T.B.v. Ezegebu* when he posited thus:

"I do not think section 6(6)(b) of the Constitution is relevant to the question of locus standi. If it is, we could as well remove any mention of locus standi from our law book. Section 6(6)((b) deals with judicial powers and not with individual rights. Locus standi deals with the rights of a party to sue. It must be noted that standing to sue is relative to a cause of action."³⁵

However, Ayoola JCA (as he then was) seemed to be on his own with his position as most other cases that came after that did not give this line of thought a consideration.³⁶

Interestingly, four years after, in a judgment that attracted the concurring opinion of the other Justices that heard the case, Ayoola further pursued his perspective on section 6(6)((b) of the Constitution of Nigeria when he held in *NNPC v. Fawehinmi*³⁷ that:

In most written Constitutions, there is a delimitation of the power of the three independent organs of government namely: the Executive, the Legislature, and the Judiciary. Section 6 of the Constitution which vests judicial powers of the Federation and the States in the courts and defines the nature and extent of such judicial powers does not directly deal with the right of access of the individual to the court. The main objective of section 6 is to leave no doubt as to the definition and delimitation of the boundaries of the separation of powers between the judiciary on the one hand and the other organs of government on the other, in order to obviate any claim of the other organs of government, or even attempt by them, to share judicial powers with the courts. Section 6(6)(b) of the Constitution is primarily and basically designed to describe the nature and extent of judicial powers vested in the courts. It is not intended to be a-catch-all, all-purpose provision to be pressed into service for determination of questions ranging from locus standi to the most uncontroversial questions of jurisdiction.

20th November, 2015

³⁴(1985) 2 NWLR (Pt. 8) 483 at 521

³⁵(1994) 9 NWLR 149, 236

³⁶ Compare Oputa JSC in *Thomas v Olufisoye* (1986) 1 NWLR (Pt. 18) 669 at 693

³⁷(1998) 7 NWLR (pt. 559) 598 at 612

This dictum has been submitted to properly capture the province and effect of section 6(6)(b) of the Constitution and nothing more. Section 6(6)(b) is not intended to be a yardstick for determining *locus standi*.³⁸

Coincidentally, it will appear that the Supreme Court in the case of *Owodunni v. Registered Trustees of Celestial Church*³⁹ accepted this position of Ayoola JCA on the exact effect of section 6(6)(b) of the Constitution. The Supreme Court in the *Owodunni case* held that the Supreme Court in Adesanya's case did not after all by a majority decision subscribe to Bello's view on section 6(b)((b) laying down a requirement of standing. Ogundare JSC who delivered the lead judgment with no dissenting judgment, after reviewing Adesanya's case, stated thus:

A word or two on Adesanya v President of the Federal Republic of Nigeria (supra) It appears that the general belief is that this court laid down in that case that the law on locus standi is now derived from Section 6(6)(b) of the Constitution of the Federal Republic of Nigeria, 1979 (re-enacted in section 6(6)(b) of the 1999 Constitution).....I am not sure that this general belief represents the correct position of the seven Justices that sat on that case only 2 (Bello and Nnamani JJ.SC) expressed view to that effect.From the extracts of their Lordship's judgments I have quoted above one can clearly see that there was not majority of the court in favour of Bello JSC's interpretation of Section 6 subsection (6)(b) of the Constitution. In my respectful view, I think Ayoola JCA (as he then was) correctly set out the scope of section 6, subsection (6)(b) of the Constitution ...in NNPC V. Fawehinmi & Ors⁴⁰

Indeed, there are cases where the reasoning followed the path of Ayoola and Ogundare JJSC, such as *Fawehinmi v I.GP* per Ogundare JSC⁴¹ and, in *Dodo v E.F.C.C.*⁴² where Nwodo JCA stated point blank that:

S. 6(6)(b) of the 1999 Constitution which vest judicial powers in the court and provide forum litigation, does not confer *locus standi* on the plaintiff. It merely allows the court to determine any question as to his civil right and obligation if he shows that right in his pleadings.

Unfortunately, the Supreme Court has not since adopted the Ayoola and Ogundare JJSC position on section 6(6)(b) articulated in the preceding paragraphs, neither has the apex court reversed itself or overruled its approach in the *Adesanya case* in subsequent cases. Even in its celebrated decision in *Fawehinmi v Akilu*⁴³ where it criticized the narrow approach of the *Adesanya case* and adopted a liberalized approach to *locus standi*, it failed to overrule and reverse the ratio on *locus standi* in the *Adesanya case*.

In the *Fawehinmi v Akilu case* the complaint arose as a result of the refusal of the Director of Public Prosecution to endorse the certificate on the information as required by section 342(a) of the Criminal

³⁸Okey Ilofulunwa, "Locus Standi in Nigeria: An Impediment to Justice", *Lex Primus*, @ www.lexprimus.com visited on 20th November, 2015

³⁹(2000) 10 NWLR (Pt. 675) 315

⁴⁰ ibid at p. 341. See Okey Ilofulunwa, "Locus Standi in Nigeria: An Impediment to Justice", *Lex Primus*, @ www.lexprimus.com visited on 20th November, 2015

⁴¹ (2002) 7 NWLR (Pt. 767) 606 at 692-694 per Ogundare JSC (as he then was)

⁴² [2013] 1 NWLR (Pt. 1336) 468 at 520 per Nwodo JCA (of blessed memory)

⁴³ (1987) NSCC 1266 at 1267; (1987) 4 NWLR (Pt. 67) 797

Procedure Law, and upon appeal to the Supreme Court held that, the narrow confines which section 6(6)(b) of the Constitution restricts the class of person entitled to *locus standi* in civil matters have been broadened by the Criminal Code and Criminal Procedure Law and the Constitution. Obaseki JSC who delivered the leading judgment clearly affirmed the court's decision in the Adesanya case as the applicable legal approach on *locus standi*.⁴⁴

His Lordship then criticized the narrow approach of the Adesanya case expressed a more liberalized approach to locus standi vis-à-vis section 6(6)(b).⁴⁵ Eso JSC in concurring with Obaseki JSC characteristically eloquently delivered *obiter dicta*, on the liberalization of *locus standi* under the Constitution thus:

My Lords, the issue of *locus standi* has always been held as one of the utmost importance, by the court for in effect, it is one that delimits the jurisdiction of the court, for in the interpretation of the Constitution, it is to be hoped that the courts would not possess acquisitive instinct and gather more jurisdiction than has been ascribed to it by the organic law of the land. It is this I think that has inhibited your lordships, and rightly too, in being careful, as your lordships should be, in threading carefully on the soil of *locus standi* ... In this instant appeal before this court, I think, with respect, that the lead judgment of my learned brother Obaseki JSC is an advancement on the position hitherto held in this court on 'locus standi'. I think, again with respect, that it is a departure from the former narrow attitude of this court in the Abraham Adesanya case and subsequent decisions. My humbler view, and this court should accept it as such, is that the present decision of my learned brother, Obaseki JSC, in this appeal has gone beyond the *Abraham Adesanya* case. I am in complete agreement with the new trend, and with respect my agreement with the judgment is my belief that it has gone beyond the *Abraham Adesanya* case.

As I have said, I accept our present decision as a happy development and advancement on what, with utmost respect to your Lordships, I have always considered a narrow path being trodden hitherto by this court on *locus standi*.⁴⁶

The Supreme Court's approach in liberalizing locus standi in constitutional law cases for the enforcement of public rights, including institution of criminal proceeding under the Criminal Code and Criminal Procedure Law has been lauded.⁴⁷ Albeit, this liberalized approach failed to displace the Supreme Court's earlier approach in the Adesanya case, and has been deconstructed in subsequent cases like *Fawehinmi v IGP*.⁴⁸ The approach and test of the *Adesanya* case has not only won out but has become the mantra for the determination of locus standi of applicant/plaintiff in a legion of cases decided by the Supreme Court, followed by the Court of Appeal and the lower courts, especially in matters on administrative law. In the recent case of *Taiwo v Adegboro*⁴⁹ the test for determining whether a person has *locus standi* was reduced to a formula:

(a) the action must be justiciable; and

⁴⁴(1987) LPELR-1257(SC); See Senator Adesanya v. President of Nigeria (1981) 2 NCLR.358 at 393 Irene Thomas v. Olufosoye (supra) Amusa Momoh & Anor. v. Jimoh Olotu (1970) 1 All NLR 117; . See Oloriode & Ors. v. Oyebi & Ors. (1984) 5 SC. 1 at 28

⁴⁵ ibid

⁴⁶ ibid

⁴⁷See L Atsegbua *Administrative law: An introductory text* (1997) 123.

⁴⁸ supra

⁴⁹ [2011] 11 NWLR (Pt. 1259) 562 at 579-580 per Rhodes-Vivour JSC. (SC). See Nwokocha v Azubike [2011] 4 NWLR (Pt. 1343) 197 at 211

(b) there must be a dispute between the parties.

The court then held that, in the instant case, the sale of property in dispute in the action raised a justiciable issue, and also a dispute between the appellant and the 1st respondent. Of course reliance was placed on the *locus classicus*, *Adesany case, inter alia*.

The approach of the courts in incorporating justiciability from section 6(6)(b) of the Constitution into locus standi has no doubt been accepted as being part of the ratio in the *Adesanya case*. Thus in *Sehindemi V. Governor of Lagos State*⁵⁰ it was observed that:

justiciability is not a legal concept with a fixed content or susceptible of scientific verification. See *Poe v. Ullman* (1961) 367 US 497, 506 and *Flast v. Cohen* (1942) 392 US 83, 95 where Chief Justice of United States Warren said- "Justiciability is itself a concept of uncertain meaning and scope. Its reach is illustrated by the various grounds upon which questions sought to be adjudicated in Federal Courts have been held not to be justiciable. Thus, no justiciable controversy is presented when the parties seek adjudication of only a political question, when the parties are asking for an advisory opinion when the question sought to be adjudicated had been mooted by subsequent development and when there is no standing to maintain the action." (Italics mine)

However, in *K.T. & Ind. Plc v The Tug Boat "M/V Japaul B"*⁵¹ "justiciable interest was held to mean" a cause of complaint; the civil right or obligation fit for determination by a court of law, and a dispute in respect of which a court of law is entitled to invoke its judicial powers to determine under section 6(6)(b) of the 1999 Constitution. Thus in the instant case, the respondent had locus standi to apply for unconditional release of the 1st respondent's vessel from arrest pursuant to order of court. Locus standi and justiciability of an application both on competency of a claim or application, and they do not fall within the discretionary power of court.⁵²

The above stated test for determining locus standing will definitely apply in all constitutional litigation in Nigeria, but is the justiciability test applied in constitutional cases different from the sufficiency of interest test applied under common law and the Civil Procedure Rules of our High Courts, in administrative law litigation?

5.0. Sufficient interest Test

The test for resolving the issue of *locus standi* in non-constitutional law public law litigation, especially in the area of administrative law, has been held in a lot of cases to depend on whether the plaintiff has sufficient legal interest to file the action, and not whether the action was bound to fail in any event.⁵³ In *Chijuka v Maduwesi*⁵⁴ responding to the question on what determines *locus standi* to institute an action, the Court of Appeal stated per Muhktar JCA that:

A plaintiff must show **sufficient interest** in the suit or matter in order to have locus standi to sue. One criterion of sufficient interest is whether the party could be joined as party in the suit. Another criterion

⁵⁰(2006) 10 NWLR (Pt.987) pg.1 at Pp.57-58, Per Salami, J.C.A.,

⁵¹ [2011] 9 NWLR (Pt. 1251)133 at 155

⁵²*Dododo v EFCC* [2013] 1 NWLR (Pt. 1336) 468 at 516 9CA; (1981) 2 NCLR.358 at 393

⁵³*Ogundipe v Oduwaiye* [2013] 15 WRN 130 at 141; *Basindo Motors Ltd v Woerman Line* (2009)

⁵⁴ [2011] 16 NWLR (Pt.1272) 181 at 205 per Muhktar JCA (emphasis mine)

is whether the party seeking the redress or remedy will suffer some injury or hardship arising from the litigation. If the judge is satisfied that he will so suffer, then he must be heard as he is entitled to be heard. The appellant who had shown, *prima facie*, imminent dangers or threat to the morality and security of their family and property, certainly, had *locus standi* to commence the action. This element is interlocked with that of cause of action. The common denominator to both *locus standi* and cause of action lies in the plea of all those things necessary to entitle the appellants to a relief maintainable in law or in equity.

This line of reasoning has also been adopted by the Supreme Court in several recent cases,⁵⁵ including *Adetona v Zenith Int'l Bank Plc*⁵⁶ where it was held that for a person to have *locus standi*, he must show that his civil rights and obligations have been or are in danger of being infringed and that he has sufficient legal interest in seeking redress in a court of law. In the instant case, the respondent, a legal mortgagee, had a proprietary interest in the mortgaged property. Which could be adversely affected by the alleged acts of the appellants, as such he has sufficient interest, i.e. *locus standi* to commence the suit in the circumstance. The apex court then gave the meaning of “interest” in relation to *locus standi* thus:

A person has an interest in a thing when he has rights, advantages, duties, liabilities, losses or the like connected with the thing, whether present or future, ascertained or potential provided that the connection, and in the case of potential rights and duties, the possibility, is not too remote.⁵⁷

The ‘sufficient interest’ test has been applied in several cases, in recent times by the Court of Appeal.⁵⁸ In *Centre for Oil Pollution Watch v NNPC*⁵⁹ relying on the Supreme Court’s decision in *Pam v Mohammed*⁶⁰ expounded on the requirement of sufficient interest as the law, in these words:

It is the law that to have *locus standi* to sue, the plaintiff must show sufficient interest in the suit or matter. One criterion of sufficient interest is whether the party could have been joined as a party in the suit. Another criterion is whether the party seeking redress or remedy will suffer some injury or hardship arising from the litigation. If the Judge is satisfied that he will so suffer, then he must be heard, as he is entitled to be heard. A party who is in imminent danger of any conduct of the adverse party has the *locus standi* to commence action.

Nigeria has thus like most Commonwealth systems⁶¹ adopted the test of ‘*sufficient interest*’ in interpreting *locus standi*, especially for non-constitutional law, litigation, and even in constitutional law cases,

⁵⁵ *Uwazuruonye v Gov., Imo State* [2013] 8 NWLR (Pt. 1355) 28 at 51-52 per Onnenghen JSC; *Pam v Mohammed* (2008) 16 NWLR (Pt. 1112) 1

⁵⁶ [2011] NWLR (Pt. 1279) 627 at 654-655 per Muhammed JSC, relying on *Adesanya V President* (1981) 2 NCLR 358; *Lawal v Salami* 92002) 2 NWLR (Pt. 752) 687; *odeleye v Adepegba (2001) 5 NWLR (Pt. 706) 330*. See also *ASUU v BPE* [2013] 14 NWLR (Pt. 1374) 398 at 415.

⁵⁷ *ibid* at 648 per Chukwuma-Eneh, referring to *Imade v Mil. Admin., Edo State (2001) 6 NWLR (Pt. 709) 478*

⁵⁸ *Charles v Gov., v Ondo State* [2013] 2 NWLR (Pt.1338)294 at 310; *F.U.T.A., Yola v A.S.U.U.* [2013] 1 NWLR (Pt. 1335) 249 at 277; *Ofole v Obiorah* [2015] 18 WRN 138 at 154-155.

⁵⁹ [2013] 15 NWLR (Pt. 1378) 556 at 582 per Bage JCA.

⁶⁰ (2008) 16 NWLR (Pt. 1112) 1

⁶¹ For a full discussion of English law on *locus standi*, see Paul Craig, *Administrative Law*, 7th edition, (2012, Sweet & Maxwell Thomson Reuters) 770 - 786

the applicant/plaintiff must plead sufficient constitutional interest to sustain and meet *locus standi* requirement.

Also in *Charles v Gov., Ondo State*⁶² the appellant as legal practitioners and human rights activists filed an action at the High Court of Ondo State, Akure, by originating summons challenging the increase in court fees in the State on the basis that the Governor has no constitutional powers to increase court fees of Ondo State judiciary. The respondents' filed a counter-affidavit and the originating summons was struck out after hearing by the trial judge. On appeal to the Court of appeal, the decision of the trial court was affirmed as it was held that a party who seeks a declaratory relief in the Constitution must show that he has a constitutional interest to protect and that the interest is violated or breached to his detriment (the interest must be substantial, tangible and not vague, intangible, or caricature. The appellants failed to show sufficient interests nexus between them and the reliefs claimed to clothe them with locus standi to invoke the judicial powers for the proceedings. The appellants are challenging the alleged violation of section 274 of the Constitution by 1st respondent. They must show not only what constitutional interest they seek to protect but also that such interest is substantial, tangible, and not vague or caricature.

The erudite Justice of the Court of Appeal, Kekere-Ekun JCA (as she then was), then found that the appellant failed to disclose the identities of the alleged indigent clients or statements from such clients that they lack the ability to pay the new fees, and that since the constitutional duty allegedly violated is that of the Hon. Chief Judge of the State, as such the Hon. Chief Judge is the proper person to complain. The appellants therefore failed to establish sufficient constitutional interest to pass the test of *locus standi*.

In both cases of *Centre for Oil Pollution Watch v NNPC*⁶³ and *Charles v Gov., Ondo State*⁶⁴ the applicants brought representative actions and failed establish sufficient interest to meet the requisite locus standi to sustain the action.⁶⁵

6.0. Locus Standi and Public Interest Litigation/ Actio Popularis

Bello JSC (as he then was) stated in *Adesanya v. The President of the Federal Republic of Nigeria*⁶⁶ that- "A general interest shared with all members of the public is not litigable interest to accord standing." His Lordship's expressed position will appear to weigh heavily against liberalization of locus standi to allow for public interest litigation or citizen action or *actio popularis*. Public interest litigation has been described as litigation in which 'a High Court allows volunteers like lawyers, activists, NGOs or citizen petitioners to bring

⁶² [2013] 2 NWLR (Pt. 1338) 294.

⁶³ [2013] 15 NWLR (Pt. 1378) 556 at 582 per Bage JCA.

⁶⁴ [2013] 2 NWLR (Pt. 1338) 294.

⁶⁵ *Jacob Ovenseri v. Ojo Osagiede* (1998) LPELR-2834(SC) at 17 and 19 per Iguh JSC; *Durbar Hotel PLC V. Mr. Abella Ityough* (2010) LPELR-4064(CA) Per Okoro, J.C.A.(P.13, paras. D-G) - "The courts have over time laid down the essential requirements which a party who desires to sue in a representative capacity must fulfil. The principles were laid down in *Olatunju V. The Registrar Co-operative Society* (Supra) as follows: (1). There must be numerous persons interested in the case or the side to be represented; All those interested must have the same interest in the suit, i.e their interest must be joint and several. (2). All of them must have the same grievance; (3). The proposed representative must be one of them; and (4). The relief or reliefs sought must be in its nature beneficial to all the persons being represented. See also *Ofia V. Ejem* (Supra) *Busari V. Oseni* (Supra), *Atanda & Anor V. Akunyun & Ors* (Supra)."

⁶⁶ (1981) NSCC 146, 165

a case on behalf of some victimized group without sufficient means or access to legal services.’⁶⁷ Similarly, a citizen action or *action popularis* is based on the premise that the main aim or objective of public law is to keep public bodies within their power, based on the assumption that citizens generally should be enabled to vindicate the public interest, without showing individual harm over and above that of the general community.⁶⁸

The Supreme Court’s decision in *Fawehinmi v Akilu*⁶⁹ liberalizing the narrow test of *locus Standi* espoused in the *Adesanya v President of the Federal Republic of Nigeria* case was viewed to have favoured public interest litigation/*action popularis*.⁷⁰ This position was articulated by Agube JCA in *Alhaji Salihu Wukari Sambo v. Capt. Yahaya Douglas Ndatse (rtd)*⁷¹ when he stated categorically that the “Supreme Court and even this court have taken revolutionary and bold departures from the ubiquitous old concept of locus standi.”

Agube JCA’s advocacy for a liberalized test of locus standi is the most supportive of public interest litigation/*action popularis*, and he borrowed a leaf from the Indian jurisprudence, as clearly articulated in his

⁶⁷R. K. Salman & F. J. Oniekoro, “Death of Locus Standi and Rebirth of Public Interest Litigation in the Enforcement of Human Rights in Nigeria: Fundamental Rights (Enforcement Procedure) Rules 2009 in Focus”, 124 IJUM LAW JOURNAL VOL. 23 NO. 1. 2015, 107 at 123; Modhurima Dasgupta, “Public Interest Litigation for Labour: How Indian Supreme Court Protects the Rights of India’s most Disadvantaged Workers”, *Contemporary South Asia*, Vol. 16 No. 2, (2008): 160. *Court Protects the Rights of India’s most Disadvantaged Workers*, *Contemporary Oshlack v Richmond River Council* (1997) 152 ALR 83. Gurdial Singh Nijar, “Public Interest Litigation: A Matter of Justice an Asian Perspective” 2, accessed March 25, 2013, <http://asianlawassociation.org/aGAdocs/malaysiapdf>. According to Joseph Chu’ma Otteh, “Public Interest Litigation is about using the law to empower people, to knock down oppressive barriers to Justice to reclaim and restore the right of Social Justice for the majority of the people. To attack oppression and denial that disenfranchise our people, and about winning back human dignity of the people, it is about caring for the rights of the other, besides ones self. It is about getting Lawyers and Judges committed to this struggle, and using the law more for the benefit of collective, not just individual or private interest.” Joseph Chu’ma Executive Director, Access to Justice. Made this opening remark at a symposium organized by Access to Justice on 7th August, 2009.

⁶⁸ Paul Craig, *Administrative Law*, *supra*, at 793

⁶⁹ (1987) NSCC 1266 at 1267; (1987) 4 NWLR (Pt. 67) 797

⁷⁰R. K. Salman & F. J. Oniekoro, “Death of Locus Standi and Rebirth of Public Interest Litigation in the Enforcement of Human Rights in Nigeria: Fundamental Rights (Enforcement Procedure) Rules 2009 in Focus”, 124 IJUM LAW JOURNAL VOL. 23 NO. 1. 2015, 107

⁷¹(2013) LPELR-20857 (CA): See for instance, per Obaseki J.S.C. and his commendation by Eso J.S.C. where in *Fawehinmi v. Akilu & Anor.* (1987) 4 N.W.L.R. (pt 66) 797 at 832 and 847 - 848; the former’s departure from the hitherto narrow attitude of the apex court in *Adesanya’s* case; *Odeneye v. Efunuga* (1990) 7 N.W.L.R. (pt 164) 618 at 631; *Elendu v. Ekwuoba* (1995) 3 NWLR (pt. 380) 70 at 74, per Onalaja; *A.G. Kaduna State v. Hassan* (1985) 2 N.W.L.R. (pt. 8) 483 *Ogunmokun v. Milad Ogun State* (1999) 3 N.W.L.R. (pt. 594) 261 at 285; and the recent cases of *Yusuf v. Obasanjo* (2003) 16 N.W.L.R. (pt. 164) 618 at 638 paras. E - H; *Alamieyeseigha v. Igoniware* No. 2 (2007) 7 N.W.L.R. (pt. 847) 554, Per Galadima J.C.A. and *Fawehinmi v. President of the Federal Republic of Nigeria* (2007) 14 N.W.L.R. (pt. 1054) 75 at 336 paras. H - E. In the latter case Aboki J.C.A. restated what Fatayi-William C.J.N. said in the *Adesanya v. President F.R.N.* most admirably inter alia:- “In this Country which establishes a Constitutional structure involving a tripartite allocation of power to the Judiciary, Executive and Legislature as the co-ordinate organs of Government, judicial function most primarily aims at preserving legal order by confining the Legislative and Executive within their powers in the interest of the public and since the dominant objective of the rule of Law is to ensure the observance of the rule of Law, it can best be achieved by permitting any person to put the judicial machinery in motion in Nigeria where by any citizen could bring an action in respect of a public derelict. Thus the requirement of locus standi becomes unnecessary in constitutional issues as it will merely impede judicial functions.” Even in the most conservative of common wealth or Common Law jurisdictions like Britain, or in liberal jurisdictions like the United States of America from where we derived our judicial system and our present Constitution, nay India and Bangladesh the concept of locus standi has been broadened and the courts have departed from the undue reliance on sufficiency of interest as the primary consideration for the conferment of locus standi in administrative and Constitutional Law, as exemplified in *R v. Secretary Of State, Exparte World Development Movement Ltd.* (2000) 21 W.R.N. 177.”

words thus: “..... it is also necessary to refer to the position of the Law in India which we ought to borrow a leaf from their Public Interest Litigation system where locus standi can be given to any person who writes a letter of complaint in the name of the People's Union for Democratic Rights to the Chief Justice, justifying the rationale of the complaint. Although public interest litigation is still at infancy in this country, recent decisions of the Supreme Court have tended to jettison the old concept of sufficiency of interest as the bases for conferment of locus standi in constitutional matters.”⁷²

His Lordship, Agube JCA, further expressed his views on the factors that are to be taken into consideration in constitutional matters that may involve public interest litigation in *Governor of Ekiti State v. Hon. Kola Fakiyesi*⁷³ thus:

Thus the factors which should be taken into consideration in the determination of locus standi generally and especially in constitutional matters are:- 1. Whether the Applicant can show some sincere concern for constitutional issues and that there has been substantial default or abuse as in this case where the Respondents complained of the violation of Section 105(1) of the 1999 Constitution and not whether his personal rights or interests are involved. 2. The importance of vindicating the rule of law which is one of the cardinal agenda of the present administration, as in this case. 3. The importance of the issue raised in the claim of the Respondents - in this case the constitutional issue of the exercise of the legislative powers of the Ekiti State House of Assembly which tenure had allegedly expired. 4. The likely absence of any other challenger of the act complained of - in this case the fact that the 1st and 2nd Plaintiffs/Respondents were/are an ex-Legislator and party chieftain respectively in Ekiti State who have challenged the act of the defunct Assembly in the absence of other challengers. 5. The nature of the breach of duty against which relief is sought - in this case the alleged breach of section 105 of the 1999 Constitution by the defunct Ekiti State House of Assembly; and 6. The prominent role the Respondents as members of a political party with thirteen legislators in the Ekiti State House of Assembly ought to play in the screening of the 5th - 16th Appellants and the unnamed twelve Special Advisers appointed by the 1st Appellant. Even then, the submission by the Appellants that the 1st Respondent did not sue in representative capacity of the Action Congress, is ridiculous to the extremes since he has shown from his affidavits that he is a member of that political party and an ex-legislator who is now a senior citizen of Ekiti State and can bring an action of that nature to defend the Constitution and the rule of law.⁷⁴

Such advocacy in favour of public interest litigation and *action popularis* has gained ground in much of the commonwealth. In the English *locus classicus*, *IRC Case*,⁷⁵ Lord Diplock succinctly stated the arguments in

⁷²*ibid.* See for instance *Odeneye v. Efunuga* (supra) per Belgore, J.S.C; *Fawehinmi v. The President F.R.N.* (supra); *A.G. Lagos State v. AG of the Federation* (2004) 18 N.W.L.R (pt. 904) 1; *A.G. Abia State* (2002) 6 N.W.L.R (pt. 674) 542; *Alamieyeseigha v. Igoniware* No. 2 (supra); *Yusuf v. Obasanjo* (supra); *Amaechi V. INEC & 2 Ors* (2008) 5 NWLR (Pt. 1880) 227 at 310-311 paragraph H-D.

⁷³(2009) LPELR-8353(CA)

⁷⁴Per AGUBE, J.C.A. pp. 66-67, paras. A-D, relying on the following cases: *Fawehinmi v. Akilu* (supra); *Adesanya v. The President* (supra) per Fatayi- Williams C.J.N Held 1- 9 at pages 359 – 360; and *Fawehinmi v. President FRN* (2007) 14 N.W.L.R (pt. 1054) 275 at 336"

⁷⁵*R v Inland Revenue Commissioners, ex.p. National Federation of Self-Employed and Small Businesses Ltd.* [1982] A.C. 617 at 644 per Lord Diplock (HL)

favour of such an approach:

It would, in my view, be a grave *lacuna* in our system of public law if a pressure group, like the federation,, or even a single public-spirited taxpayer, were prevented by outdated technical rules of locus standi from bringing the matter to the attention of the court to vindicate the rule of law and get the unlawful action stopped.⁷⁶

Of course there are practical and conceptual objections to the liberalization of locus standi from its tradition requirement of legal or sufficient interest in the applicant, to allow for public interest litigation or *action popularis*. An often repeated argument, even by judges, is that it would open the courthouses doors to vexatious litigations and busybodies (who has no personal interest and will not be the most effective advocate).⁷⁷ Another practical objection is that such cases will take up a lot of governmental time, resources, and unnecessarily overload the courts. A conceptual objection that has engaged a lot of scholarly writings is how to formulate an acceptable test for resolving the locus standi in public interest litigations and action popularis, where a large number of people are equally affected.⁷⁸ In practice the Court will want to know why a non-governmental organization - and not the individual affected - is bringing the case. The Court would need to be satisfied that the non-governmental organization had a genuine and good faith interest in the matter.⁷⁹

Moreover, the Attorney General is legally considered to be the defender of public interest,⁸⁰ and the Nigerian Constitution made provision for an Attorney General who is the Chief Law Officer and a Minister of Justice of the Federation and empowers him to start or stop prosecutions in the public interest.⁸¹ However, it is doubtful whether the Attorney-General can truly represent the public interest giving the fact that he is a member of the government, especially where the public interest conflicts with government's interest. On this issue Aboki JSC observed in *Fawehinmi v President*⁸² thus:

⁷⁶ *ibid.* See *CPAG* [1990] 2 Q.B. 540 at 546-547 per Woolf L.J.

⁷⁷ Paul Craig, *Administrative Law*, (supra) at 793-797

⁷⁸ L.J. Jaffe, "Standing to Secure Judicial Review: Public Actions" (1960-61) 74 Harv. L. R. 1265; "Standing to Secure Judicial Review: Private Action" (1961) - 1962) 75 Harv. L. R. 255; Davis, "Standing: Taxpayers and Others" (1967-1968) 35 U. Chic. L.R. 601; "The Liberalized Law of Standing" (1969-1970) 37 U. Chic. L. R. 450; "Judicial Control of Administrative Action: A Review" (1966) 66 Col. L.R. 635, 659-669; Chris Himsworth, "No Standing Still on Standing" in *Administrative Law Facing the Future: Old Constraints and New Horizons*, eds. Peter Leyland and Terry Woods (London: Blackstone, 1997); Carol Harlow, "Public Interest Litigation in England: The State of the Art" in *Public Interest Law* eds. Copper, J. and R. Dhavan (New York: Basil Blackwell, 1986); Richard Gordon QC, *Judicial Review and Crown Office Practice* (London: Sweet & Maxwell, 1999); Gurdial Singh Nijar, "Public Interest Litigation: A Matter of Justice an Asian Perspective" 2, accessed March 25, 2015, <http://asianlawassociation.org/aGAdocs/malaysiapdf>; R. K. Salman & F. J. Oniekoro, "Death of Locus Standi and the Rebirth of Public Interest Litigation in the Enforcement of Human Rights in Nigeria: Fundamental Rights (Enforcement Procedure) Rules 2009 in Focus," (2015) 23 IJMLJ 107

⁷⁹ *The Society for the Protection of Unborn Children (Ireland) Limited -v- Diarmuid Coogan & Ors* [1988] IR 734, *Irish Penal Reform Trust Limited & Ors -v- the Governor of Mountjoy Prison & Ors* [2005] IEHC 305; *Digital Rights Ireland - v - The Minister for Communication, Marine and Natural Resource & Ors* 5th May 2010

⁸⁰ O Mba 'Judicial review of the prosecution powers of the Attorney General in England and Wales and Nigeria: an imperative of the rule of law' (2010) Oxford U comparative L forum 2 <http://ouclf.iuscomp.org> (accessed November 5, 2015).

⁸¹ The office of Attorney General and Commissioner for Justice is also created for each state of the federation. Section 174(3) provides, 'in exercising his powers, the Attorney-General of the Federation shall have regard to the public interest, the interest of justice and the need to prevent abuse of legal process.'

⁸² (2008) 23 WRN 65. See *SERAP v Nigeria FHC/ABJ/CS/640/10*.²

In our present reality, the Attorney General of the Federation is also the Minister of Justice and a member of the Executive cabinet. He may not be disposed to instituting an action against the Government in which he is part of, it may tantamount to the Federal Government suing itself. Definitely he will not perform such duty...

He further asked 'who will approach the Court to challenge the Government where it violates or fails to enforce any provisions of the Constitution or the laws where the Attorney-General will not.' There are therefore compelling reasoning to liberalize locus standi in public interest litigation or *action popularis* in constitutional and administrative law cases. I

In *Inspector General of Police v All Nigerian Peoples Party*⁸³ the plaintiffs sought a declaration that the provisions of the Public Order Act (Cap 382) Laws of the Federation of Nigeria 1990 which require police permit or any other authority for the holding of: rallies or processions in any part of Nigeria is illegal and unconstitutional as they contravene section 40 of the 1999 Constitution and article 7 of the African Charter on Human and Peoples' Rights (Ratification and Enforcement) Act (Cap 10) LFN 1990. The High Court held, *inter alia*, that the Public Order Act does not only impose limitation on the right to assemble freely and associate with others, which right is guaranteed under section 40 of the 1999 constitution, it leaves unfettered the discretion on the whims of certain officials, including the police. The Public Order Act so far as it affects the right of citizens to assemble freely and associate with others, the sum of which is the right to hold rallies or processions or demonstration is an aberration to a democratic society, it is inconsistent with the provisions of the 1999 Constitution. The result is that it is void to the extent of its inconsistency with the provisions of the 1999 Constitution. In particular section 1(2), (3), (4), (5) and (6), 2, 3 and 4 are inconsistent with the fundamental rights provisions in the 1999 Constitution and to the extent of their inconsistency they are void - I hereby so declare. The Appeal Court, as per Mohammad Aboki JSC also upheld the judgment of the lower court and ruled in favour of the respondents.

Be that as it may the challenge of finding the appropriate test of locus standi to apply to public interest litigation and *action popularis* still remains, as the courts have not abolished the application of the test of justiciability and sufficient interest even in such cases, as public interest litigation or *action popularis* does not mean that any person must always be accorded standing in such cases. Unfortunately, due to the application of the restrictive approach in several public interest litigation cases jurisdiction has been declined and the action struck out for lack of locus standi. The case of *Keyamo v House of Assembly, Lagos State*,⁸⁴ is an example of the hurdle of locus standi that any person who wants to institute a public interest litigation to challenge the action of the government in Nigeria must cross before he can institute and or maintain an action. In that case Keyamo filed a suit challenging the constitutionality of the setting up of a panel by the Lagos House of Assembly, to investigate the Governor over allegations concerning the crime of forgery. The Court of Appeal upheld the ruling of the Lagos High Court that the plaintiff lacked the locus standi to institute the action. The Court, per Galadima JCA, held as follows:

I have carefully perused and considered the entire originating process issued by the appellant in the lower

⁸³(2007) AHRLR 179

⁸⁴(2000) 12 N.W.C.R. 196

Court. Not only has he woefully failed to disclose his legal authority to demand for the declarations sought but also failed to show what injury or injuries he will or would suffer...of all the reliefs being claimed by the appellant, none of them relate to him personally or his faceless clients whose future political interest he now seeks to protect. This approach is speculative and untenable in law. It is a mere academic exercise. Merely being a registered voter (even without proof of same) is not sufficient to sustain the prayers of the appellant. The appellant has simply not disclosed his interest in this suit.

Also in *Malachy Ugwummadu v President, Federal Republic of Nigeria*⁸⁵ the applicant approached the Federal High Court for an order of mandamus compelling the respondents to fully implement the entire content and provisions of the Appropriation Act 2009 that was an Act of the National Assembly. The applicant claimed that, the Government of the Federation for some time had not fully implemented the annual budget of the country that partly accounted for the economic woes and under development of the nation. The matter was thrown out on the ground that the applicant lacked the locus standi to institute the action.

In a more recent case of *Femi Falana v National Assembly*,⁸⁶ the Nigerian courts again stopped the applicant from challenging the actions of the government through the strict and out dated interpretation on locus standi. In that case, Falana challenged the powers of Federal lawmakers to grant huge and scandalous salaries and allowances to themselves. Falana sought from the Federal High Court for a declaration that the members of the National Assembly are not permitted to receive the salaries and allowances they allotted to themselves outside the salaries and allowances determined and fixed for them by the Revenue Mobilisation and Fiscal Allocation Commission whose function it is to determine the remuneration suitable to political office holders, including the President, Vice-President, Governors, Deputy Governors, Ministers, Commissioners, Special Advisers, Legislators etc, pursuant to Section 70 of the Constitution. The National Assembly, through their counsel Kenneth Ikonne challenged the locus standi of the applicant Mr. Falana to question the salaries of the lawmakers and described him as a busy body that does not have interest in the action of the National Assembly. The presiding judge, Justice Ibrahimauta of the Federal High Court ruled in favor of the respondents and held that Falana does not have the locus standi to make the application, as he did not prove that he had suffered any greater injury than other Nigerian citizens caused by the action of the lawmakers.⁸⁷

However, in another recent case decided in 2013, *Bamidele Aturu v Minister of Petroleum Resources*,⁸⁸ the Court took a decision in the favor of the public interest, showing that some Courts are now willing to extend the sphere of locus standi for public good. In that case, the plaintiff sought a declaration that the plan of the defendants to deregulate the downstream of the petroleum industry by not fixing the prices at which the product may be sold in Nigeria is unlawful, null, void and of no effect whatsoever being flagrant violation of

⁸⁵SUIT NO FHC/L/CS/1069/09 quoted from Alex Cyril Ekeke, Access to Justice and Locus Standi Before Nigerian Courts (2014), University of Pretoria, accessed November 30, 2015, Ekeke_Access_2014 Locus Standi & Access to Justice.pdf

⁸⁶ Unreported. Cited in <http://www.channelstv.com/home/2012/05/23/court-says-falana-has-no-right-to-challenge-lawmakers-jumbo-pay/> (accessed 30 October 2015). See *A G Akwa Ibom State v Essien* (2004) 7 NWLR (Pt. 872) 288; *Sehindemi v Governor of Lagos State* (2006) 10 NWLR (Pt. 987) 1.

⁸⁷ *ibid.* Cited in Alex Cyril Ekeke, Access to Justice and Locus Standi Before Nigerian Courts (2014), University of Pretoria, accessed November 30, 2015, Ekeke_Access_2014 Locus Standi & Access to Justice.pdf

⁸⁸Suit No. FHC/ABJ/CS/591/09. Cited in Alex Cyril Ekeke, Access to Justice and Locus Standi Before Nigerian Courts (2014), University of Pretoria, accessed November 30, 2015, Ekeke_Access_2014 Locus Standi & Access to Justice.pdf

mandatory provision of section 6 of the Petroleum Act, Cap P10, Laws of the Federation of Nigeria, 2004 and section 4 of the Price Control Act. Cap P28, Laws of the Federation of Nigeria, 2004.

On the whole our courts must be prepared to liberalize the traditional *locus standi* requirement in public interest or action popularis litigation, by adopting an approach that involves their acceptance, particularly in those areas where a large number of people are equally affected by governmental irregularity, flagrant abuse of power, or callous indifference to the plight of the generality of the citizenry, but where no particular person is singled out or no single person can meet the burden of injury or interest required under the traditional locus standi requirement. Especially, where the subject matter is otherwise appropriate for judicial resolution, and the application is timely, for in such instances, to deny standing would be to render important areas of governmental activity immune from censure or judicial oversight/review for no better reason than that they affect a large number of people, and the Attorney-General is vested with the constitutional duty of instituting actions to protect public interest (as it is a well known fact to Nigerians, including judges, that the Attorney-General, Federal or State, will never institute a public interest litigation against the government that it serves!). A citizen or a non-governmental organization should therefore be entitled at a liberalized discretion of the court to bring an action alleging invalid governmental action or public activity, except it can be shown from a consideration of the statutory framework that the range of persons with standing was intended to be narrower than this.⁸⁹ The Court of Appeal's approach in *Governor of Ekiti State v. Hon. Kola Fakiyesi*,⁹⁰ per Agube JCA, earlier discussed above offers a liberalized pragmatic construction of the requirement of locus standi in public interest litigation or *actio popularis* that we believe will better serve the interest of justice, rule of law and accountability in Nigeria.

7.0. Locus Standi in relation to Jurisdiction

The relationship between *locus standi* and jurisdiction was discussed by the Supreme Court in *Ajay v Adebiyi*⁹¹ where it was observed that *locus standi* and jurisdiction are interwoven in the sense that locus standi goes to affect the jurisdiction of the court before which an action is brought. Thus where there is no *locus standi* to file an action, the court cannot properly assume jurisdiction to entertain the action, it is a condition precedent to the determination of a case on the merit. Thus *locus standi* being an issue of jurisdiction can be raised at any stage or level of the proceedings in a suit even on appeal at the Court of Appeal or Supreme Court by any party without leave of court or by the court itself *suo motu*.⁹²

It is now well settled that where a plaintiff has no *locus standi*, the court has no jurisdiction to entertain the action and such suit must be struck out,⁹³ as such the issue of *locus standi* is a fundamental one which affects

⁸⁹ Paul Craig, *Administrative Law*, *supra*, 798 – 801. The courts are enjoined to be favourably disposed towards allowing collective, associational, and group standing in public interest litigation and *actio popularis*.

⁹⁰ (2009) LPELR-8353(CA) pp. 31 -55

⁹¹ [2012] 11 NWLR (Pt. 1310) 137 at 176 per Adekeye JSC

⁹² *Owodunni c Registered Trustees of CCC* (2000) 6 SC (Pt. III) 60; (2000) 10 NWLR (Pt. 675) 315; *Klifco Ltd v Philips Holzmann A.G.* (1996) 3 NWLR (Pt. 435) 276

⁹³ See *Emmanuel C. Nwankwo VS. Cecilia I. Nwankwo* (1992) 4 NWLR (Pt. 238) 693 at 707; *Austine O. Erebor vs. Major & Company (Nig) Ltd & Anor* (2001) 5 NWLR (Pt. 706) 300 at 308; *James Chibueze Unoka v. Mrs. Victoria Kanwulia Ofili Agili* (2007) LPELR-8554(CA) at 35 per Aji, JCA

the jurisdiction of the court to adjudicate between the parties to settle the issues in controversy. Where the question of the *locus standi* of a party to initiate civil claims is raised it should be settled first and decisively and not shelved.⁹⁴ Where a party lacks *locus standi*, the court lacks jurisdiction to hear or determine the party's suit, no matter the public importance of the issues raised in the suit.⁹⁵

8.0. Conclusion and Recommendations

As a threshold issue that has direct bearing on the right of access to the court, the approach to the application of locus standi by the apex court need to shift from that in the *Adesanya v President, Federal Republic of Nigeria*⁹⁶ approach that has been avowedly acknowledged to be restrictive by the Justices of the apex in *Fawehinmi v Akilu*⁹⁷. We call upon the Supreme Court to clarify its approach by either reconciling its decisions in the two cases or adopting the liberalized approach in the latter case and overrule the former. In the same vein, the apex court must disentangle section 6(6)(b) from locus standi and expunge justiciability out of locus standi.

The sufficient interest test need to be upgraded to meet the demands of constitutional and administrative law, especially in public interest litigation if locus standi is not to become an instrument of keeping governmental maladministration and corruption out of public scrutiny and oversight.

On the whole the following recommendations are proffered to enhance the clarity of the courts approach in the application of locus standi in Nigeria:

1. The Supreme Court must resolve the seeming conflicting approach adopted by it in the two cases of *Adesanya v President, Federal Republic of Nigeria* and *Fawehinmi v Akilu*, and if need be overrule its approach in the former;
2. The Supreme Court need to clarify the underlying principle of locus standi in relation to section 6(6)(b) and justiciability;
3. Clearly there is the urgent need to clarify and liberalize the locus standi in public litigation/*actio popularis* matters to achieve the ends of administrative law to achieve rule of law, accountability and development;
4. The sufficient interest test need to be upgraded to meet the demands of constitutional and administrative law.

⁹⁴*Prince James Adeleke Osayomi v The Executive Governor of Ekiti State* (2007) LPELR-8705(CA) at 46 per Ogunwumiju JCA

⁹⁵*Uwazuruonye v Gov., Imo State* [2013] 8 NWLR (Pt. 1355) 28 at 52 per Onnoghen JSC; *ASUU v BPE* [2013] 14 NWLR (Pt.1374) 398 at 416, 422 (CA)

⁹⁶ (1981) 5 SC 112

⁹⁷ (1987) NSCC 1266 at 1267; (1987) 4 NWLR (Pt. 67) 797 per Obaseki and Eso JJSC

Using multilingualism in Graphic Design: A fallacy or a reality

Somikazi Deyi; email: s.deyi@uct.ac.za; School of Languages and Literatures; African Languages Section.
University of Cape Town Private X Rondebosch 7701

Abstract

This chapter focuses on work done with students in the Extended Curriculum Programme of Graphic Design at a University of Technology in South Africa. The programme consists of forty students who come from the black and coloured townships of the Western Cape and rural parts of the Eastern Cape. Students in this programme are on average or just below average but show potential. Through the curriculum extended programme which is a year spent by students prepared for the courses they intend to study towards. The programmes are aimed at enabling students to gain access and achieve success in higher education. Although access to higher education for them is of significance, their full participation and success is crucial. As a result the university, moved away from an English and Afrikaans medium of instruction only and adopted a language policy (2007) that places use of multilingualism at the heart of teaching and learning. This was an attempt to ensure that all students applying to this university have access higher education regardless of the language background.

Embracing the institutional language policy hopes that conceptualizing the discipline in the language students are familiar will enable them to engage with the learning discourse effectively. It also offers them an opportunity to develop their second language skills. The full impact of multilingualism in the classroom can be seen in student's improved oral presentations and communicative skills, with their peers and lecturers, in academic and information literacy. It may in turn be found integrated in several projects in graphic design. Using multilingualism as a method in the classroom has helped to bring about "transformation" and enabling environment in "higher education" (Bloemart, Collins and Slembroek, 2005:197).

Students admitted on this programme have schooling backgrounds that inadequately prepared them for higher education (Mbatha 2003). This inadequacy amongst other things is the result of students being taught through a deficit model. This means students are taught with little or no understanding of content since teaching and learning occur in the language they are not familiar with. They have limited language resources to fully engage, with the academic discourse. This chapter will provide an overview of using multilingual strategies such as use of mother tongue for conceptual development and code-switching and as an intervention tool to address the language needs of these particular students. It will further display the manner in which, multilingualism enhances conceptual understanding, critical thinking and deeper-processing.

Introduction and context

background has been through tuition in mother tongue with English used as a language for administration purposes and exams. They enter Graphic Design with low English proficiency (LEP). This low English proficiency manifests in students' academic performance has been identified as average, in the first three months of the year. The manifestation places an enormous challenge on the institution, to think about the language of teaching and learning that will ensure that learners admitted, have access to meaningful

understanding of subjects taught. For these learners to perform successfully, in academic studies the language of learning needs to be given attention through multilingual practices.

Multilingualism has been generally used in the form of code-switching and code-mixing. However, in the context of Graphic design which is a field that comprises of a specific jargon that is only understood to graphic designers, it is used as an approach to teach and explain difficult concepts. These difficult concepts are those that are specific to the field. Concepts such as scamping, image, imagery, form, mounting and graphic design appear not easy to understand and could be misconstrued. Some of the concepts do not appear difficult on the surface level while in application they could easily mean something else. The need to unpack the meaning to suit the graphic design field becomes apparent. In application concepts like have a different meaning than in everyday spoken language.

Concepts like form mean type or shape in the general language but its meaning is different in the world of designers. Another example is the concept “imagery” which could be referred topictorial flashbacks of an event which are memory related, while in graphic design the meaning is specific to how is a design viewed before the layout (Deyi et al 2007:16). This means seeing the end before the beginning. Concepts like ‘mounting’ are seen as putting up while in design it means imagining the design, plotting, drawing and then putting designs up in a sequence that tells a story with a particular flow of events. For mounting to be meaningful the story told should be interpreted by looking at the images. This means mounting results to a sequence of images that “speak to the observer” without narration.

Linked to the issue of concepts are linking words which appears to restrict students from engaging as it is not easy to find the appropriate linking words in the process of decoding pictorials. For an example, a statement “design for living to such that design is for living” is difficult to work with from students’ point of view. There appears to be no difference between “for” and “of”, and sometimes, this leads to incomplete sentences with gaps in between. It becomes to observe that students do not appear to understand this and even when asked to complete such gaps, they appear not to see the problem. Maybe this has something to do with the way we speak English these days where we drop certain words.

This chapter also problematizes the fact that learners are forced to adopt a monolingual approach to learning while their English proficiency is limited. The expectation on students to solve conceptual problems through an additional language, writing tests and examinations in the same language, indicates a need for a holistic multilingual intervention strategy. This would involve the language of teaching and learning, study materials, oral presentations and the language of assessment and inclusion of multilingualism in staff development programmes. Teaching concepts in isiXhosa may have implications on the curriculum at the beginning but once a pool of concepts is available in isiXhosa teachers and learners can simple draw from that pool. This article provides practical examples on how using multilingualism can help to bring transformation to the classroom while maintaining the language of learning and teaching. Although multilingualism appears to be an empowering strategy, it needs careful planning to achieve good results or else it could be a little difficult (Canagarahaj 2002:33; Madiba2010).

The role of multilingualism in learning and teaching

This chapter has its theoretical underpinning, the premise that the role of multilingualism should enhance students' linguistic abilities. It should provide a multilingual environment that allows students use languages they are familiar with for learning while improving their second language skills (Vygotsky 1962). According to Vygotsky scientific concepts are part of a system of concepts, and are un-systematised and saturated with experience until language is used as a catalyst to give meaning. His view is that concepts can be transferred to the academic language displays the significance for first language use in teaching and learning in higher education to ensure knowledge transfer. Concept development could provide students an opportunity for academic success. Multilingualism should be seen as a platform through which understanding of concepts is explored through scaffolding and discussions to decode the in-depth meaning of concepts. In this chapter multilingualism refers to use of many languages to teach. It then becomes a significant term in establishing the manner in which language is used in learning. It is key and central to this study and it focuses on the potential of isiXhosa to learn mathematics successfully. Students are encouraged to use their home language to engage with concepts of graphic designs, in interaction and interviews. The purpose of the study is to explore the role of multilingualism in optimizing conceptualization of mathematics concepts. Vygotsky (1962) encourages concept development for successful learning.

Vygotsky (1962, 1978) strongly display the centrality of mother tongue in conceptualization. The language used to explain Graphic Design concepts is not understood by students. Studies conducted in South Africa by scholars, such as Young (2003) on Understanding concepts in Mathematics and Science (2005), Winberg in conceptualization and language in Architecture (2003), Ngcobo's doctoral research on concepts in Agricultural Science (2006), Deyi's 2010 work on concepts and concept formation in concepts, display language and conceptualization as closely linked. Further they show the significant role of multilingualism in mediating meaning of concepts. Results of these studies clearly show cognitive development and academic growth of a learner which depends on language, particularly, the first language (Brock-Utne et al: 2004). Based on this work, this chapter locates itself to studies mentioned above which equally placeuse of multilingualism central to concept development.

Stubbs (1980:34) describes the relationship between speech and writing, as a realization of language in different media. He further notes that the oral channel in a classroom tends to be strictly a medium of communication. Language becomes a crucial means of gaining access to impart knowledge and skills. It is the key to cognitive development and it can promote or impede scholastic success (1980:34). This means the majority of students that enter institutions of higher learning have been exposed to this kind of learning. This learning is detrimental for them to participate fully, when they are taught in an English "only" system and this requires use of home languages in teaching and learning, which is a certainty to enhance understanding (Hornberger 2009).

Scholars such as Volbrecht (2000:260) see multilingualism as a dialogic and a discourse that is limited to oral discussion to allow students a process of thinking through concepts they tackle leading to deeper understanding. It is through its diverse use in the classroom that students begin to understand concepts of their discipline in acquiring knowledge. Looking into the notion of multilingualism through his lens, it becomes evident that it is embedded within the context of teaching and learning to improve understanding. In groups,

students use multilingualism, as a tool for conceptualization and expression but the discourse of higher learning is still finding its place in this multilingual society it operates within (Volbrecht, 2000:264). While it encourages narratives as a way to reflect on educational practices, it is used as a way to develop thinking. Exploring his notion further, multilingualism is certainly multidisciplinary, as well as being integrated into the discourse of classroom learning and very interdependent. Ladson Billing as far back as 1995 saw multilingualism as “basket” containing understanding students’ background including their language, understanding concepts and terms, mastering vocabulary of the field as highly important in learning process (Ladson Billing 1995)

In Ladson-Billing (1995:166) multilingualism is clearly seen as a scaffolding tool. She posits that understanding students’ background including their language is important in a learning process. Her argument is that this can be strength to build upon during learning, as it validates the student thus creating chances for them to succeed. As a scaffolding pedagogy that enables students to think deeper and critically. Multilingualism helps students to deconstruct and reconstruct what they are learning using their different languages as a resource. This could also clarify to them the difference between a literal meaning of the concepts and one that is specific to the subject they are learning. In a way this could avert problems of misconceptions due to concepts interpreted in mother tongue, yet they carry a different meaning in the academic discourse, or the discourse of the field they are studying. The process affirms students’ background knowledge and also exposes them to another culture, which is different from theirs, but useful to learn. The new meaning or knowledge cannot be portrayed as better than their culture, but as an accepted way of thinking in the discipline. In a way, the process is aimed at achieving deep understanding that would lead to the necessary paradigm shift, thus accessing the epistemology of the discipline.

Hirst (1982) insightfully explains understanding as consciousness-raising. It is about learning concepts and using them to achieve a particular state of mind. For Hirst, standards that define this kind of achievement are not natural possessions of the mind, rather they have to be learnt and are dependent on understanding, what is involved, in the logical relations that are crucial to the acquisition of a particular form of knowledge. This is because, as Hirst (1982:292) puts it, “to see things is not just to register things for what they are, it is for them to be picked out or articulated in our consciousness. Only by the use of certain concepts is the mind able to discriminate. What the development of understanding involves is, in fact, a progressive differentiation of our experience through the acquisition of new concepts under which it is intelligible...” Carter and Doyle (1987:150) also view understanding as a constructive process that does not result from a simple reception or rehearsal of information. They argue that, “...understanding involves an active construction of a cognitive representation of events or concepts and their relationships in a specific context.”

This way of working provides the lecturer with a particular positioning that would enable him/her to analyse students’ problems. If educators in higher education could understand how students make sense of their natural world, they would then plan curriculum delivery in a way that will make sense to them. This is because he/she could then use students’ experiences, reflection, deconstruction and reconstruction of their

understanding of concepts (Gough, 1990 and Ladson-Billing 1995) so that they could exhibit independence and initiative in directing their own learning.

Methodology

In this research we make use of action research for it allows trial and error and ongoing modification (Nunan 1989:102). Action research is associated with teacher-as-researcher movement and can be understood as extending the principles of reflective practice into systematic public inquiry of what works (Reason and Bradbury, 2001). We observe, explore, participate, reflect and start all over again. The exploratory nature of action research helps us learn while we are in the exploration process. Action research (Neuman2003:) puts emphasis on identifying the problem, doing a preliminary investigation which is identifying difficult concepts, language forms and linking words, reflecting, planning an intervention, intervening by teaching and discussing these concepts in mother tongue, reflecting and drawing conclusions or making a case (Kinsler, 2011: 183).To start the process two sets of questionnaires were used as instruments to conduct interviews before and after the intervention were used to collect data. The first questionnaire asked the following questions:

- 1. Do students fully understand the language of learning and teaching used in lectures?
- 2. Are study materials such as, books, notes, posters and question papers (briefs, essays questions, test papers and exam papers) easy to understand?

After the intervention a second questionnaire was designed. It sought to establish whether:

- 1. Key concepts of Graphic Design should be taught in mother tongue
- 2. Examination papers, essay questions and tests should also include mother tongue alongside English?
- 3. Tutorials should be conducted using a multilingual approach.

Responses to these questions were going to assist inform the process of shaping assessment procedures and teaching methods required to mediate meaningful understanding among students.

Discussing the Multilingual intervention

For the purposes of this article, at least seven concepts have been selected from those identified by students as being difficult. These concepts were chosen because they seem to easy understand while this is the contrary. These concepts are:form, layout, imagery mounting, plotting and image.

The multilingual intervention: using mother tongue to explain concepts

Concept	Meaning	General meaning	Contextual meaning
Form	Type/form	Uhlobo	Ubume
Layout	Outline	Ubume	Inkangeleko
Imagery	What we see	Ukufanekisa	Isiphumosomfanekisongqondweni

Mounting	Telling the story visually using a story board	Ukuxhoma/ukukhwela	Ukubalisaibalingokubekanjeimifanekisoilandelelana
Plotting	Sequencing ideas	Ukuceba/ukucwangeisa	Ukucingangolandelelwano
Image	An idea/a mind picture	Umfanekiso	Umfanekisongqondweni

Analysis of the table above

The table above illustrates the manner in which students identify difficult concepts, discuss each concept and provide meaning in the mother tongue. They put together all associated meanings to the word and select the contextual meaning. As shown in the table above, a concept has a general meaning and contextual meaning. The process helps students understand the associated meaning to the concepts giving them an opportunity to choose the one that is appropriate to the context. After the intervention another set of interview was conducted to ascertain as to whether students hold the previous thoughts about using mother tongue in teaching and learning Graphic Design.

- **A multilingual intervention: providing assessment in mother tongue**

A questionnaire was developed for students to respond to a question of whether they would like to see assessment conducted in mother tongue. Below are students' perceptions on writing exams, tests, essays and doing oral assessment through use of mother tongue:

Students were given a questionnaire during the intervention and were asked to respond to the question whether they would like to have assessment conducted in mother tongues.

Most students bought the idea of having exams conducted in English with their mother tongue alongside. In the case of their classroom, where there are three languages of the Western Cape (isiXhosa, Afrikaans and English and other languages), the ideal situation would have assessment conducted in the three languages. This is in line with the National Language Plan for Higher Education (DoE: 2002) and the institution's language policy adopted in 2007. However they maintained their desire to write in English, stating that writing is not their problem but understanding the questions fully is always a challenge during assessment.

- **A multilingual intervention: using multilingualism during tutorials**

Students' perception about using multilingualism (before the intervention)

Students' perceptions about learning in mother tongue (pre intervention) can be divided into two:

The first group comprised of learners, who said they understand Graphic Design concepts fully in English. They ascribed their answer to the fact that they were assessed in English for matric also they were accepted at university. Their interpretation of being accepted at university meant their English command was enough to access knowledge. To them fluency in English creates opportunities. Linked to that was the feeling that

speaking English made them feel good about themselves, although this has very little with learning it somehow contributed to their academic achievement.

The second and neutral group ascribed their stance towards learning concepts in the home language, as an extreme impossibility while they understood problems posed by learning through the language they did not fully understand. They also linked their choice to employment and career-paths, while they acknowledged the problems they face in learning concepts in English. So this group chose to learn concepts in English.

- ***Student's perception about use of multilingualism after the intervention***

Students' perceptions changed after the multilingual intervention. It helped them to see that learning in mother tongue is beneficial to understand the subject better. Students chose to learn in mother tongue attributing their choice to their current learning problems especially around understanding of key concepts in the field, being able to interrogate and engage, with assessment tasks together, with an understanding of academic texts. Noteworthy was the belief that learning Graphic Design in mother tongue would help them to learn English, as the process would involve translating concepts from one language to the other thereby enhancing understanding while increasing second language skills. The more they engage with concepts in mother tongue the more understanding would be enhanced. That understanding would then be displayed in application of the terms and concepts to academic tasks. Researchers like Hornberger and Ricento (1996) noted that there is a cognitive benefit in using mother tongue as a strategy to enhance understanding. In their case students whose indigenous languages were used in teaching and learning improved cognition, their identity was affirmed and they gained a sense of confidence. The same observation is highlighted by Deyi et al (2007:16) in learning Graphic Design using multilingualism. This study displayed the manner in which language becomes a barrier or an enabler to learning concepts effectively. Their work shows that in order for learners to grasp the concepts fully and achieve deep learning they ought to be taught in a language familiar to them, while not negating the additional language.

Findings: Using mother tongue as a multilingual strategy in group discussions

Although, at the beginning of the multilingual intervention, we grappled to balance the philosophy about multilingualism in teaching concepts and the multilingual intervention process, (Madiba 2010). However, as the intervention continues it begins to unfold for the better. The transition from theory to practice appeared to yield results. In that, in groups, student spontaneously used mother tongue to facilitate discussion. Other tongue was used to mediate understanding and then notes would be written in English for presentation after the group discussion. Expressing themselves in in their mother tongue appears to be of benefit during discussions. Use of mother tongue orally seemed to give them access to the second language. While they understood concepts better their second language skills are also improved (Cummins 1989). In cases where there were students whose mother tongue was other than isiXhosa, spontaneously students took the role of an interpreter.

- **Findings: Using Code switching as a multilingual strategy**

Code switching was a dominant discourse in some groups. It became a strategy to mediate conceptual understanding. Students used code-switching systematically. Where they were less confident about the meaning of the concepts in the language used for discussion they would use another language (isiXhosa to English and vice versa). In this case code-switching was used as a strategy for survival. This is questioned by Mesthrie (2003) who argues that students taught through a multilingual approach might not learn any language at the end which makes him skeptical to claims that use of multilingualism enhances meaningful understanding. He argues that students are unlikely to learn a language. However, this group shows that use of code-switching can assist students understand the linguistic gaps that exist so that they can improve. Furthermore, use of code-switching happened to be used as a resource to make meaning pertaining to what students were communicating amongst themselves.

- **Findings: Using multilingualism in tutorials**

Students were asked as to whether explaining concepts in mother tongue in tutorials helped in anyway. Students felt that learning key concepts help to tackle tasks with ease. Identifying difficult concepts and using mother tongue questions associated to the concept made learn bearable and fun. At the end of tutorials conducted in mother tongue they could easily see the confusion they have regarding the meaning of concepts as shown in the table above. Also the tutorials helped them to attach value to learn through a multilingual approach thereby regarding their languages as equally important.

Conclusion

While it is early to claim success, there is evidence that use of multilingualism enhances conceptualisation. Student's deep learning and critical thinking skills are harnessed. When use of multilingualism is integrated into the curriculum and embedded in academic literacy skills, knowledge gained become effective to affect student learning positively. Skills learnt from the beginning of the year to date, have a positive on student's academic performance. They gradually gain confidence, during oral presentations, and their critical thinking and organizing skills are enhanced" (Deyi 2010; 264). This means students' conceptualization is enriched and their academic and social discourses are enhanced. In that use of multilingualism stimulates communication amongst students and thereby generating concepts. This also has a positive effect on their social discourse in that they learn to work in groups. Wailey and Sambade (2008:6) state that multilingualism allows students "to make connections between the known and the unknown, the concrete and the abstract, the worldly and the spiritual, among different people, places and cultural backgrounds." They further state that multilingualism is "always multidimensional, capable of many interpretations" causing the reconfiguration of the self between experience and the text" and we would conclude that multilingualism motivates students to learn and enquire more thereby thinking through concepts they are dealing with for improved academic performance.

REFERENCES:

- Adler, J. (1997). *A participatory approach and the mediation of mathematical knowledge in a multilingual classroom: Educational Studies in Mathematics*
- Alexander, N. (2002). Language and Education Policy National and Sub-National Identities in South Africa: *Guide for the development of the language education policies In Europe: from Linguistic diversity to plurilingual education*. Language Policy Division DG-IV-Directorate of School, Out-of-School and Higher Education
- Babie, E and Mouton, J. (2001). *The practice of Social Research*. Oxford: Oxford University Press
- Bangeni, A. (2000). Language attitudes, genre and cultural capital: A case study of EAL students' access to a foundation course in the humanities at UCT. M.PHIL Thesis, University of Cape Town
- Bloemmaert, J., Collins. J and Slembrouck, S. 2005. *Spaces of multilingualism & Communication*, 25: 197-216
- Buthelezi, Q. (1989) *South African Black English: A myth or reality*: South African Studies in Applied Linguistics. Potchefstroom. 38-60
- Cape Peninsula University of Technology (2007) Language Policy Document
- Canagarajah, S. (2002): Multilingual writers and the academic community: *Towards a critical relationship*. *Journal of English for Academic Purposes*, 1: 29-44
- Carter, K and Doyle, W. (1987). In a paper on Exploring Teacher's Thinking (J. Cladehead) *Teacher's Knowledge structures and comprehension process*. (pp 147-160) London: Casells
- Chapman, D. (2001). *Designing the Future of Japanese Language teaching in Australia: New Perspective Between Australia and Japan*, Kawakami, and I Miyazaki, S (eds), Japan Foundation Sydney Language Centre.
- Department of Education (DoE:2002). *The National Language Plan for Higher Education*. Pretoria, South Africa: Government Press
- Deyi, S. (2010) A multilingual conceptual approach development in technical contexts. *Southern African Applied and Applied Language Studies* 28(3) 259-266.
- Deyi, S. Ngcobo, S. Simon, E. and Thole, A. (2007) *Promoting the Multilingualism classroom: Why the significance of Multilingualism in Higher Education?* Published article in Paradigms Issue 14, December 2007 *Journal for Research and Debate in Higher Education*, Cape Peninsula University of Technology. pp. 14-18
- Edited by Brock- Utne, B; Desai Z and Qorro, M (2002). *Researching the Language of instruction in Tanzania and South Africa*. African Minds. Cape Town South Africa.

- Gay, G. (2000). *Culturally responsive teaching: Theory, Research and practice*. New York: Teachers' College Press
- Gxilishe, S. (2002). Language: A determinant of Child Success. *An article in the Cape Argus*; Cape Town South Africa. 19/06/2002
- Hornberger, N.H. and Ricento, T. (eds)(1996). *Language Planning and Policy and the ELT Profession Special topic issues*. TESOL Quarterly.
- Hornberger, N.H. 2009. *Multilingual education policy and practice: Ten certainties (grounded in indigenous experience)* *Language and Teaching*. 42(2): 197-215
- Kapp, R. (2000). With English you can go everywhere. *An analysis of the role and status of English at a former DET school*. In *Journal Education*, No. 25.
- Kinsler, Kimberley (2010). *The utility of educational action research for emancipatory change*. Action research June 2010 8(2) 171-189 SAGE Publications
- Ladson-Billings, G. (1995). But that's just good teaching! The case for culturally relevant pedagogy. *Theory into Practice*. 34(3), 159-165
- Mangena, M. (2002): Indigenous Languages must come first. An article in the Sunday Times. Cape Town. South Africa. 22/09/2002
- Madiba, M. (2010): Towards a multilingual higher education in South Africa: *The university of Cape Town's experience* *Language Learning Journal*, 38(3):327-346.
- Mbatha-Dlamini, T. (2003): *The dilemma of teaching History in isiXhosa and assessing it in English Grade 6 Classroom in a township school in Cape Town*. Unpublished paper presented at the International Workshop on African Languages, Stockholm University.
- Mesthrie, R. 2000. Edited by Leibowitz, B. Mohammed, Y. (2000) *Routes to writing in Southern Africa*. Silk Road International Publishers, Cape Town. 194-201
- Nunan, D. 1989. *Designing tasks for the communicative classroom*. Cambridge. Cambridge University Press
- Neuman, W.L. (2003). *Social research Methods: Qualitative and Quantitative approach 5th edition*. Boston: Allyn and Bacon
- Pierce, B.N. (1989): *Towards a pedagogy of possibility in the teaching of English internationally: People's English in South Africa*. *Tesol Quarterly* 23 No 3
- Reason, P. and Bradbury, H. (2001): (Eds.) *Handbook of action research: Participative inquiry and practice*. London: Sage
- Setati, M et al (2002): incomplete journeys; "Code switching and other Language Practices in Mathematics, Science and English". *Ways of Knowing* Vol. No2, University of Brighton

- Shor, I. (1992). *Empowering Education: Critical Teaching for social change*. Chicago: University of Chicago Press
- Volbrecht, T. 2000. *Changing the Scene of Reading and Writing. A narrative enquiry into institutional renewal and literacy development at the University of the Western Cape*. Routes to Southern African Writing. Edited by Brenda Leibowitz & Yasien, Mohammed. Cape Town: Silk Road International Publishers (pp. 260-273)
- Vygotsky (1962): *Language and Thought*; Cambridge. MIT Press.
- Wailey, T. and S. Sambade (2008) (Eds). *Dog Kennel Blues Poems and images from two Continents*. South Africa: iKraal. pp 5-8
- Young, D et al (2002): *Some words on word sums and concept literacy*; Centre for African Languages and Literacy Studies in Southern Africa. Presented to the Department of Education, University of Cape Town.
- Zevenbergen, R. (2003): *Cracking the code of mathematics Classrooms; "School success as a function of linguistics, social and cultural background"* Westpoort. Ablex

Collegiality and collaboration: The narratives of Black African Professors teaching in a White University in the United States

Wisdom Y. Mensah

Lecturer, Faculty of Management, University of Professional Studies, Accra, Ghana

University of Professional Studies, P.O. Box LG 149, Legon, Accra, Ghana

Tel: +2332541883863, Email: wisdomensah@hotmail.com

Abstract

This study investigated the nature of relationship of sub-Saharan African professors with their colleagues and mentors in a predominantly White university in the Midwest of the United States of America. The emerged themes highlighted relationships of collegiality, friendship, collaboration, inclusiveness and academic professional support. Given the seemingly close affinity of sub-Saharan African professors with African American professors the nature of their relationship was also brought to the fore. This study is a phenomenological inquiry into the experiences of sub-Saharan African professors teaching in a predominantly White university in the Midwest of the U.S. The rationale for the study was to gain understanding of the experiences and challenges of sub-Saharan African professors through their narratives. The study revealed that respondents experienced levels of collegiality and friendship with their White counterparts. However, some of them lamented over the dearth of collaborative ventures and inclusiveness in research projects.

Keywords: collegiality, collaboration, inclusiveness, friendship, and mentorship

1. INTRODUCTION

1.1 Background of the Study

Migration of sub-Saharan professionals abroad has cultural implications. Every human being is a product of the culture of its society. Culture therefore has a controlling influence over the way people live, think, speak and behave. As such everywhere one goes, one carries along a “cultural baggage”. This cultural baggage serves as the primary paradigm through which the world is explained and understood. It is expected that conflict, dissonance and disorientation will occur when one goes to live and work in a different culture (Kohls, 2001). For professors from sub-Saharan Africa to leave their societies and take up teaching appointments on other continents especially in the United States, a society very different from their own, could mean that they do so at a cost to their psychosocial wellbeing. It would therefore be worth finding out how the cultures of the respective African professors have shaped their experiences.

The media in the West have not made matters any easier for sub-Saharan Africa but continue to selectively report the negative aspects of the culture and events that happen on the African continent. To those who live in the West and have neither travelled to Africa nor objectively assessed media reportage on Africa, the continent is known only for tribal wars, genocide such as in Rwanda, Liberia and now in the Sudan; HIV AIDS pandemic, widespread famine, abject poverty and mass migration by boat to green pastures of Europe. This negative reportage by the western media has perpetuated the negative stereotypes about Africa and left people with deep seated negative images of the continent. Hazel Carby suggested that the objective of stereotypes is “not to reflect or represent a reality but to function as a disguise, or mystification, of objective social relations” (1987, p. 22). These controlling images are designed to make such stereotypes appear to be natural, normal, and inevitable parts of everyday life (Collins, 2000). Even when the initial conditions that foster controlling images disappear, such images prove remarkably tenacious because they not only subjugate Africans but are essential in maintaining intersecting oppressions (Mullings 1997, p. 109-30).

Given that there is a pervasive negative representation in the U.S. media about sub-Saharan Africa, the researcher was interested in finding out how professors from the region were perceived: whether they were accepted as equals among their peers; whether they were able to easily integrate into the social life of the American academe; whether they were included in scholarly research ventures.

2. LITERATURE REVIEW

2.1 Challenges to Job Satisfaction

In predominantly White colleges and universities where faculty of colour are the “onlys” or “others” their level of loneliness and isolation is at much higher levels than their White counterparts. The isolation and loneliness is exacerbated by the low to nonexistent social and emotional support that they receive from their White counterparts. This issue is a barrier and challenge to their job satisfaction (Laden & Hagedorn, 2000). According to Laden & Hagedorn (2000), faculty of colour suffer unnecessary discomfort because of their distinct physical characteristics which stands out in a predominantly white campus. Sources of discomfort include, gestures, attitudes, stare, cuss words, verbal abuse, heckle, etc. Laden & Hagedorn asserts that in scholarly settings, the perceptible ethnic physical features and behaviors of faculty of colour tend to be emphasized over their scholarly achievements (2000). The practice is to ensure that the superiority of White faculty is reinforced.

Faculty of colour identified the issue of being perceived and treated as tokens as a major obstacles to their job satisfaction (Essien 2003; Johnsrud & Sadao, 2003). According to Essien (2003), as tokens, faculty of colour are showcased on committees, panels, boards, etc, as representatives of their ethnic groups rather than on the merit of their professional competence. Tokenism is a practice by the dominant White faculty to strategically make minority faculty feel embraced. A closer look at the practice however reveals that the dominant White faculty uses tokenism to present a semblance of diversity while restricting access to advantaged positions. As one way that faculty of colour challenges and overcome marginalization, isolation and tokenism is the establishment of parallel institutions in the form of meetings and conferences to discuss the plight of faculty of colour and to offer solutions (Essien 2003). Associated with tokenism is the constant pressure on faculty of colour to play the role of multicultural expert (Johnsrud & Sadao, 2003). In this regard, faculty of colour is forced to become a resource person and an expert on race related issues. This imposed role becomes a source of attraction to students of colour to approach faculty of colour for mentorship and help. Consequently, faculty of colour ends up devoting more than necessary time to advising.

The literature shows that faculty of colour are subject to higher levels of job-related stress than their White counterparts. According to Laden & Hagedorn, (2000), faculty of colour perceive they are expected to work harder than White faculty, “or more simply put, work twice as hard to be treated as equal” (p. 61). Many faculty of colour feel they are “always in the spotlight” and under constant scrutiny by their White colleagues (Turner & Myers, 2000, p. 90). The stress from scrutiny becomes unbearable when faculty of colour serves on a number of frontline committees and targeted groups. In trying to understand the stress suffered by faculty of colour teaching in predominantly white colleges and universities, I feel it is like being constantly followed by invisible eyes, looking over your shoulders to see whether your ways and actions live up to the almighty Eurocentric norm. That type of stress can be detrimental to the ability to perform effectively and one’s quality of health.

Getting tenured is a stressful process for all faculties. However, for faculty of colour, the tenure process is one of the most stressful. It is the most stressful because it is a process of getting a small group of people, mostly White men to decide whether you are good enough to be admitted into the elite club of the professoriate (Stanley, 2006). Faculty of colour on tenure-track were expected to develop strategies to cope with the many acts of politics and academic intrigue that goes on in their departments. Although academic freedom is guaranteed to all faculties, but because the tyranny of silence is real and anyone who attempts to rock the boat is promptly and firmly sanctioned, faculty of colour on tenure-track must use their freedom of speech frugally in order not to incur negative evaluations when the time comes to go up for promotion. The stress of faculty of colour in predominantly white colleges and universities, especially the stress of the process of tenure brings to mind one of the sayings of Jean-Jacques Rousseau that, man is born free, but everywhere he/she is in chains. It is indeed saddening that in the land widely acclaimed on earth as a bastion where individual rights and freedoms are guaranteed the most, faculty of colour should unfairly sacrifice some of their freedoms in order to successfully go through the tenure process and receive their promotion.

The literature indicates that limited opportunities for advancement through the ranks have been recorded for every faculty of colour except for Asian Pacific Americans (Laden & Hagedorn, 2000; Turner & Myers, 2000). The implication being that other minority faculty (African American, American Indians, and Latinos) are more likely to be concentrated at the lower levels of the professoriate. Turner & Myers (2000) concluded that tenure and promotion may be especially problematic for faculty of colour. They reported that many faculty of colour were either told outright or indirectly that they did not fit “the profile” when they were not reappointed or denied tenure or promotion (p. 89). The report also indicated that some faculty of colour were advised to relocate to other institutions, presumably to institutions of lower status with perceived lower standards where tenure and promotion for faculty of colour might be more likely. I find no other name to call this practice but to label is rightfully so, as blatant racism in the academe.

In dealing with factors that promote job satisfaction among faculty of colour the literature points to intellectual challenge as the most important component. Other factors include, autonomy and independence in the workplace; developing a meaningful philosophy of life; followed by promoting racial understanding; and being able to help others in difficulty (Laden & Hagedorn, 2000). In seeking to understand why faculty of colour consider intellectual challenge as a vital component in job satisfaction, I came to the conclusion that isolation and marginalization deprives faculty of colour the environment of collegiality where ideas, insights, concepts, and scholarship can be discussed, and improved upon. The absence of “iron to sharpen iron” in this case the unavailability of majority White faculty to their minority counterparts to engender healthy intellectual discourse creates the void of intellectual stimulation among faculty of colour.

2.2 Challenge of Mentorship

Diversifying faculty goes beyond hiring faculty of colour. Integral to the concept of diversity in the academe is the incorporation of faculty of colour through retention and empowerment (Essien, 2003). For faculty of colour to be incorporated into the academe, a nurturing environment must be created to mentor the strengths and weaknesses of the new faculty. The nurturing environment must have a climate that fosters a sense of belonging and community. It must have significant others who will polish the strengths of the new faculty and work towards the elimination of the weaknesses of the new member. Considering the fact that mentoring is essential to professional development, one would wonder whether in predominantly white colleges and universities faculty of colour enjoy a nurturing and mentoring environment.

Turner & Myers (2000) asserts that there is minimal guidance and mentoring of faculty of colour toward reappointment, tenure, and promotion. According to Essien (2003) invisible barriers in the form of subtle and indirect actions and omissions are prevalent in predominantly white colleges and universities that undermine the personal and professional development of faculty of colour. A catalogue of these invisible barriers to incorporation and career advancement include: faculty of colour being asked to teach low-status courses; being burdened with committee work that is trivialized in tenure decisions; being left out of the information loop; failure to credit publications in specialty focus journals as viable scholarship; being denied promotion because of one’s minority status delay or denial of research funding; and encouraging visiting faculty to teach courses in competition with those offered by faculty of colour (p. 68-69).

The literature on the other hand shows that many faculty of colour had mentors who helped shape their scholarly development in the academe. Faculty of colour who had the benefit of mentorship were helped with teaching and research, and to be good citizens. The mentoring process enabled faculty of colour to develop a presence of leadership in their respective fields. Some faculty of colour had mentors outside their disciplines, some in their home institutions, some benefited from cross-race mentoring, and others had same-race mentoring (Stanley, 2006). Stanley (2006) cites the following narrative to show the impact that mentorship had on the professional development of faculty of colour:

I often reach back to a traditional value that many Latinos hold dear, the idea of community or “familia.” Even where the number of Latinos or faculty of colour is slim, seek out a diverse network of committed teachers. They not only provide you with an extra set of eyes and ears for the classroom; they can also provide you with the type of honest feedback both you and your students require to succeed. While senior White faculty cannot address all the dilemmas encountered by Latinos, many have successfully navigated troublesome classroom waters. You owe it to yourself to avail yourself of their considerable knowledge and experience. Everyone talks a good talk about diversity. Look to those colleagues (White as well as colleagues of colour) who are doing the work and walking the talk. (p. 712)

The pieces of advice in the above narrative is very enlightening indeed and those with minority status need to take this to heart and endeavour to practice this if they should find themselves in an American classroom.

3. METHODOLOGY

3.1 Research Design

Some research questions lend themselves to numerical answers-positivist paradigm; while others seek for detailed understanding-interpretive (also referred to as constructivist) paradigm, which focused on social constructs that are complex and is always evolving, making them less amenable to precise measurement or numerical interpretation (Glesne, 1998). The difference between positivist and Interpretivist paradigms of research is summed up by Albert Einstein cited by Patton (2002, p. 12) stating that, “not everything that can be counted counts and not everything that counts can be counted”.

This research carefully and thoroughly captured and described in detail the lived experiences of sub-Saharan African professors teaching at a predominantly White Midwest university. This study did not lend itself to numerical analysis and answers. Since the focus of this study provided a thick and rich description of the experiences of professors from sub-Saharan Africa teaching at a predominantly White university in the Midwest, the study fell within qualitative research. The rationale for collecting material on the lived experiences of the African professors was to understand from their perspectives what their experiences mean to them. It was also to give voice to their experiences which have to the best of my knowledge hitherto not been heard among the voices within the U.S. academe. Bogdan and Biklen, hold that qualitative research is descriptive; the data collected take the form of words or pictures rather than numbers (2007). The appropriate qualitative methodological approach to the study was therefore phenomenology.

Phenomenology focuses on describing the meanings people give to their lived experiences (Patton, 2002; Creswell, 1998). Phenomenology studies the essence of a phenomenon i.e. what makes a ‘thing’ what it is.

Manen (1990) views phenomenology as aiming at gaining a deeper understanding of the nature or meaning of our everyday experiences. Phenomenology asks, “What was this kind of experience like?” (p. 9). The purpose of phenomenology is to describe a lived experience before the experience is conceptualized, categorized, or reflected upon. In other words, the task of phenomenological research and writing is to construct a possible interpretation of the nature of a certain human experience (Manen, 1990, p. 41).

3.2 Selection of Participants

The research sample for this study was drawn from sub-Saharan African professors teaching at a predominantly White university in the Midwest. The population for this study was all the sub-Saharan African professors teaching in the selected Midwest University. There were twelve sub-Saharan African professors teaching in the selected Midwest University. Thus, all the sub-Saharan professors were chosen as part of the sampled population because the population size was small and also because the research was a case study. The study captured the experiences of tenured, tenure-track, and untenured professors to provide a holistic picture of their experiences.

Participants in this study were selected using the purposeful sampling technique. Purposeful sampling technique was used in the selection of participants in order to ensure that participants provided rich data regarding their lived experiences in the U.S. university academe. Patton (2002) asserts that, purposeful sampling has the power to produce information-rich cases for in-depth study. Thus in this study only professors who bore the core characteristics of hailing from sub-Saharan Africa were purposefully selected. They therefore not only provided a rich source of information, but greatly enhanced the quality of data collected, and shed great light on the phenomenon being studied.

3.3 Instrument

The data gathering instrument was a semi-structured interview protocol. Interviewing allows researcher to enter into respondent’s perspectives and find out what is in and on the mind of respondents (Patton, 2002, p. 341). The interview instrument consisted of a list of questions to guide, probe and explore the perspectives and experiences of respondents. The interview guide ensured that limited time on the hands of respondents was well utilized and every respondent was systematically interviewed with the same questions. The interviews were conducted in a face-to-face setting and were recorded on audio tape.

3.4 Data Processing and Interpretation

Being a qualitative research, this study was taken through the inductive process of analysis and interpretation. The process of qualitative data interpretation involved taking the raw data through the process of analysis and transforming it into findings. Transforming raw qualitative data into findings is akin to the metamorphoses that takes place in a caterpillar from its unattractive beginning into the splendour of the mature butterfly (Patton, 2002). The analytical process of the data passed through the transformative process of organizing the data, segmenting the data into meaningful units, coding, synthesizing, and looking for emergent patterns, themes and categories. The findings which emerged after data analysis became the product for interpretation. Data interpretation refers to “developing ideas about findings and relating them to the literature and to broader concerns and concepts (Bogdan & Biklen, 2007). The interpretation process also involved explaining the

importance of the findings, how it elucidated relevant theory and other scholarship, how it informed policy and future action that needed to be taken.

4. FINDINGS

During the analysis of the data on the research question about the relationship of sub-Saharan African professors with their colleagues and mentors, the following themes emerged: collegiality, friendship, collaboration and inclusiveness; relationship with African American professors, mentorship and academic professional support.

The above themes have their grounding in the interview data collected. Each theme has been presented using the rich descriptions of the respondents. The presentation of each theme is followed by a discussion of the findings and its bearing on the literature.

Out of the eight sub-Saharan African professors who obtained their PhDs outside Africa only two initially returned to Africa. Only 25% of the researcher' sample went to Africa after their PhD program. 75% continued in the Western academe. Out of the five that studied in the U.S. three remained and two went initially back home to Africa. Out of the three that obtained their PhD programs in Europe, one went initially back to Africa. Three out of the ten professors interviewed were civil and public servants in their respective home countries in Africa before embarking on their graduate programs abroad. The remaining seven professors taught in universities in their respective African home countries before pursuing PhD programs abroad. In keeping faith with the Institutional Review Board requirement of protecting the rights and welfare of the respondents, the researcher used pseudonyms to protect the identity of the respondents throughout this study.

4.1 Relationship of Sub-Saharan African Professors with Colleagues and Mentors

This section addressed the research question of the study: the nature of relationship of sub-Saharan African professors with their colleagues and mentors. The question explored the formal and informal relationships that respondents had with their colleagues. The study investigated experiences of collegiality, collaboration, inclusiveness, and friendship that exist between my respondents and other faculty members. The narratives of respondents revealed a general trend towards collegiality and friendship. However, some of the respondents lamented over the dearth of collaborative ventures and inclusiveness.

4.2 Collegiality and Friendship

Most of the respondents classified their experiences with colleagues as collegial and friendly. They intimated having a good working relationship with their White colleagues. They also said their scholarship and views were equally respected both in formal and informal settings. Dr. Sweetie described her relationship with her colleagues as very positive and friendly.

My relationship with my colleagues was very good because we socialize a lot. I go to the gym with my mentor and we have a lot of dinners together. A lot of my colleagues were friends. I know a lot of their spouses and I go to their homes and sometimes socialize with their spouses without them being present. My husband and I get invited to their homes and we also invite them to homes. For the most part they were not only our colleagues but we consider them our friends. I have never been to the

homes of the two colleagues who were full professors but our interaction here in the department was very good. One was a man and the other was a woman and my interaction with the woman was really very good.

Dr. Union on the other hand explained the level of collegiality and friendship he enjoyed currently among his peers by contrasting it with his experiences in a previous university where he taught briefly and the university where he did his PhD.

My relationship with colleagues at least in this department was very friendly compared to my relationship with colleagues in my former university. My former department was not a happy department. Since I left, I have been told that the department over there has colleagues who have conflicting personal relations to the extent that some do not speak with others. In the university where I did my PhD there were 2 professors who were at enmity to the extent that when students work with one professor they could not work with the other professor. If one was on your dissertation committee the other will not serve but here we do not have that. My relationships with colleagues were pretty good.

In explaining how such standards of collegiality and friendship was attained my respondents pointed to the social gatherings that they strategically organize and also attend to foster a sense of belonging. In shedding light on the importance of organizing and attending social gathering as a means of fostering collegiality and friendship Dr. Pius commented:

Faculty members come to my house every fall quarter for social interaction. We were very cohesive and we all eat together and interact. During other quarters one of the faculty members will invite U.S. to go out somewhere to eat and drink. Although I do not drink I attend and we have a good time. All school directors and heads of departments meet regularly although not all of them attend the meetings. We were about 53 but about 23 or 30 meet to discuss student and other administrative issues. When I talk they listen attentively and because of my assent I see them making the effort to listen attentively to me when I am speaking.

Dr. Union observed that having children also helped promote friendship among colleagues. The promotion of friendship among colleagues was done through inviting colleagues and their families with children to birthday parties and reciprocally being invited and attending theirs. Social gatherings and programs for children became a forum for colleague parents to meet and build friendships and network

Usually if you have children who share similar hobbies you meet colleagues at some of these places like playgrounds etc. Also you meet faculty at conferences and other places where you share the same interests. I have met my colleagues in conferences which were organized by other departments because we shared common interest in the topic of discussion. Because of our children we also meet other faculty members at children birthday parties. Faculty members who also have children attend those parties.

The experiences of respondents regarding collegiality and friendship with their White colleagues were generally positive. This positive relationship did not support the literature that minority faculty of color on predominantly White campuses suffer from isolation and loneliness, and that they experience nonexistent social and emotional support from their White peers (Johnsrud & Sadao, 1998; Laden & Hagedorn, 2000). My respondents felt their scholarship and views were also respected by their White peers.

The positive collegial experiences of respondents with particular reference to the respect accorded their scholarship do not support the literature (Aguirre, 2000; Turner & Meyers, 2000) that the scholarships of minority faculty of colour are not accorded respect and recognition.

4.3 Collaboration and Inclusiveness

Although most of the respondents said their colleagues respect them and appreciate their contributions and friendship, they had very little collaborative ventures on scholarship with their White colleagues.

Dr. Bishop lamented the lack of inclusiveness of sub-Saharan African faculty in collaborative endeavours by their White peers.

I would say that a major challenge was fundamentally not having a platform of genuine collaborative endeavour with your White colleagues. By this I mean that one would always be seen as being on the periphery as someone that was coming from a different place from different continent from different racial configuration. This perception was always there and I feel that it was always a major challenge to integration and collaborative work and research. Since the university academe has become a marketplace the relationship has also become material which was a major challenge. I have found the relationship based on the marketplace model detrimental to scholarship especially in a predominantly White institution.

Dr. Grace explained that the only time he enjoyed fruitful relationship with his colleagues were those rare occasions when they had to collaborate on research or an academic program.

My relationship with my colleagues was interesting. It was an up and down relationship. There were times it was at its height and at other times it was cold and you feel like you do not want to be here. As to the nuances as to why the atmosphere changes from time to time it was another whole ball game. Strangely enough it was more difficult now to find something to say positive because the last few years have been less than desirable experiences and I find less than positive things to say about the relationship.

Collectively there were some positive things that have transpired. I would say what I enjoy with my colleagues was when there were some collaborative work of research. I would say my memorable times were when there were possibilities and when we work jointly on promoting research and academic programs.

Dr. Sheba on the other hand echoed sentiments of collegiality and friendship between him and his peers but stressed that he collaborated on scholarly work more with colleague sub-Saharan African professors than with his White counterparts.

I have good working relations with my colleagues especially those that I know. My department was a large one and I do not have working relationship with all of them. I have a good relationship with those that I work closely with. In African Studies Program, I have a good relationship over there. I have been organizing things with most African professors on campus where our work overlaps and the connection works well

Most of the respondents shared Dr. Sheba's sentiment of having closer collaborative endeavours with other sub-Saharan African professors in the university than their White colleagues. They confirmed that the

presence of a strong African studies program at the university brought them together and served as a major strategic network for uniting them and promoting scholarly collaborations.

Unlike most of the male respondents who have had little or no collaborative projects with their White colleagues, Dr. Sweetie had lots of collaborative research with colleagues. Dr. Sweetie commented that she have had more collaborative research work with White colleagues within and outside of her current university more than faculty of colour. Dr. Sweetie had this to say,

My experience with collaborative research work was that you have to make it happen. You have to think up ideas and invite people to work with you-people that you know can work well together.

In exception of Dr. Sweetie, respondents generally found themselves on the periphery of collaborative research ventures with their White counterparts. Respondents saw the U. S. academe as a marketplace working on the principles of demand and supply of branded products.

The positive collaborative experiences of Dr. Sweetie a female faculty with her White colleagues did not support the literature that women faculty of colour often come under pressure to change their research agendas to fit in with those of their units; that colleagues have low expectation of them; and that they have to work extra hard to be perceived as legitimate scholars (Hollenshead & Thomas, 2001).

4.4 Relationship with African American Professors

It would be expected that being Africans and laying claim to the same racial identity would be a rallying point and concretizing factor in the relationship between the research respondents who come from sub-Saharan Africa and their colleague African American professors. This logic was however not the case with two of my respondents Dr. Shine and Dr. Grace who have African American faculty colleagues. The respondents had unforgettable experiences about their relationships.

According to Dr. Shine, when he came up for tenure, his African American colleague who was the chair of his tenure committee went to great lengths to ensure that he was denied tenure. He said that if not for the unflinching support and pressure from his White colleagues and an appeal to the university provost which led to the setting up an independent committee to look into his tenure issue, he would never have been tenured.

When I came up for tenure, my White colleagues at the department and students strongly supported me except one guy, an African American who engineered my being denied tenure. He felt threatened by my presence and put the dean into trouble. He was peeved that students wrote a play about me as their hero and were always praising me.

Dr. Grace also commented on how one of his African American colleagues was working assiduously behind the scenes to tarnish his image and destroy his credibility as a scholar among other faculty members and even among students.

Respondents explained that the animosity exhibited by some African American professors towards their African counterparts ran deeper than personal jealousy and hatred. They asserted that because African professors from the continent do not share the same history of slavery, of emancipation, and the fight for civil rights and liberties with their African American counterparts they were seen as outsiders coming to compete with them.

Dr. Union expressed this view as follows:

The reason why African Americans do not want to engage Africans was because they feel that we do not have that background and history of slavery and the things they went through. For the White majority it was a good thing for Africans not to have that baggage of Jim Crow, civil rights, slavery etc and for the African American it was the opposite. Since the African do not have the history of the African American, the African American does not want to engage the African because we were not the same. They also play the reverse snobbish behavior and look down on the African. If you ask me about discrimination I would say there was much more discrimination from African American against Africans than from White Americans against Africans. That was my experience.

Respondents explanation of the cause of ill feeling between them and their African American colleagues confirmed the assertion of Arthur (2000), that the distinguishing and enduring socio-cultural and economic characteristics that Africans carry with them to the United States have the tendency of differentiating them from African Americans. These differentiating socio-cultural and economic characteristics were sometimes the causes of hostility and misunderstanding between the two groups of people.

4.5 Mentorship

Some respondents said they have mentors while others did not. Those who did not have mentors explained that they had mentors when they were pursuing their PhD programs but the relationship ceased to exist after they started their teaching careers in the U.S. university academe. Respondents also explained that their departments did not have mentorship programs for new faculty. They therefore relied on their previous teaching experiences in Africa and elsewhere to guide them. Additionally, respondents remarked that when they have faculty related problems and need advice, they consulted their friends in other universities elsewhere in the U.S. for counsel.

Dr. Grace on the other hand remarked that although there was a mentorship program in his college the associate dean felt that since no faculty in the college was working directly in his research areas the prudent thing was to link him with outside faculty with similar research interests. Dr. Shine however has two mentors both of them White male professors. Dr. Bishop the visiting professor also said he had two mentors. He said the White professor who chaired his dissertation committee continued to serve as his mentor and the second mentor was a professor from his department back in Africa.

The department of Dr. Sweetie had a mentorship program and Dr. Sweetie had a mentor who was also a faculty of colour. Dr. Sweetie remarked that overall she found the mentorship program and her mentor very helpful. Dr. Sweetie said that sometimes however, her personal perceptions and judgments conflicted with the advice of her mentor and she got confused about how far she could trust the advice.

We also have a mentoring system in my department. Once in a while my mentor would talk to me about something or someone to watch out for. Your mentor has your best interest at heart and some of the advice was shocking. And I wonder whether I am unable to read the situation correctly or she was not able to read the situation correctly. Most times I take her advice and do what she tells me but sometimes it goes against my values because I am big headed and I would like to logically argue out an issue to determine why it happened and I do not like to be told that, 'that was how it was done here' without questioning it. In my situation as a junior faculty however, I have to accept the advice of my

mentor and not challenge. You also want to be careful that you do not challenge and rub people on the wrong place.

The stories of respondents not having mentors and mentorship programs in their respective departments to nurture and polish their strengths echoed the assertion of Turner and Myers (2000) that there was minimal guidance and mentoring of faculty of colour in predominantly White American colleges and universities. The comments by my respondents especially those on tenure track that have little nurturing by way of mentoring also confirmed the claim of Essien (2003) that predominantly White American colleges and universities do very little beyond diversifying faculty to incorporate them into the university academe.

4.6 Academic Professional Support

Respondents acknowledged receiving annual designated professional development funds from their departments to attend academic conferences to present papers at least once a year. Most of the respondents confessed that these professional development funds were meagre and they had to supplement them with their own personal monies in order to do their research, to attend all the important conferences, and to present their research papers. The remark of Dr. Shine captured the experiences of most of the respondents:

I am a professor of international theatre and I get a chance to attend international conferences and be visiting professor to represent the university. But here I am a professor of international theatre going to the University of Barbados to teach and I am not being paid for June to August. I have not been told that if I do not stay and teach I will not be paid. The argument was that if I cannot travel and do research as an international professor of theatre then where was the support for professional development.

What you get for conferences was \$300 and the most was \$500 and you get this twice in a year. And if you travel to Britain and you do not have a relative to stay with how can you live on \$300. Most of the time, you have to spend your own money on these conferences.

Since I came to this university I have attended about 30 conferences and I have to foot the bills myself. It was because the funds available were very small and limited and you cannot get the maximum of \$500 more than twice in a year.

Some of the respondents said they applied and received competitive research grants from their respective colleges over the years. Dr. Sweetie who got some of these university wide competitive research grants wished that there were situations where tenure track professors could receive competitive grants and have one course load taken off in a given year where the grantee could use the time solely for research.

Since joining the university, I have received a challenge grant to do fieldwork. There were also internally competitive grants which were all university grants and I also received some. I also get the \$1000 dollar grant from the department for conferences. Sometimes the college also adds \$500 to attend a conference and a half each year. I wish there was room to get research grant where you can get a course off in a year in an open competitive situation.

Dr. Politics who had applied two years in a row for such competitive college research grants but was not awarded felt he had been discriminated against because of his race.

The overall experiences of respondents with academic professional support were that they received what was available to their White counterparts. In exception of Dr. Politics who applied two years in a row for a

competitive college research grant and did not win, other respondents were able to secure competitive college research grants for their research work.

4.7 Concluding Discussions

This concluding section presents a reflection on the themes that were gleaned from the interviews and observations of research participants. The themes that emerged were collegiality, friendship, collaboration and inclusiveness; relationship with African American professors, mentorship and academic professional support. Respondents remarked that they were respected by their White colleagues. They also stated that they have fruitful social and friendly interactions with their White professor peers. These experiences of respect, social and friendly interaction with their White peers goes contrary to the assertion of Laden & Hagedorn (2000) that minority faculty of color have low to nonexistent social and emotional support.

Commenting on levels of loneliness and isolation of minority faculty in the U.S. university academe, Laden & Hagedorn stated that, “faculty of colour often face issues and barriers, such as low to nonexistent social and emotional support and heightened feelings of loneliness and isolation at a level much higher than that experienced by their White counterparts” (p. 58, 2000).

The researcher believes that a plausible explanation as to why sub-Saharan African professors in a predominantly White university in the Midwest felt respected and embraced by their White peers lay in the identity of Africans from the continent as opposed to that of African Americans. Dr. Union addressed this issue succinctly. According to him,

The identity of immigrant Africans from the African continent to White America does not carry the baggage of the history of slavery and inferiority. White America knows that things that have happened here such as slavery and its aftermath has nothing to do with you the African immigrant so you have a clean slate and you do not have all those racial tensions over slavery and civil rights etc so you do not have any problems. You just have to start from there and go on.

The level of interaction of respondents changed hat from friendly social and emotional interaction to negligible collaboration on scholarship with their White colleagues. According to respondents the African studies program at the selected Midwest University provided them with the platform to collaborate on research endeavours among themselves as sub-Saharan African professors than with their White colleagues in their respective departments. The minimal scholarly collaboration between the sub-Saharan African professors and their White counterparts could be traced to the perception that minority faculty were involved in research deemed peripheral to the dominant White American research interests.

The lack of scholarly collaboration between sub-Saharan African professor respondents and their White peers reflects the broader discussion about what constituted legitimate epistemology in higher education in the U.S. In pointing out what constituted legitimate epistemology Bernal & Villalpando (2002) asserted that, “higher education in the United States was founded on a Eurocentric epistemological perspectives based on White privilege and “American democratic” ideals of meritocracy, and individuality. This epistemology presumes that there was only one way to knowing and understanding the world, and it was the natural way of interpreting truth, knowledge and reality” (p. 171).

The enjoyment of minimal scholarly collaboration from majority White professors therefore becomes a pressure valve for minority faculty of colour to engage in scholarly interests that were acceptable in White journals (Bourguignon et al., 1987; Banks, 1984).

The negative experiences of two respondents with their African American faculty peers seems to confirm the assertion of Arthur (2000) that although African immigrants and African Americans were of the same race, they do not necessarily share the same history, culture and economic paradigms and as a result these differences sometimes became a source of tension and animosity among the two groups. In her study of eight African immigrant professors in two historically Black universities in a South-eastern State, Ochukpue (2004) revealed that her African immigrant professor respondents experienced pernicious discrimination, career glass ceiling, isolation, stress, tenure tension, lack of career advancement, and negative estimation of competence. She concluded that, despite their shared racial characteristics and common African heritage with African Americans, her study showed that African immigrant professors have not melted into the cultural pot of African Americans (p. 170).

The mentoring experiences of respondents were in consonance with the literature. Majority of respondents did not have mentors. According to the literature many faculty of colour lament the fact that they have received very little or no mentoring from senior faculty colleagues (Stanley & Lincoln, 2005). Respondents who had mentors affirmed that they benefited from the mentoring relationship. This positive experience of respondents mirrored the assertion by Tillman (2001) that productive mentor-protégé relationships lead to improvements in teaching, performance and research productivity. The case of Dr. Grace who has to look outside of his university for a mentor reflected the findings of Thomas & Hollenshead (2001) that some faculty of colour have to look beyond senior faculty in their department to find mentors elsewhere. Remarks by respondents on tenure track that they have little mentoring from senior White faculty also confirmed the assertion of Essien (2003) that predominantly White American colleges and universities do very little beyond diversifying faculty to incorporate them into the university academe.

REFERENCES

- Aguirre, A., Jr. (2000). Women and minority faculty in the academic workplace: Recruitment, retention, and academic culture. *ASHE-ERIC Higher Education Rep. No.27.6*. San Francisco, CA: Jossey-Bass
- Arthur, J. A. (2000). *Invisible sojourners: African immigrant diaspora in the United States*. Westport, CT: Praeger.
- Banks, W. M. (1984) Afro-American scholars in the university: Roles and conflicts. *American Behavioral Scientist*, 27, 325-339
- Becker, H. S. (1970). *Sociological work: method and substance*. Chicago, IL. Aldine Publications
- Bernal, D. D., & Villalpando, O. (2002). An apartheid of knowledge in academia: The struggle over the "Legitimate" knowledge of faculty of colour. *Equity & Excellence in Education*, 35(2), 169.
- Bogdan, R. C., & Biklen, S. K. (2007). *Qualitative research for education: An introduction to theories and methods* (5th ed.). New York: Pearson Education Group.
- Bourguignon, E., Blanshan, S. A., Chiteji, L., MacLean, K. J., Mechling, S. J., Sagaria, M. A., Shuman, A. E. & Taris, M.T. (1987). *Junior faculty life at Ohio State: Insights on gender and race*. Columbus: Ohio State University, Affirmative Action Grant Program.
- Carby, H. (1987). *Reconstructing womanhood: the emergence of the Afro-American woman novelist*. New York: Oxford University Press.
- Collins, P. H. (2000). *Black feminist thought: knowledge, consciousness, and the politics of empowerment*. New York and London: Routledge.
- Creswell, J. W. (1998). *Qualitative inquiry and research design: choosing among five traditions*. Thousand Oaks, CA: Sage Publications.
- Essien, V. (2003). Visible and invisible barriers to the incorporation of faculty of color in predominantly White law schools. *Journal of Black Studies*, 34(1), 63-71
- Glesne, C. (1998). *Becoming qualitative researchers: An introduction* (2nd ed.). New York: Addison Wesley Longman.
- Johnsrud, L. K., & Sadao, K. C. (1998). The common experience of "otherness:" ethnic and racial minority faculty. *Review of Higher Education*, 21(4), 315-342.
- Kohls, (2001). *Survival kit for overseas living*. Yarmouth, Maine: Intercultural Press Inc.
- Laden, B. V., & Hagedorn, L. S. (2000). Job satisfaction among faculty of color in academ: Individual survivors or institutional transformers? *New Directions for Institutional Research*, 27(1).

- Manen Max van (1990). *Researching lived experience: human science for action sensitive pedagogy*. Ontario, CA: Althouse Press.
- Mullings, L. (1997). *On our own terms: race, class, and gender in the lives of African American women*. New York: Routledge.
- Ochukpue, W.E.N., (2004). A qualitative study of African immigrant professors in two historically black institutions in a Southeastern State (Doctoral dissertation). Retrieved November 10, 2007. <http://repository.lib.ncsu.edu/ir/bitstream/1840.16/5252/1/etd.pdf>
- Patton, M. Q., (2002). *Qualitative Research and Evaluation Methods*. Thousand Oaks, CA: Sage
- Stanley, C. A. (2006). Colouring the academic landscape: Faculty of colour breaking the silence in predominantly White colleges and universities. *American Educational Research Journal*, 43(4), 701-736.
- Stanley, C. A. (2006). *Faculty of colour: Teaching in predominantly White colleges and universities*. Bolton, MA: Anker Publishing.
- Stanley, C. A., & Lincoln, Y. S. (2005, March/April). Cross-race mentoring. *Change*, 37(2), 44-50.
- Thomas, G. D., & Hollenshead, C. (2001). Resisting from the margins: The coping strategies of black women and other women of color faculty members at a research university. *Journal of Negro Education*, 70(3), 166.
- Turner, C. S. V., & Myers, S. L., Jr. (2000). *Faculty of colour in academe: Bittersweet success*. Needham Heights, MA: Allyn & Bacon.
- Tillman, L. C. (2001). Mentoring African American faculty in predominantly White institutions. *Research in Higher Education*, 42, 295-325.

Phytotoxic effect of leaf extracts of *Artemisia afra* and *Rhamnus prinoides* against some fungal pathogens of *Amaranthus hybridus*

Mapotso A. Kena^{1,2*} and Tlaleng F.M. Lepheana¹

¹Department of Crop Science, Faculty of Agriculture, National University of Lesotho, P. O, Roma 180,

Lesotho. Tel: +26622340601

²Department of Plant Production, Soil Science and Agricultural Engineering, University of Limpopo, Private

Bag X1106, Sovenga, 0727 South Africa. Tel: +27152682327

Corresponding author E-mail: Mapotso.Kena@ul.ac.za

ABSTRACT

The antimicrobial activity of *Artemisia afra* Jacq. Ex Willd and *Rhamnus prinoides* L. Herit leaf extracts against 3 fungal pathogens of *Amaranthus hybridus* L. were determined using methanol as extraction solvents. The extracts from the two plants were evaluated on their ability to inhibit pathogen growth in vitro and reduce disease severity under greenhouse conditions. Both *A. afra* and *R. prinoides* extracts showed varying degree of suppressiveness on pathogen growth. Extract of *R. prinoides* showed maximum inhibition (6.67mm) against *F. oxysporum*, *F. solani* and *Alternaria alternata* (Fr.:Fr.) Kessl., whilst *A. afra* had the highest inhibition activity against *A. alternata*. In greenhouse experiments, both *R. prinoides* and *A. afra* extracts were able to reduce disease severity caused by the three fungal pathogens. Disease suppression was however highest in Benomyl (Methyl 1-(butylcarbamoyl)benzimidazol-ylcarbamate) treatments as compared to control and plant extracts treatments.

Keywords: Antifungal activity, disease severity, disease suppression, pathogen growth, plant extracts

1. Introduction

Amaranthus hybridus is emerging as a new crop and is cultivated as a vegetable in many countries. The leaves of vegetable amaranth are rich in nutrients, minerals, vitamins and phytochemicals (Akubugwo *et al.*, 2007). Its ability to adapt to unfavourable growing conditions such as low nutrient soils and a wide range of temperature and irradiation makes it an ideal vegetable for semi-arid areas (Myers, 1996). Also, its ability to grow well under dry conditions makes it a preferred vegetable for semi-arid areas where water is a scarce commodity (Kauffman and Haas, 1983; Masarirambiet *et al.*, 2012). In Lesotho, the cultivation of *Amaranthus* species is being promoted as an alternative vegetable crop because of its low maintenance and high yield. However, its susceptibility to diseases is a major concern, especially under small-holder farming systems where the use of synthetic chemicals is not practiced. A number of fungal pathogens are known to affect *A. hybridus* during different growth stages. These include different species of *Fusarium*, *Alternaria* and *Pythium aphanidermatum* (Edson) Fitzp (Blodgett *et al.*, 2004). These pathogens cause serious damage on affected plant parts and this usually results in poor crop yield. Both *F. oxysporum* and *F. solani* cause root and stem rots (Yu and Babadoost, 2013) whilst *A. alternata* can cause leaf and stem blight (Blodgett *et al.*, 2004). Lack of effective and easily accessible control methods is therefore necessary to manage such pathogens and increase crop yield.

Certain plants are known to possess insecticidal, fungicidal and antibacterial activities, which can be used in plant protection to manage pests and diseases of crops. Different studies have reported successful suppression of disease severity and pathogen growth with plant extracts (Rhouma *et al.*, 2009). For instance, extracts of *Azadirachta indica* A. Juss. have been shown to suppress the growth of *F. oxysporum* and the severity of *Fusarium* yellows in beans (Obongoya *et al.*, 2010).

Artemisia afra and *R. prinoides* are indigenous plants growing in different areas in southern Africa. In Lesotho these plants are known mainly for their uses in treating human ailments such as colds and fevers. However, studies on their use in plant disease control are limited. Studies conducted by Kena and Swart (2011) showed that the extracts of both *A. afra* and *R. prinoides* significantly suppressed mycelial growth of *R. solani* and *Pythium ultimum* Trow and damping-off of vegetable seedlings under greenhouse conditions. In the same study, *A. afra* was also shown to have some inhibitory effect on *F. oxysporum* growth in vitro (Kena and Swart, 2011). In this study, the inhibitory activity of methanolic extracts of *A. afra* and *R. prinoides* on some fungal

pathogens of *A. hybridus* were evaluated. Their effect on disease severity was also evaluated under greenhouse conditions.

2. Materials and Methods

2.1 Plant extracts preparation

Fresh, healthy leaves of *A. afra* and *R. prinoides* were collected from different areas around National University of Lesotho Roma campus with specific location at S 29° 29.654' and E 27° 40.009' and S 29° 29.648' and E 27° 39.906' coordinates. Taxonomic identification of each plant was carried out at the National University of Lesotho Department of Botany Herbarium, Roma Lesotho. After identification, plant leaves were dried under shade until completely dry. Dry plants were then ground to a powdery substance using a blender and kept in brown bottles at 5°C until further use. Two and a half grams of *A. afra* and *R. prinoides* leaf powder sample were separately suspended in 100ml of methanol solvent as described by Mannet *et al.* (2008). The obtained mixtures were then vortexed and placed on a rotary shaker for 1 hour at 170rpm. Samples were then centrifuged at room temperatures at 4200g for 10 minutes. The supernatant from each extraction step was transferred into a new tube. The third extraction was placed on a rotary shaker overnight and then centrifuged as described above. The combined supernatants were concentrated to 1ml by vacuum drying at 30°C. Tubes were then refilled uniformly with distilled water to a volume of 10ml and the suspension was re-sterilized using a hypodermic syringe-driven filter paper (0.2µm pore size). Samples were kept at 4°C in the refrigerator until further use.

2.2 Pathogen and inoculum preparation

Fungal pathogens used in the study were *F. oxysporum*, *F. solani* and *A. alternata*. All tested pathogens were isolated from infected *A. hybridus* plants and identified according to their morphological characteristics. Both *F. oxysporum* and *F. solani* were isolated from *A. hybridus* plants showing stem discoloration and wilt. *Fusarium* spp were first grown on PDA and incubated at 25± 1°C for 7 days. Isolates were then transferred to Synthetic Nutrient Agar (SNA) growth media, further incubated at 25± 1°C for another 7 days and identified according to their mycelia and spore characteristics as described by Booth (1977) and Nelson *et al.* (1983). *Alternaria alternata* was isolated from symptomatic amaranthus leaves, grown on PDA and incubated at 25± 1°C for 7 days. Pathogen identification was according to morphological characteristics based on the shape, structure and spore ornamentation. Koch's postulates were carried out for each isolated pathogen to confirm their pathogenicity. *Fusarium* spp cultures were maintained on SNA while *A. alternata* was maintained in PDA slants. Following isolation and identification, cultures were kept at 5± 1°C and were sub-cultured every month to prevent pathogen degeneration.

2.3 Antifungal activities of *A. afra* and *R. prinoides* leaf extracts on pathogen growth

The effect of *A. afra* and *R. prinoides* leaf extracts on mycelial growth was determined according to El-Mughrabi (2003) as described in Rhouma *et al.* (2009). Two ml of methanol aliquots of each plant extract were separately spread on 9 mm Petri dishes containing solidified Potato Dextrose Agar. Treated PDA was left overnight to allow the extract to be absorbed. In control treatments, un-amended PDA and Benomyl amended PDA were used as negative and positive control treatments respectively. A mycelial plug of 5mm diameter was cut from an 8-day old culture of each pathogen and placed at the center of each plate with mycelium touching the media. Each treatment was replicated four times. The plates were incubated at 25± 1°C. Colony diameter was measured after 7 days of incubation.

Percentage inhibition was calculated following the procedure:

% inhibition = (growth in control – growth in treated PDA)*100/growth of control. Treatments were arranged into a Completely Randomized Design (CRD) and data was analyzed using GenStat 7.2 Discovery Edition statistical package.

2.4 Green house experiment

2.4.1 Pathogen Inoculum

For each pathogen, inoculum was prepared by inoculating 500 ml potato dextrose broth with 10 sterile toothpicks with a PDA plug of an 8 day old pathogen culture of each fungal isolate. Cultures were then incubated at 25±1°C for 7 days. Toothpicks incubated in sterile, non-inoculated potato broth served as control.

Planting: *Amaranthushybridus* seedlings were established according to the method of Chen and Swart(2001). Ten healthy seeds of *A. hybridus* were planted 10 mm deep in 500 ml pots containing steam sterilized soil mixture (50% sandy-loam and 50% peat moss). Fertilization was applied as 50ml per pot of a 3g/l hydroponic nutrient solution of (6.5: 2.7: 13 N:P:K with micronutrients) once a week as a soil drench. Seeded pots were irrigated after every three days. Greenhouse temperatures were constantly kept at 27±1°C during the day and 15±1°C at night. Total RH was kept at 80% during the day and 89% at night. When plants were 4 weeks old, they were transferred to 1 liter pots containing the same soil medium as above and each pot was planted with 1 plant. Pots were treated with a solution 1g/L of each plant extract. In control treatments, soil amended with sterile, distilled water served as negative control, while positive control was treated with Benomyl. Pots were placed in randomized complete block design due to varying conditions at different parts of the greenhouse.

Ten days after transplanting, plants were wound-inoculated with pathogen infested toothpick. For *Fusarium* spp, inoculation was done by forming a wound on the stem at 1cm from the soil base, while for *A. alternata*, wound-inoculation was done on the mid-vein, between leaf vein and leaf tip(Blodgett and Swart, 2002). A total of three randomly selected leaves per plant, were inoculated. Control plants were inoculated with toothpicks incubated in sterile potato broth. Disease severity was determined fourteen days after inoculation. In *F. oxysporum* and *F. solani* experiments, plants were uprooted and extra soil from the roots removed by washing them under running tap water. Stems of up-rooted plants were then cut open longitudinally and the length of discoloration measured. In *A. alternata* experiments, a severity scale for leaf lesion size was created as: 0 = no lesion, 1 = small lesion; 2 = medium size; 3 = large; 4 = whole leaf affected; 5 = dead leaf. Each treatment was replicated three times. The experiment was repeated twice and data was pooled. After measurements were made, small pieces of infected plant parts (stem and leaf) were surface sterilized and plated on PDA plates for pathogen confirmation.

Data was analyzed using GenStat 7.2 Discovery Edition statistical package. Analysis of variance was used on pathogen growth inhibition and greenhouse experiments. Duncan's multiple range tests was used to separate the means. All statistical analysis was performed at $P \leq 0.05$.

3. Results and Discussion

3.1 Antifungal activity of *A. afra* and *R. prinoides* extracts on pathogen growth

Pathogen growth inhibition results presented in Table 1 shows varying inhibitory effects in all treatments. Mycelial growth inhibition of the 3 pathogens was not significantly different with treatment with extracts of *A. afra* and *R. prinoides*. The highest mycelial growth inhibition was recorded in *A. alternata* at 10.8mm colony diameter after 14 days growth. At 11.8mm colony diameter, *F. solani* exhibited the highest mycelial growth rate. However, this was not significantly ($P \leq 0.05$) different from the growth of the both *A.*

alternata and *F. oxysporum*. The same trend in pathogen growth inhibition was observed in *R. prinoides* treatments. Mycelial growth in all three fungal pathogens was significantly inhibited by *R. prinoides*. The highest growth inhibition was recorded in *A. alternata* at 11.4mm diameter. *Fusarium solani* displayed the highest mycelial growth at 12.3mm. However, this figure was still not significantly different for both *A. alternata* and *F. oxysporum*. These findings are in agreement with the results of (Kena and Swart, 2011) who reported the antifungal activity of these plants to damping-off causing fungal pathogens *Pythium ultimum*, *F. oxysporum* and *Rhizoctonia solani* Kühn. The highest mycelial growth was recorded in control treatments for all three pathogens. Zero pathogen growth was however, recorded in all Benomyl treatment. Though plant extracts have been shown to inhibit fungal growth in vitro, in most studies their inhibitory potential is always lower than that of tested fungicides (Obongoya et al., 2010; Rauf and Javaida 2013).

3.2 Greenhouse experiment

The number of diseased plants was significantly ($P > 0.05$) reduced in both plant extracts and Benomyl treatments (Table 2). The lowest number of disease incidence for all three pathogens was recorded in Benomyl treatment as compared to plant extracts and control. Untreated wounded plants showed highest disease incidences. The same pattern was also observed with regard to disease severity (Table 3). The severity of alternaria leaf blight was highest in untreated wounded control (4.4) as compared to both *A. afra* and *R. prinoides* extracts (1.5 and 1.3 respectively) and Benomyl (0.9) treated plants. Generally, the disease incidence and severity recorded in inoculated non-treated control were higher for all three diseases as compared to inoculated non-treated control (Table 2 and 3). Both *A. afra* and *R. prinoides* extracts have previously been shown to inhibit growth of *F. oxysporum* and other fungal pathogens under laboratory conditions (Kena and Swart, 2011). Plant extracts in other studies have been shown to suppress pathogen mycelial growth and disease development (Mekbib et al., 2007; Rauf and Javaid, 2013). This study shows methanolic extractions of *A. afra* and *R. prinoides* have a significant effect on the incidences and severity of both wilt and leaf blight of *A. hybridus*. These plants displayed promising potential to be utilized in the control of Fusarium wilt and leaf blight. Similar results regarding plant products containing antifungal constituents with the potential to manage plant diseases were reported by (Obongoya et al., 2010). The results obtained in this study indicate that *A. afra* and *R. prinoides* are promising botanicals that can be utilized in the control of Alternaria leaf blight and Fusarium wilt of *A. hybridus*.

4. Conclusion

Methanol leaf extracts of *R. prinoides* and *A. afra* displayed high antifungal effect against all 3 tested plant pathogens. These findings are in agreement with previously reported results where the 2 plants exhibited antifungal properties against *R. solani*, *P. ultimum* and *F. oxysporum* (Kena and Swart, 2011). There are currently no reports on the effect of the plant extracts of *A. afra* and *R. prinoides* and more specifically on their effect on disease severity. The results also showed that these plant extracts can have same diseases suppressive effect on the tested pathogens as synthetic fungicide Benomyl. The two tested plants are valued for their medicinal purposes, however, the results obtained in this study show that the plants can also be used in the management of plant diseases. The study has confirmed the previous reports on the ability of these plants to control fungal diseases in plants.

Acknowledgements

The authors would like to acknowledge Crop Science Department, National University of Lesotho for funding and provision of facilities to conduct this research.

References

- Akubungwo, IE, Obasi, NA, Chinyere, GC and Ugbogu, AE. 2007. Nutritional and chemical value of *Amaranthushybridus* L. leaves from Afikpo, Nigeria. *AfricanJournal of Biotechnology*24: 2833-2839.
- Blodgett, JT and Swart, WJ. 2002. Infection, colonization and disease of *Amaranthushybridus* leaves by the *Alternariatenuissima* group. *Plant Disease* 86:1199-1205.
- Blodgett, JT, Swart, WJ and Louw, S vdM. 2004. Identification of fungi and fungal pathogens associated with *Hypolixushaerens* and decayed and cankered stems *Amaranthushybridus*. *Plant Disease*88: 333-337.
- Booth, C. 1977. *Fusarium*. Laboratory guide to the identification of the major species. Commonwealth Mycological Institute, Kew, England.
- Chen, WQ and Swart, WJ. 2001. Genetic variation among *Fusariumoxysporum* isolates associated with root rot of *Amaranthushybridus* in South Africa. *Plant Disease* 85: 1076-1080.
- El-Mugharabi, K. 2003. Antimicrobial activity of extracts from leaves, stems and flowers of *Euphorbia macroclada* against plant pathogenic fungi. *PhytopathologiaMediterranea* 42: 242-250.
- Kauffman, CS and Haas, PW. 1983. Grain amaranth: A crop with low water requirements and high nutritional value. Pages 299-313 in: Environmentally sound agriculture: selected pages from the 4th International conference of the International federation of organic agriculture movements. W. Lockeretz, ed. Praeger, NY.
- Kena, MA and Swart, WJ. 2011. Effects of plant extracts on in vitro suppression of fungal pathogens and control of damping-off of vegetables in the greenhouse. *BotswanaJournal of Agriculture and Applied Sciences* 7: 36-44.
- Mann, A, Bansa, A and Clifford LC. 2008. Antimicrobial properties of crude plant extracts from *Anogeissusleiocarpus* and *Terminalia avicennioides*. *Tanzania Journal of Health Research* 10: 34-38.
- Masarirambi, MT, Dlamini, Z, Manyatsi, AM, Wahome, PK, Oseni, TO and Shongwe, VD. 2012. Soil water requirements of amaranth (*Amaranthushybridus*) grown in a greenhouse in a semi-arid, sub-tropical environment. *American-Euroasian Journal of Agriculture and Environmental Sciences* 12: 932-936.
- Myers, RL. 1996. Amaranth: New crop opportunity. In: Janick, J. (Ed.), Progress in New Crops. ASHS Press, Alexandria, VA, pp. 207-220.
- Mekbib, SB, Thierry, JC and Korstern, L. 2007. Control of *Penicilliumdigitatum* on citrus fruits using two plant extracts and study of their mode of action. *Phytoparasitica*35:264-276.
- Nelson, PE, Toussoun, TA and Marasas, WFO. 1983. *Fusarium* species: An Illustrated Manual for Identification. Pennsylvania State University, University Park.
- Obongoya, BO, Wagai, SO and Odhiambo, G. 2010. Phytotoxic effect of selected crude plant extracts on soil-borne fungi of common bean. *African Crop Science Journal* 18: 15-22.
- Rauf, S and Javaid, A. 2013. Antifungal activity of different plant extracts of *Chenopodium album* against *Fusariumoxysporum* f.sp. *cepae*, the cause of onion basal rot. *International Journal of Agriculture and Biology* 15: 367-371.
- Rhouma, A, Ben Daoud H, Ghanni, S, ben Salah, H, Romdhane, M and Demak M. 2009. Antimicrobial activities of leaf extracts of *Pistacia* and *Schinus* species against some plant pathogenic fungi and bacteria. *Journal of Plant Pathology* 91: 339-345.
- Yu, JM and Babadoost, M. 2013. Occurrence of *Fusarium commune* and *F.oxysporum* in horseradish roots. *Plant Disease* 97: 453-460.

Table 1 Effect of *A. afra* and *R. prinoides* extracts on pathogen mycelial growth

Treatments ^a	Mean colony diameter (mm)		
	<i>A. alternata</i>	<i>F. Oxysporum</i>	<i>F. solani</i>
<i>A. afra</i>	10.8b ^b	11.3b	11.8b
<i>R. prinoides</i>	11.4b	11.6b	12.3b
Benomyl	0.0a	0.0a	0.0a
Un-amended PDA	98.5c	88.6c	92.0c

^aBoth *A. afra* and *R. prinoides* extracts were applied at concentrations of 2000, 1000, 500,5.2µg MI⁻¹

^bNumbers within the same column followed by the same letter are not significantly different at P≤0.05 according Duncan's Multiple Range Tests.

Table 2 Fusarium wilt severity in *A. hybridus* plants inoculated with isolates of *F. oxysporum* and *F. solani*

Treatments	Disease severity (mm) ^a	
	<i>F. oxysporum</i>	<i>F. solani</i>
<i>A. afra</i>	13.1b ^b	13.2b
<i>R. prinoides</i>	12.6b	10.9c
Benomyl	1.1d	0.1d
Untreated inoculated control	85.5a	95.7a
Non-inoculated control	0.0d	0.0d ^c

^aDisease severity was determined as mean stem lesion length of four plants

^bNumbers within the same column followed by the same letter are not significantly different according Duncan's Multiple Range Tests.

^cNo disease was recorded in non-inoculated control treatments

Table 3 Effects of *A. afra* and *R. prinoides* extracts on *Alternaria* leaf spot incidence and severity of *A.hybridus*

Treatments	Diseased plants (%) ^b	Disease severity ^a
<i>A. afra</i>	11.7±1.3	1.5b ^c
<i>R. prinoides</i>	15.2±0.2	1.3b
Benomyl	10.6±0.2	0.9a
Untreated wounded control	63.5±2.3	4.4c
Non-inoculated control	0.0±0.0	0.0a

^aDisease severity was rated on a scale of 0-6.

^bDisease incidence was calculated as a total percentage of diseased plants per treatment

^cNumbers within the same column followed by the same letter are not significantly different according Duncan's Multiple Range Tests.

The Origin of the European Mediaeval Drama

P. Wijith Rohan Fernando

Department of Western Classical Culture and Christian Culture

University of Kelaniya

Sri Lanka

Historical Background

The starting point of drama is religion.¹ The root of the modern drama is based on the ritualistic resources of primitive religions. “Such is the case of the notion of ‘ritual drama’, the idea that serious drama is historically grounded in sacred ritual and may still draw on ritualistic resources for its substance.”² The ritualistic character of religion is found not only in Greek theatre but in the dramas of other countries as well. “Scholars had long known and accepted the Greek theatre (and analogous traditions in Mediaeval and Renaissance Europe, Japan, China, and India) had roots in religion and ritual. Aristotle and other commentators had canonized that fact. Indeed Aristotle’s classic statements from the Poetics – that tragedy originated from the leader of the sacred (presumably Dionysian) dithyramb ritual and comedy from the leader of the phallic processions – provided the starting point for every study of the origins of drama.”³

Thus, the origin of the modern theatre goes back as far as the Greek ritual plays centred on the altar of Dionysus, the wine-god and the god of fertility and procreation, around 1200 BC.⁴ The chant or the hymn that was sung in praise of god Dionysius is known as Dithyramb. It is a choric hymn which is considered as the root of Greek drama.⁵ It was Thespis who introduced an actor (Protagonist) in the Dithyramb around 594 BC.⁶ With Thespis thus began the classical Greek drama. The first playwright is Aeschylus (524 BC.),⁷ then Sophocles (496 BC.),⁸ Euripides (484 BC.),⁹ Aristophanes (448 BC.),¹⁰ and finally Menander (342 BC.)¹¹

Greek drama did not completely diminish with the end of the Greek Empire since drama in the Roman Empire was influenced by Greek drama. Like Greek Drama the origin of Roman drama is also centred on a ritualistic festival.¹² “For it is reliably reported that it was in 240 B. C. that the ediles commissioned for the first time in Rome’s history the translation from the Greek of a tragedy and of a comedy for the festival of *Ludi Romani*. The writer selected for this task was Livius Andronicus, a Greek, it is said, and who was taken a prisoner at the capture of Tarentum, and, brought to Rome, [...]”¹³

The Roman dramatists, mainly Plautus (254-184 BC.),¹⁴ and Terence (185-159 BC.),¹⁵ were influenced by classical Greek drama. Another Roman dramatist named Seneca (4 BC. - 65 AD.), who was also influenced by Greek drama, had nine tragedies to his name which survived, known as the ‘Oratorical tragedies of Seneca.’¹⁶ The dramatic heritage of the other cultures was influenced by both the Greek and Roman drama. “Like the other arts drama possessed a distinguished past in Greek and Roman plays, theatres and works of criticism. The Greeks had carried this heritage east and south into Asia Minor, the Middle East, Alexandria and North Africa: the Romans had extended its influence northwards and westwards into Germany, France and Britain.”¹⁷

As a result, by the late tenth century we come across a Benedictine nun named Hrotsvitha of Gandersheim in Germany who was influenced by the dramas of Terence. “Hrotsvitha, [...] had taken Terence as her model for half a dozen plays in Latin prose, designed to glorify chastity and to celebrate the constancy of the martyrs. The dramaturgy of Hrotsvitha appears to have been an isolated experiment and the merest literary exercise. Her plays abound in delicate situations, and are not likely to have been intended even for cloister representation.”¹⁸

But in the Roman Empire both Greek and Roman classical dramas were not popular among the common people as they inclined more towards a crude form of dramatic entertainment called the “*Oscum ludicrum* or *fabula Atellana*,”¹⁹ the *spectacula* comedian drama.²⁰ While most of the Romans were not interested in classical Greek and Roman dramatic heritage they gathered around the purely entertainment dramas connected with *Ludi Romani* festivals. “It was not the tragedies of Aeschylus, Sophocles and Euripides or even the comedies of Aristophanes, Menander, Plautus and Terence which figured on the playbills known to them; for dramatic entertainment had by then degenerated into sequences of amusements that were both crude and rude. Mimes, pantomimes, dancers, musicians and keepers of performing animals mingled with tumblers, wrestlers, charioteers and gladiators to provide that strange mixture of mimetic and athletic *ludi* [...]”²¹

The Romans used the dramatic talent of Livius Andronicus to promote the *Ludi Romani* festivals. The play of Livius also became very popular and it was performed during the festivals of *Ludi Romani*. “About 240 B.C. the Greek Livius Andronicus introduced tragedy and comedy. The play now became a regular element in the *spectacular* of the Roman festivals [...] Permanent theatres were built in the closing years of the Republic by Pompey and others, and the number of days annually devoted to *ludi scenici* was constantly on the increase.”²²

The Reaction of the Church Fathers

The early Church Fathers were highly concerned about the impact of the Roman drama of *spectacula* on the moral degeneration of the converted Christians and its influence of the pagan cult on their faith. “Tertullian²³ holds that the Christian has explicitly forsworn *spectacula*, when he renounced the devil and all his works and vanities at baptism. What are these but idolatry, and where is idolatry, if not in the *spectacula*, which not only minister to lust, but take place at the festivals and in holy places of Venus and Bacchus?”²⁴

The Church Fathers also introduced disciplinary regulations to protect the converted Christians from the secular theatrical performances of the Roman drama. “An early formal condemnation of actors is included in the so-called Canons of Hippolytus, and the relations of converts to the stage were discussed during the fourth century by the councils of Elivira (306) and of Arles (314) and the third and fourth councils of Carthage (397-398).”²⁵

Until the conversion of Constantine the Church did not have the political power to bring strict legislations against the converted Christians who enjoyed this Roman *spectacula*. Even after the Edict of Milan (313 AD.) though the Church introduced several strict rules²⁶ against *spectacula* it was unable to stop those converted Christianity being completely away from this unhallowed profession.²⁷ “The love of even professing Christians for *spectacula* proved hard to combat. There are no documents which throw more light on the society of the Eastern Empire at the close of the fourth century than the works of St. Chrysostom; [...]. A sermon preached on Easter-day, 399, is good evidence of this. St. Chrysostom had been attacking the stage for a whole year, and his exhortations had just come to nought. Early in Holy Week there was a great storm, and the people joined rogatory processions. But it was a week of *ludi*. On Good Friday the circus, and on Holy Saturday the theatre, were thronged and the churches were empty.”²⁸

St. Augustine who had a passion for dramas²⁹ before his conversion was one of strongest opponents of the *spectacula* at the Council of Carthage.³⁰ “Chrysostom’s great Latin contemporaries, Augustine and Jerome, are at one with him and with each other in their condemnation of the evils of the public stage as they knew it.”³¹ In spite of the opposition, St. Augustine who knew the value of the classical Greek and Roman dramatic heritage was more realistic in his attitude towards drama and theatre. He showed some sympathy for the revival movement of literary interest of the fifth century in which a devout bishop named Sidonius learnt both Menander and Terence with his son.³² While confessing his own experience on the drama which arouses passion, he drew a distinction between good and bad drama. “In a well-known passage of the Confessions he records the powerful influence exercised by tragedy, and particularly erotic tragedy, over his tempestuous youth. And in the City of God he draws a careful distinction between the higher and the lower forms of drama, and if he does not approve, at least he does not condemn, the use of tragedies and comedies in a humane education.”³³

But on the whole the attitude of the early Church Fathers towards theatre was negative. We can trace another attempt in introducing regulations against theatre from the Code of Theodosius which was drawn up in 435 for both empires.³⁴ “The views of the Church were met upon two points. One series of rescripts forbade performances on Sundays or during the more sacred periods of the Christian calendar: another relaxed in favour of Christians the strict caste laws which sternly forbade actresses or their daughters to quit the unhappy profession in which they were born. Moreover, certain sumptuary regulations were passed, which must have proved a severe restriction on the popularity as well as the liberty of actors.”³⁵

Even with all these opposition and prohibitions, the Church Fathers were not able to completely stop the inner passion of people towards the Roman *spectacula*. One main reason for this was the recognition of theatre by the emperors and their positive reception of it with the state patronage.³⁶ The emperors were also in dilemma and embarrassing situation when the Church wanted them to stop the *spectacula* Roman theatre. “The emperors were, indeed, in a difficult position. They stood between bishops pleading for decency and humanity and populaces now traditionally entitled to their *panem et spectacula*.”³⁷

Finally the fall of Roman *spectacula* became a reality not because of the strict regulations or the willing suspension of *spectacula* by the Christians but only with the barbarian invasions.³⁸ “In the Eastern Empire the Emperors’ embarrassment on this score was brought to an abrupt end by Saracen invasions in the seventh century. In the West the problem was solved by similar means although from a different quarter. The invading Goths, Ostogoths, Vandals, Lombards and other barbarians tribes that swept over the Alps into Italy and North Africa during the sixth century despised the showmen and their shows, mimetic and athletic, and eventually suppressed them, thus doing for the Church what its most distinguished leaders from St. Chrysostom to St. Augustine and St. Jerome had for so long argued should be done, but had so signally failed to achieve.”³⁹

Though with the invasion of barbarians the drama in the Roman Empire suffered it was not permanently dead. The agricultural based life style of the people and their intimate relationship with nature kept alive the root of drama in their day today life. “[...] the mimetic instinct renewed itself with each generation, like the annual return of spring after winter, and expressed itself throughout Europe in the festive games and dancers associated with sowing and harvesting of crops and with the progress of the seasons as remarked in the sun’s passage through the heavens, notably at the solstices (December / June) and the equinoxes (March / September).”⁴⁰

The Church in its conversion mission was well aware of this reality and tried to adapt her missionary methods by bringing Christian identity to pagan rituals. “For the peasant communities of Northern and Western

Europe, whom the hierarchy of the Roman Church sought to convert and control, these festivals of the agricultural year held an economic as well as a religious significance. The Church therefore could not ignore them, nor could it suppress them: it had come to terms with them and attempts to endow them with a Christian significance.”⁴¹

E. K. Chambers who has researched extensively on mediaeval drama shows us with historical evidence regarding the adaptation of the missionary methods by the hierarchy of the Church in her missionary conversion in England.⁴² In this regard it is worth knowing about the two letters written by Pope Gregory the Great (590-640 A.D.) during the time of St. Augustine of Canterbury (604 A.D.), the apostle of England.

Two letters of Gregory the Great, written at the time of the mission of St. Augustine, are a key to the methods adopted by the apostles of the West. In June 601, writing to Ethelbert of Kent by the hands of abbot Mellitus, Gregory bade the new convert show zeal in suppressing the worship of idols, and throwing down their fanes. Having written thus, the pope changed his mind. Before Mellitus could reach England, he received a letter instructing him to expound to Augustine a new policy. ‘Do not, after all,’ wrote Gregory, ‘pull down the fanes. Destroy the idols; purify the buildings with holy water; set relics there; and let them become temples of the true God. So the people will have no need to change their places of concourse, and where of old they were wont to sacrifice cattle to demons, thither let them continue to resort on the day of the saint to whom the church is dedicated, and slay their beasts no longer as a sacrifice, but for a social meal in honour of Him whom they now worship.’⁴³

This author in his extensive research examines the existence of folk drama performed at village festivals as festival plays⁴⁴ which were directly related to pagan cultic rituals long before the conversion of Constantine in 312 AD. This opinion is accepted by other authors too. “The Roman state itself frequently gave official recognition to foreign cults. This policy of religious tolerance began at an early period in Roman history, and by the middle of the third century before Christ, Roman religion consisted of a medley of Greek and Latin beliefs, with Greek elements dominant and crowding the indigenous cults off the fields.”⁴⁵

The Church, learning from the existing reality of the Roman pagan cult and the agricultural based ritualistic religious life of the people adapted her missionary method by paving way for the birth of the Christian liturgical drama. The drama once forbidden by the Church because of its vulgar form of popular entertainment revived as one of her new missionary methods.⁴⁶ “Drama has had two births in Europe, once from the rites of pagan Greece, the second time from those of Christian Rome.”⁴⁷ On both these occasions the religious rituals became the basis of drama. These religious rituals were predominantly seen in religious festivals. With the introduction of the Christian identity or significance to the agricultural based religious ritualistic cult, the pagan festive calendar was baptised as the Christian festive calendar. “With that achieved through the equation of the major Commemorative Feasts in the Christian Calendar (Christmas, Shrovetide, Easter, Pentecost, All Saints, etc.) with those of the agricultural year, an accommodation with the *ludi* of social recreation in these holiday seasons could be reached.”⁴⁸

The most important ‘ritual’ in Christian liturgy is the Eucharist. “In the Christian Church the term ‘liturgy’ was originally limited to the commemoration of the Last Supper in the celebration of the Eucharist; but in the course of time the term was extended in its meaning to describe any or all of the Offices or services devised for public worship. Thus the term ‘The Mass’ as used in the Roman Catholic Church today still resembles the term ‘liturgy’ as used in its original restricted sense among the earliest Christian communities: [...]”⁴⁹ Hence, it is

important to trace how the Mass as a religious ritual and the heart of Christian liturgy gave birth to Christian liturgical drama.⁵⁰

The Mass as Drama

The origin of mediaeval drama may be traced back to the liturgy of the Church. The celebration of the Eucharist or the Mass as the heart of the Christian liturgy is the root of Liturgical plays which is the cradle of the mediaeval drama. “Early in the 9th century,⁵¹ Amalarius, Bishop of Metz, [...] wrote several interpretations of the Mass. One of these, *Liber officialis*, had a far-reaching influence, traceable in devotional manuals as late as the 12th century.”⁵² Amalarius introduced a new feature to the Mass which is the dramatic character. “Whether or not he was the first person to perceive the essentially dramatic structure of the Latin Mass is an open question; but, as O. B. Hardison demonstrated in his book *Christian Rite and Christian Drama in the Middle Ages*, Amalarius thought it is necessary to stress the fact that the celebration of Mass had an immediate and recurring significance for all who partook of it as well as an historical significance in commemorating past events.”⁵³ With the introduction of the dramatic structure, the symbolic significance of the Mass became less important. The dramatic aspect gained more significance as an actual representation of the supreme sacrifice of Jesus.⁵⁴

Karl Young, another erudite author of the mediaeval drama had researched extensively on the dramatic structure of the Mass.⁵⁵ He mentions the opinions of three persons who describe the Mass as a liturgical drama. “The Mass itself, when sung with its due accompaniment of solemn ritual, writes canon Westlake, was at once the most elementary as well as the highest drama, declares Dom Lefebvre. Lintilhac holds, that the central act of the sacred ceremony is truly mimetic, and that the Mass, grafted upon the primitive liturgy of the Last Supper, was already a true drama.”⁵⁶ He too mentions the contrary opinions of those who do not accept the Mass as a drama and maintains its sacred liturgical character of worship.⁵⁷ “The celebrant remains merely the celebrant, and does not undertake to play the part of his Lord. He is only the instrument through which Christ acts. The Mass, then, has never been a drama nor did it ever directly give rise to drama.”⁵⁸ Karl Young, while accepting the dramatic features of the Mass considers it as merely worship. Although the Mass has some dramatic elements such as the movements of the celebrant and especially the Elevation of the Host and also the dialogue of antiphon and response it lacks one important aspect to be called a drama. “Only impersonation is lacking. If only the priest were impersonating Christ when he pronounces the words of consecration: “This is indeed my body.” But he isn’t. The canon of the mass makes it clear that he is quoting, not impersonating.”⁵⁹ Hence, the Mass has to be considered as a drama with these limitations. Another important aspect of the mediaeval drama is the Passion Play. The root of the Passion Play as such is found in the ‘Easter Play’ which was enacted within the Mass.

The Easter Play

When we consider the true sense of the word ‘drama’ the dramatic forms in the Mass are not really dramatic but mimetic. The Mass has two mimetic forms at first. They are the ‘Read Part’ and the ‘Sung Part.’ The ‘Sung Part’ which is called ‘trope’ is directly linked with liturgical music.⁶⁰ “The tropes attached themselves in varying degrees to most of the choral portions of the Mass. [...]. They received the specific names, in Germany of *Sequentiae*, and in France of *Prosae*, and they include, in their later metrical stages, some of the most remarkable mediaeval hymns.”⁶¹ These tropes were not acted but with one exception.⁶² That is the inclusion of ‘The Acted Part’ which is called the Easter Trope.⁶³

According to the scholars of the mediaeval drama this Easter trope is considered as the starting point of the mediaeval liturgical plays. The most commonly accepted opinion among the scholars⁶⁴ on the origin of the mediaeval liturgical drama is the short dramatic form, known as the Easter Trope on the ‘Visitation of the three Marys to the sepulchre’ which was enacted by the monks during the Mass on Easter Sunday. This is the earliest and the simplest form of *Quem quaeritis*.

Interrogatio;

Quem quaeritis in sepulchro, [o] Christicolae?

Responsio;

IesumNazarenum crucifixum, o caelicolae.

Non est hic, surrexit sicut praedixerat;

*ite, nuntiate quia surrexit de sepulchro. Resurrexi.*⁶⁵

Though the source of this Easter Trope is generally connected to a manuscript found from the monastery of St. Gall in the 10th century there had been other early sources too.⁶⁶

Another Easter Trope known as the *Concordia Regularis* or Harmony of the Rule was compiled in England.⁶⁷ “The precise position which the *Quem quaeritis* was intended to take in the Easter services is not evident from these tropes by themselves. Fortunately another document comes to our assistance. This is the *Concordia Regularis*, an appendix to the *Rule* of St. Benedict intended for the use of the Benedictine monasteries in England reformed by Dunstan during the tenth century. The *Concordia Regularis* was drawn up by Ethelwold, bishop of Winchester, as a result of a council of Winchester held at some uncertain date during the reign of Edgar (959-79) [...].”⁶⁸ While the intention of *Concordia Regularis* was to protect the faith of the monastic ceremonies from the uneducated⁶⁹ it is also considered as a different dramatic form. “This is clearly a ‘play’ distinct from the original trope, which became detached from its position in the procession of the Mass and was inserted in the services preceding the Mass.”⁷⁰

The Passion Play Cycle

This short dramatic form of *Quem quaeritis* dialogue based on the resurrection of Jesus later developed into a long series of dramatic forms with the inclusion of biblical as well as secular narrations.⁷¹ “The Easter cycle, also, received memorable accretions during this period. The *Quem quaeritis* of the Tours manuscript, [...] included a series of scenes beginning with the Setting of the Watch before Sepulchre, and ending with the Incredulity of Thomas.”⁷²

The dramatic action of the *Quem quaeritis* at the Sepulchre⁷³ had been enhanced with the inclusion of the liturgical readings (*lectiones*) and one such *lectio* was the sixth century pseudo-Augustinian Christmas sermon known as *Contra Iudaeos, Paganos, et Arianos de Symbolo*, which is considered as the source of the Prophet Play that will be examined in relation to the plays of the Old Testament in the next chapter.⁷⁴

Also with the introduction of the vernacular into liturgical plays, mainly German, French and English, the short play of *Quem quaeritis* became longer. Mostly the German liturgical plays used both Latin and vernacular. “Another way in which the vernacular invades liturgical drama is illustrated in Klosterneuberg Easter Office. After Pilate sets the guard at the tomb, the soldiers patrol, singing a song to the congregation with the refrain

Schowa propter insidias, “a guard against plots,” one word of German and two of Latin. Such ‘macaronic’ verse was popular in the Middle ages.”⁷⁵

Thus the expanded Easter play fully developed into a long Passion Play with the addition of the other themes on Jesus’ passion and death mainly enacted on Good Friday. “The Good Friday scene is an elaborate *planctus*. It is opened by Joseph of Arimathea, and the three Maries. Then comes Nicodemus, and the body of Christ is taken from the cross. The Virgin Mary enters with St. John, and the *planctus* resume.”⁷⁶ Then with the addition of the Last Supper on Maundy Thursday and other selected incidents of Jesus’ earthly ministry such as miracles and parables, also his entrance to the Temple of Jerusalem amid the exultations of the crowds and the cleansing of the Temple, expanded the story of the Passion play as to a fully developed drama to enact throughout the Holy week beginning from Palm Sunday to Easter Sunday. “The earliest text of a Passion is contained in the Benedictbeuern manuscript. It opens with calling of Andrew and Peter, the healing of the Blind, Zacchaeus and the entry into Jerusalem. Then follows a long episode of Mary Magdalen. [...] Then [...] the Raising of Lazarus, the Betrayal by Judas, the Last Supper, the Mount of Olives, the Passion itself, from the Taking in Gethsemane to the Crucifixion.”⁷⁷ This development is known as the Passion Play cycle enacted from Palm Sunday to Good Friday.⁷⁸

The historical development of the Passion plays has to be considered in relation to the other two forms of mediaeval dramas known as Miracle and Mystery plays, which according to the Catholic Encyclopaedia are the two main forms of European Mediaeval Christian drama. But there is a difference in the time of their origin. “It should be noted that the word “mystery” has often been applied to all Christian dramas prior to the sixteenth century, whereas it should be confined to those of the fifteenth century, which represent the great dramatic effort anterior to the Renaissance. Before this period dramatic pieces were called “plays” or “miracles.” The embryonic representations, at first given in the interior of the churches, have been designated as liturgical dramas.”⁷⁹

As a result of secularization⁸⁰ the plays that were first enacted during Easter and Christmas liturgical celebrations began to be organized out of the church and started evolving as productions of the Cycle Plays of four guilds replacing the language from Latin to the vernacular.⁸¹ “From ecclesiastical the drama had become popular. Out of the hands of the clergy in their naves and choirs, it had passed to those of the laity in their market-places and guild-halls.”⁸² It is with this development that we come across mainly the two forms of mediaeval dramas known as Miracle and Mystery plays and the other form called Morality plays that has fewer characteristics in relation to Passion plays.

Miracle Plays

Miracle plays are also known as the ‘Plays of the Saints’ based on the life, miracles, or martyrdom of saints.⁸³ According to the Encyclopaedia Britannica “Almost all surviving miracle plays concern either the Virgin Mary or St. Nicholas, the 4th century bishop of Myra in Asia Minor.”⁸⁴ But E. K. Chamber’s research on the manuscripts of Miracle plays performed by different guilds shows us ‘The Cycle’ of Miracle plays beginning from ‘The Creation of the World’ to ‘The Last Judgement.’⁸⁵ Here the author gives a list of manuscripts on Miracle plays performed by the guilds such as York Plays,⁸⁶ Towneley Plays,⁸⁷ Coventry Plays,⁸⁸ and some other manuscripts called *Ludus Coventriae*,⁸⁹ Newcastle-upon-Tyne,⁹⁰ Norwich⁹¹ and Cornwall.⁹² The plays titled ‘Conversion of St. Paul,’⁹³ ‘St. Mary Magdalen,’⁹⁴ and ‘Massacre of the Innocents’⁹⁵ are also included in the list of Miracle plays.⁹⁶

Mystery Plays

Mystery plays also have a similar dramatic cycle beginning from the scene on 'The Creation of the World' and ending with 'The Last Judgement.' Hence, Mystery plays can be categorized under three cycles, namely the plays based on the Old Testament, the New Testament and the plays of the saints.⁹⁷ Most of the Mystery plays have a direct link to Passion plays. "The most celebrated of these were the Passion plays, by which must be understood not only the plays devoted to the Passion properly so called, but also those which set forth the complete history of the Saviour."⁹⁸

According to E. K. Chambers the origin of the word 'Mystery' shows its relation to Passion Plays. "*Mystère*, or 'mystery,' on the other hand, is not English at all, in a dramatic sense, and in France first appears as *misterie* in the charter given by Charles VI in 1402 to the Parisian confrérie de la Passion."⁹⁹ Describing the Passion Play of Oberammergau within the cycle of Mystery plays another writer¹⁰⁰ mentions the same view of Chambers on the origin of the word 'mystery' in relation to Passion Plays. "[...] while in France a special community, the 'Confrérie de la Passion,' was founded for the purpose of producing and enacting Passion-Plays."¹⁰¹

J. W. Robinson who has researched the dramatic narrative of the Crucifixion and Resurrection of the Mystery plays in relation to Christian paintings shows us how both the drama and the paintings were oriented towards one purpose, i.e., the 'Image of Pity' and these paintings were influenced by the monologues that Jesus delivered to the audience in the Mystery plays of the Passion, Resurrection and the Last Judgement. "Both the monologues and the images, which are primarily associated with the Passion and Resurrection, are also found transferred to the Last Judgement. In the plays of the Last Judgement the awesome judge becomes also the reproachful and bleeding Christ, and in paintings of the Last Judgement the majestic figure of God is either replaced by the image of the bleeding Saviour, or [...]"¹⁰² According to the author both the dramatic monologues and the imagery paintings became a common feature in the fifteenth century.¹⁰³ These dramatic monologues of Jesus acted as separate parts within the plays while interrupting them. These Mystery plays were performed by the guilds such as Chester, Towneley, York, Wakefield, and *Ludus Coventriae*.¹⁰⁴

Corpus Christi Plays

Both Miracle and Mystery plays became very popular when they were enacted during the feast of Corpus Christi.¹⁰⁵ This feast paved the way for many Passion Plays of the Corpus Christi cycle. "Even the great Chambers¹⁰⁶ saw the procession as giving birth to the plays. The procession, according to this hypothesis, included pageants of various spiritual episodes, which then developed through dumbshow into real plays of the kind we have in the cycles."¹⁰⁷ The Corpus Christi play cycle resulted in the evolution of the Passion Play mainly due to the production skill of the various guilds. "Each of the craft guilds had its patron saint and was in character semi-religious, dedicated to uphold the Corpus Christi Feast and its function as a symbol of the Redeemer, so that it was an inevitable step, as plays grew more involved, for the guilds to take them over."¹⁰⁸ Some of these plays that were enacted at the Corpus Christi feast were long Passion Plays such as 'The Passion Play of Arnoul Greban,'¹⁰⁹ 'The Passion de Semur,'¹¹⁰ 'The Passion de Valenciennes,'¹¹¹ and 'The Heidelberger Passionsspiel,'¹¹² and the other plays which were mainly typological more than historical in their arrangement.¹¹³

One of the earliest English Mystery plays which was enacted at the Corpus Christi feast was the 'Harrowing of Hell.'¹¹⁴ "It belongs to the earlier part of the fourteenth century, and consists of a prologue, epilogue, and intermediate dialogue. The principal *dramatist personae* are Dominus and Sathan, Adam and

Eve.”¹¹⁵ E. K. Chambers mentions the Harrowing of Hell as an Easter play related to the Resurrection. “This was based upon the accounts of the *Descensus Christi ad Inferos*, the victory over Satan, and the freeing from limbo of Adam and the other Old Testament Fathers, which forms part of the apocryphal *Gospel of Nichodemus*.”¹¹⁶ He does not accept that the Harrowing of Hell was intended for dramatic representation. “The prologues found in two or three manuscripts leave it clear that it was for recitation.”¹¹⁷ He however, mentions that it was found in the Easter cycle at the beginning of the thirteenth century.¹¹⁸

According to scholars it is the vernacular Anglo-Norman play called *Mystèryd’Adam* written in the mid-twelfth century that can be considered to be the first secular or semi liturgical drama, first acted by clergy and then laity representing the biblical characters mainly from the book of Genesis.¹¹⁹ George R. Coffman explains the importance of *Mystèryd’Adam* considering its relation to the root of the Latin drama. “We record its beginnings in a little Easter Resurrection play of four sentences; and though Latin drama persisted for many hundreds of years after this, the Anglo-Norman *Mystèryd’Adam* (ca. 1170) marks the triumph of the new medium. In content, this Latin drama is religious, varying from the closest possible connection with the liturgy, in the play of the three Maries, to the thinly veiled political *Tendenzschrift* in the Tegernsee *Antichrist*. It includes within its scope almost exclusively plays that group themselves about the ecclesiastical seasons of Easter and Christmas and certain saints’ days. Its subject-matter is, with notable exceptions, from the Old and the New Testament, the Apocrypha, and saints’ legends.”¹²⁰

Morality Plays

Though Morality plays are not directly related to Passion Plays it is important to examine them briefly as they are related to Miracle plays and developed at the time of the Corpus Christi cycles.¹²¹ “Moralties are a development or an offshoot of the Miracle plays and together with these form the greater part of medieval drama.”¹²² There are however, some differences between Miracle and Morality plays. According to A. M. Kinghorn Miracle plays teach moral truths based on the Biblical stories. Therefore they have a dramatic cycle on historical events and characters such as Adam, Eve, Herod and Pilate. In moralties characters are stereotyped like the Seven Deadly Sins. (They are also known as Capital Vices or Cardinal Sins – wrath, greed, sloth, pride, lust, envy and gluttony).¹²³ The plot of the Morality plays dramatizes the tension between Vice and Virtue and mainly deals with Man’s sinful nature by making use of the characters allegorically to teach moral lessons.¹²⁴ E. K. Chambers describes these plays under the title ‘Popular Moralties’ in dealing with the manuscripts of Morality plays such as ‘The Pride of Life’,¹²⁵ ‘The Castle of Perseverance’,¹²⁶ and ‘The Summoning of Everyman.’¹²⁷ The Morality play ‘The Pride of Life’ though not directly linked to Passion Plays had included the characters of Pharaoh, Herod and Pilate in order to dramatize the vice of power and possessions.¹²⁸

Conclusion

In examining the historical background on the origin of the European mediaeval drama; this paper attempted to trace the relationship between drama and religion. The root of the Modern Greek, Roman and Western drama is based on the ritualistic resources of primitive religions.

In Europe the drama had two births, firstly from the religious rites of pagan Greece and secondly from the Christian Church. Our main concern is the origin of the European mediaeval drama. The European mediaeval drama is essentially Christian. In spite of all prohibitions and restrictions of the early Church Fathers it is the Christian Church which became the cradle of European mediaeval drama. The Eucharistic

celebration or the Mass and especially the Mass on Easter Sunday introduced the dramatic aspect through the ‘Acted Part’ by giving birth to the first Easter Play called *Quem quaeritis*. This short Easter Liturgical Play enacted the Resurrection of Christ. It also evolved in creating various forms of European mediaeval drama namely ‘Passion Plays’, ‘Corpus Christi Plays’ ‘Miracle Plays’, ‘Mystery Plays’, and ‘Morality Plays’. “The medieval drama took its beginning in a symbolic re-enactment of the Resurrection – the axial historical event in Christianity. An elaboration of this dramatic idea, working backward in history to the creation and forward to Doomsday, [...] cycles of scriptural plays, [...] in which all human history could be comprehended.”¹²⁹

¹ See William H. Quillian, “‘Composition of Plays’: Joyce’s Notes on the English Drama,” *James Joyce Quarterly* 13, no. 1 (1975): 5.

² Harry C. Payne, “Modernizing the Ancients: The Reconstruction of Ritual Drama 1870-1920,” *Proceedings of the American Philosophical Society* 122, no. 3 (1978): 182.

³ *Ibid.*, 182.

⁴ See T. A. Sinclair, *A History of Classical Greek Literature: From Homer to Aristotle* (London: Routledge & Kegan Paul, 1949), 219. See also J. Michael Walton, *Living Greek Theatre: A Handbook of Classical Performance and Modern Production* (Westport: Greenwood, 1987), 12-18. See also Arnold Williams, *The Drama of Medieval England* (Michigan: Michigan State University Press, 1961), 3-4.

⁵ See Helen H. Bacon, “The Chorus in Greek Life and Drama,” *Arion* 3, no. 1 (1994), 7.

⁶ See Sinclair, *A History of Classical Greek Literature*, 221-222. See also P. E. Easterling and B. M. W. Knox, eds. *The Cambridge History of Classical Literature: 1 Greek Literature* (Cambridge: Cambridge University Press, 1985), 259-260.

⁷ See Walton, *Living Greek Theatre*, 39-64. See also Sinclair, *A History of Classical Greek Literature*, 224-241; Easterling and Knox, *The Cambridge History of Classical Literature*, 281-295.

⁸ See Walton, *Living Greek Theatre*, 65-93. See also Sinclair, *A History of Classical Greek Literature*, 241-261; Easterling and Knox, *The Cambridge History of Classical Literature*, 295-316.

⁹ See Walton, *Living Greek Theatre*, 95-170. See also Sinclair, *A History of Classical Greek Literature*, 261-292; Easterling and Knox, *The Cambridge History of Classical Literature*, 316-345.

¹⁰ See Walton, *Living Greek Theatre*, 175-218. See also Sinclair, *A History of Classical Greek Literature*, 292-314.

¹¹ See Walton, *Living Greek Theatre*, 219-229.

¹² See Mary H. Marshall, “Aesthetic Values of the Liturgical Drama,” in *Medieval English Drama: Essays Critical and Contextual*, eds. Jerome Taylor and Alan H. Nelson (Chicago: The University of Chicago Press 1972), 29. According to this author “Analogies between the origin of Greek drama in religious rite and the origin of medieval drama are inescapable and profoundly suggestive, but only in general.”

¹³ O. Szemerényi, “The Origins of Roman Drama and Greek Tragedy,” *Hermes* 103, no. 3 (1975): 300. The author mentions that Livius was a slave of the noble family of the Livii and when freed he got the name of his former master.

¹⁴ See W. Beare, *The Roman Stage: A Short History of Latin Drama in the Time of the Republic* (London: Methuen, 1968), 56-69. The author mentions five plays of Plautus. He also mentions that Plautus was not an original writer as he had adapted Greek drama to Roman taste. See also Walton, *Living Greek Theatre*, 232.

¹⁵ See Beare, *The Roman Stage*, 91-112. The author mentions eight plays of Terence. See also Walton, *Living Greek Theatre*, 232-233.

¹⁶ See Walton, *Living Greek Theatre*, 172. The author mentions nine plays of Seneca.

¹⁷ Wickham Glynne, *The Medieval Theatre*, (London: Weidenfeld and Nicolson, 1974), 21.

¹⁸ Chambers, *The Medieval Stage*, vol. II, (London: Oxford University Press, 1903), 207. See also Williams, *The Drama of Medieval England*, 5. See also Wickham, *The Medieval Theatre*, 23. See also A. M. Kinghorn, *Mediaeval Drama: Literature in Perspective* (London: Evans Brothers, 1968), 58-59. This author shows how the plays of Hrosvitha were oriented mainly to extol virginity through one of her plays on 'Abraham,' an old hermit of the desert who saves his niece from a brothel. He further mentions that her plays did not have any impact on the European secular theatre as they were lost until about 1500. See also George R. Coffman, "A New Approach to Medieval Latin Drama," *Modern Philology* 22, no. 3 (1925): 244, 256-271. This author examines the influence of the dialogues of Hrotsvitha on the St. Nicholas plays and reveals many historical facts on her education in gaining the literary skill in Latin.

¹⁹ Chambers, *The Medieval Stage*, vol. I, 2. See also Walton, *Living Greek Theatre*, 231. Walton describes fibula as "Middle and New Comedy from the death of Aristophanes onward were to provide the backbone to the only Roman drama of note. Amongst a number of indigenous comic forms that flourished in the second century B.C., the plays of Plautus and Terence alone have come down to us. All are representative of a genre known as the *fabula palliata*, "a story wearing the *pallium*," the *pallium*, being a Greek cloak. These were adaptations of Greek originals, usually of more than one play."

²⁰ See Chambers, *The Medieval Stage*, vol. I, 3.

²¹ Wickham, *The Medieval Theatre*, 21. See also Phyllis Hartnoll, *The Theatre: A Concise History* (London: Thames & Hudson, 1968), 26.

²² Chambers, *The Medieval Stage*, vol. I, 2.

²³ Tertullian is an "Ecclesiastical writer in the second and third centuries, b. probably about 160 at Carthage [...]." *Catholic Encyclopedia*, "Tertullian," available from <http://www.newadvent.org/cathen/> [accessed March 25, 2011].

²⁴ Chambers, *The Medieval Stage*, vol. I, 11. See also "Tertullian, De Spectaculis, Religious Drama – Music," available from <http://www.piney.com/Win/TertDeSpec.html> [accessed April 08, 2011]. See also Gordan Laing, "The Church Fathers and the Oriental Cults," *The Classical Journal* 13, no. 4 (1918): 246.

²⁵ Chambers, *The Medieval Stage*, vol. I, 12.

²⁶ See Chamber, *The Medieval Stage*, vol. I, 12. According to Chambers the Church had to compromise with regard to regulations on drama because of its popularity. "It was hardly possible for practical legislators to take the extreme step of forbidding Christian laymen to enter the theatre at all. No doubt that would be the counsel of perfection, but in dealing with a deep-seated popular instinct something of a compromise was necessary. An absolute prohibition was only established for the clergy: so far as the laity were concerned, it was limited to Sundays and ecclesiastical festivals, and on those days it was enforced by a threat of excommunication."

-
- ²⁷ See *ibid.*, 12.
- ²⁸ *ibid.*, 15.
- ²⁹ See Williams, *The Drama of Medieval England*, 4. Williams mentions that “St. Augustine, who died in 430, was judging by many allusions to plays and actors, an ardent theatregoer.”
- ³⁰ See Chambers, *The Medieval Stage*, vol. I, 12. See also Rosemary Woolf, *The English Mystery Plays*, (Berkeley, CL: University of California Press, 1972) 30.
- ³¹ Chambers, *The Medieval Stage*, vol. I, 17.
- ³² See *ibid.*, 17.
- ³³ *Ibid.*, 17-18.
- ³⁴ See *ibid.*, 13.
- ³⁵ *Ibid.*, 14.
- ³⁶ See *ibid.*, 13, 16.
- ³⁷ *Ibid.*, 13. See also Wickham, *The Medieval Theatre*, 22.
- ³⁸ See Chambers, *The Medieval Stage*, vol. I, 18-19. It is also important to mention that these Barbarians were Arian Christians. See also Dragoș Mîrșanu, “The Aesthetic “Shadow” of Gothic Arianism: Archaeology, Architecture and Art in the Age of Heresies,” in *Memory, Humanity and Meaning: Selected Essays in honour of Andrei Pleșu’s Sixtieth Anniversary*, eds. Mihail Neamțu and Bogdan Tătaru-Cazaban (Bucharest: Zeta Books, 2009), 412: “Nevertheless, by a curious change of fate, Arianism continued to be practiced for more than two hundred years in the West of the Mediterranean world, as it was “carried” along by the migratory populations known as the “Germanic Barbarians.” Shockingly victorious at Adrianople against Valens (AD 378) the Goths became too strong a force to ever be expelled again beyond the northern borders of the empire: [...]”
- ³⁹ Wickham, *The Medieval Theatre*, 22.
- ⁴⁰ *Ibid.*, 22. See also Payne, “Modernizing the Ancients,” 184.
- ⁴¹ Wickham, *The Medieval Theatre*, 23.
- ⁴² See *ibid.*, 11. According to this author “E. K. Chambers devoted an entire volume of *The Mediaeval Stage* to discussion of the religious and dramatic antecedents of Christian Drama in Europe.”
- ⁴³ Chambers, *The Mediaeval Stage*, vol. I, 95-96. See *ibid.*, 96-115. The author, in a long explanation on the subject of ‘The Religion of the Folk and Folk Drama’ shows with historical evidence how the Church used both methods, by using force to destroy the pagan cult as well as her new missionary method in bringing religious significance. See also Wickham, *The Medieval Theatre*, 125-126.
- ⁴⁴ See Chambers, *The Medieval Stage*, vol. I, 116-159.
- ⁴⁵ Laing, “The Church Fathers and the Oriental Cults,” 246.
- ⁴⁶ See Phyllis Hartnoll, *The Theatre: A Concise History*, (London: Thames & Hudson, 1968), 31.
- ⁴⁷ Williams, *The Drama of Medieval England*, 4.
- ⁴⁸ Wickham, *The Medieval Theatre*, 23.

-
- ⁴⁹ Wickham, *The Medieval Theatre*, 24.
- ⁵⁰ See Kinghorn, *Mediaeval Drama: Literature in Perspective*, 23.
- ⁵¹ See Chambers, *The Medieval Stage*, vol. II, 3-7. The author explains the historical development of the Mass as an essentially dramatic commemoration of one of the critical moments in the life of Jesus which started from the fourth century. The author also explains how the dramatic aspect of the Mass developed during the Holy week beginning from Palm Sunday with the reading of the gospel narrative of the Passion until Good Friday and the joyful singing of the *Alleluia* on Easter Sunday.
- ⁵² Kinghorn, *Mediaeval Drama: Literature in Perspective*, 23. See also Sandro Sticca, "The Montecassino Passion and the Origin of the Latin Passion Play," *Italica* 44, no. 2 (1967): 210.
- ⁵³ Wickham, *The Medieval Theatre*, 12.
- ⁵⁴ See Chambers, *The Mediaeval Stage*, vol. II, 4.
- ⁵⁵ See Young, *The Drama of the Medieval Church*, vol. I, (Oxford: Clarendon, 1933), 15-197.
- ⁵⁶ Young, *The Drama of the Medieval Church*, vol. I, 81. See also Sticca, "The Montecassino Passion Play and the Origin of the Latin Passion Play," 211. This author also mentions the opinion of Honorius d'Autun on the Mass as an authentic drama written around the year 1100.
- ⁵⁷ See *ibid.*, 85.
- ⁵⁸ *Ibid.*, 85.
- ⁵⁹ Williams, *The Drama of Medieval England*, 6.
- ⁶⁰ See Young, *The Drama of the Medieval Church*, vol. I, 201. The author explains mainly five stages of the Mass namely, The Preparation, The Oblation, The Consecration, The Communion, and The Dismissal.
- ⁶¹ Chambers, *The Mediaeval Stage*, vol. II, 8. See also Kinghorn, *Mediaeval Drama: Literature in Perspective*, 26. This author explains how the earliest tropes were sung at the introductory portion of the Mass as utterances of joy.
- ⁶² Kinghorn, *Mediaeval Drama: Literature in Perspective*, 26-27. According to the author this exception is the *Quem quaeritis* or the Easter Trope of the Easter Mass.
- ⁶³ Young, *The Drama of the Medieval Church*, vol. I, 201-205. The author describes the *Quem quaeritis*, the tenth century manuscript of St. Gall monastery as the first dramatic tropes of the Easter Mass.
- ⁶⁴ See Alfred W. Pollard, *English Miracle Plays Moralities and Interludes* (London: Clarendon, 1927), xv. See also Chambers, *The Mediaeval Stage*, vol. II, 9-13. See also Young, *The Drama of the Medieval Church*, vol. I, 201. See also Robert Potter, *The English Morality Play: Origins, History and Influence of a Dramatic Tradition* (London: Routledge & Kegan Paul, 1975), 6.
- ⁶⁵ Chambers, *The Mediaeval Stage*, vol. II, 9. See also Glynne Wickham, *Shakespeare's Dramatic Heritage* (London: Routledge & Kegan Paul, 1969), 7.
- ⁶⁶ See David A. Bjork, "On the Dissemination of *Quem quaeritis* and the *Visitatio sepulchri* and the Chronology of Their Early Sources" in *The Drama of the Middle Ages: Comparative and Critical Essays*, eds. Clifford Davidson, C. J. Gianakaris, and John H. Stroupe (New York: AMS, 1982), 7. The author of this essay gives a list on the early sources for *Quem quaeritis* and mentions that one source in southern France is earlier than the source of St. Gall.
- ⁶⁷ See Williams, *The Drama of Medieval England*, 10-20. The author explains the story of the three Marys at the sepulchre, its music and how Shakespeare was influenced by this dramatic form.

⁶⁸ Chambers, *The Mediaeval Stage*, vol. II, 13-14. See also Woolf, *The English Mystery Plays*, 5. See also Hardin Craig, *English Religious Dramas of the Middle Ages*, (Westport, CT: Greenwood, 1978), 33, 115-116. According to the author the *Regularis Concordia* is the earliest surviving text of the dramatic form of the *Visitatio*;

⁶⁹ See Kinghorn, *Mediaeval Drama: Literature in Perspective*, 27.

⁷⁰ *Ibid.*, 29.

⁷¹ See Young, *The Drama of the Medieval Church*, vol. I, 239-410. The author describes the manner in which the short dramatic form of *Quem quaeritis* or visit to the sepulchre evolved in three stages. See also *ibid.*, 239. The author has extensively researched on how the original *Quem quaeritis* dialogue developed into a long dramatic form with the inclusion of the biblical as well as secular characters and incidents. Thus the author explains this development: "In surveying the numerous texts of the *Visitatio Sepulchri* it is convenient to recognize three marked stages in the growth of the play: one in which the dialogue is conducted by the Maries and the angel, a second in which are added the apostles, Peter and John, and the third which provides a role for the risen Christ."

⁷² Chambers, *The Mediaeval Stage*, vol. II, 73. See also Williams, *The Drama of Medieval England*, 10-20. The author has shown how the Easter trope which contained in the *Regularis Concordia* evolved as resurrection play.

⁷³ See Kinghorn, *Mediaeval Drama: Literature in Perspective*, 30. According to this author "The sepulchre might have been fashioned at first from prayer-books, or a recessed tomb could have been used, but later a more realistic and even a permanent sepulchre, such as may still be seen in mediaeval churches, was constructed to aid the regular performance of these plays."

⁷⁴ See Chambers, *The Mediaeval Stage*, vol. II, 52-53. The author mentions that *Prophetae lectio* differs from *Quem quaeritis*. Though this was used as a Christmas homily its content (the homilist invites the Jews and the Gentiles to behold the coming of the Christ) is related to the liturgical readings of the Passion from Palm Sunday to Good Friday. See also Kinghorn, *Mediaeval Drama: Literature in Perspective*, 30.

⁷⁵ Williams, *The Drama of Medieval England*, 39. See also *ibid.*, 40-41. The author also gives one sample of English liturgical plays which is in both Latin and vernacular, a manuscript discovered from the library of Shrewsbury School in 1890. This incomplete text has liturgical plays on Shepherds and a Sepulchre. See also Hardin Craig, "The Origin of the Old Testament Plays," *Modern Philology* 10, no. 4 (1913): 473-474.

⁷⁶ Chambers, *The Mediaeval Stage*, vol. II, 432. *Planctus* means lamentations of Mary. By the late thirteenth century, affective description of Mary's sorrows were familiar to all Catholics through a wide variety of sources - Passion tracts, Passion Plays, sermons, hymns and theological treatises. See also Young, *The Drama of the Medieval Church*, vol. I, 493.

⁷⁷ *Ibid.*, 75-76. See also Michael Rudick, "Theme, Structure, and Sacred Context in the Benediktbeuern "Passion Play," *Spectrum* 49, no. 2 (1974), 269-274.

⁷⁸ See Young, *The Drama of the Medieval Church*, vol. I, 492-539.

⁷⁹ *Catholic Encyclopaedia*, "Miracle Plays and Mysteries," available from <http://www.newadvent.org/cathen/> [accessed March 10, 2011].

⁸⁰ See Chambers, *The Mediaeval Stage*, vol. II, 68-123. In the theme on 'The Secularization of the Plays' the author has extensively explained the evolution of both the Easter and Christmas plays. See also Kinghorn, *Mediaeval Drama: Literature in Perspective*, 36-37.

-
- ⁸¹ See Chambers, *The Mediaeval Stage*, vol. II, 106-148. See also Williams, *The Drama of Medieval England*, 91-115. Both authors have given a broad description on the cycle plays produced mainly by four guilds named Towneley, Chester, York, and Coventry.
- ⁸² Chambers, *The Mediaeval Stage*, vol. II, 69. See also Kinghorn, *Mediaeval Drama: Literature in Perspective*, 53. According to this author the English Passion Plays were written by the laity.
- ⁸³ See *Encyclopaedia Britannica*, "Miracle play (dramatic genre)," available from <http://www.britannica.com/> [accessed March 10, 2011].
- ⁸⁴ Ibid.,
- ⁸⁵ See Chambers, *The Mediaeval Stage*, vol. II, 407-436.
- ⁸⁶ See *ibid.*, 409-412. See also A. W. Pollard, *English Miracle Plays Moralities and Interludes*, 1-7. See also Martin Stevens, *Four Middle English Mystery Cycles: Textual, Contextual, and Critical Interpretations*, (Princeton, NJ: Princeton University Press, 1987), 17-88.
- ⁸⁷ See Chambers, *The Mediaeval Stage*, vol. II, 412-416. See also A. W. Pollard, *English Miracle Plays Moralities and Interludes*, 22-31.
- ⁸⁸ See Chambers, *The Mediaeval Stage*, vol. II, 422-424. See also A. W. Pollard, *English Miracle Plays Moralities and Interludes*, 32-44.
- ⁸⁹ See Chambers, *The Mediaeval Stage*, vol. II, 416-422.
- ⁹⁰ See *ibid.*, 424-425.
- ⁹¹ See *ibid.*, 425-426.
- ⁹² See *ibid.*, 433-434.
- ⁹³ See *ibid.*, 429.
- ⁹⁴ See *ibid.*, 430.
- ⁹⁵ See *ibid.*, 430-431.
- ⁹⁶ See Williams, *The Drama of Medieval England*, 163-170. The author has described the two plays, 'The Conversion of St. Paul' and 'Mary Magdalen' under the title 'Romantic Drama: Saints' Plays and Miracles.'
- ⁹⁷ See *Catholic Encyclopaedia*, "Miracle Plays and Mysteries,"
- ⁹⁸ Ibid.,
- ⁹⁹ Chambers, *The Mediaeval Stage*, vol. II, 104-105.
- ¹⁰⁰ See E. F. L. Gauss, "The So Called Mystery Plays," 417-418.
- ¹⁰¹ Ibid., 418. See also Wickham, *The Medieval Theatre*, 67, 75.
- ¹⁰² J. W. Robinson, "The Late Medieval Cult of Jesus and the Mystery Plays," *Publication of Modern Language Association* 80, no. 5 (1965): 510.
- ¹⁰³ See *ibid.*, 511.
- ¹⁰⁴ See *ibid.*, 508-509.

¹⁰⁵ See Williams, *The Drama of Medieval England*, 52. The author mentions Corpus Christi as a new feast proclaimed by Pope Urban in 1264 to honour the real presence of Christ in the Eucharist. See also Mervyn James, "Ritual, Drama and Social Body in the Late Medieval English Town," *Past & Present* no. 98 (1983): 4-5.

¹⁰⁶ See Chambers, *The Mediaeval Stage*, vol. II, 138-148. The author mentions many Corpus Christi plays performed by the guilds such as York, Coventry, Chester and others most of which include the passion of Christ.

¹⁰⁷ Williams, *The Drama of Medieval England*, 53.

¹⁰⁸ Kinghorn, *Mediaeval Drama: Literature in Perspective*, 66. The author mentions Mystery plays performed at Corpus Christi festivals from the Creation to the Last Judgement. See also William Tydeman, *English Medieval Theatre: 1400-1500* (London: Routledge & Kegan Paul, 1986), 104-159. The author's extensive description on the York Passion Play sequence in relation to the long processional staging of pageant-waggons performed during Corpus Christi plays shows the evolution of Passion Play.

¹⁰⁹ See Woolf, *The English Mystery Plays*, 66. According to the author the beginning of this Passion Play is based on the book of Genesis as the scenes are on Creation, Fall of Man and the story of Cain and Abel.

¹¹⁰ See *ibid.*, 67. This Passion Play presents the history of the Redemption from the Fall of Man to Resurrection.

¹¹¹ See *ibid.*, 67.

¹¹² See *ibid.*, 70.

¹¹³ See *ibid.*, 71-76.

¹¹⁴ See Wickham, *The Medieval Theatre*, 60-61.

¹¹⁵ Malcolm Maccoll, "The Ammergau Passion play. repr. from the time," available from <http://books.google.be/> [accessed March 15, 2011.], 10. See also Woolf, *The English Mystery Plays*, 275.

¹¹⁶ Chambers, *The Mediaeval Stage*, vol. II, 73-74.

¹¹⁷ *Ibid.*, 74.

¹¹⁸ See *ibid.*, 74.

¹¹⁹ See Kinghorn, *Mediaeval Drama: Literature in Perspective*, 37-40. See also Williams, *The Drama of the Medieval England*, 49-50.

¹²⁰ Coffman, "A New Approach to Medieval Latin Drama," 239.

¹²¹ See Robert Potter, *The English Morality Play: Origins, History, and Influence of a Dramatic Tradition*, (London: Routledge & Kegan Paul, 1975), 6-7.

¹²² *Catholic Encyclopaedia*, "Moralities (Morality Plays)," available from <http://www.newadvent.org/cathen/> [accessed March 13, 2011].

¹²³ See Kinghorn, *Mediaeval Drama: Literature in Perspective*, 116. See also Potter, *The English morality play*, 7. According to this author the traditional division of mystery plays based on scripture, miracle plays on the lives of the saints and morality plays on the struggle between vices and virtues causes serious misunderstanding on the nature of morality play.

¹²⁴ See *Encyclopaedia Britannica*, "Morality play (dramatic genre)," available from <http://www.britanica.com/> [accessed March 13, 2011].

¹²⁵ See Chambers, *The Mediaeval Stage*, vol. II, 436.

¹²⁶ See *ibid.*, 437-438. See also Pollard, *English Miracle Plays Moralities and Interludes*, 64-76. See also Richard Southern, *The Medieval Theatre in the Round: A Study of the Staging of the Castle of Perseverance and Related Matters*, (London: Faber and Faber, 1975), 3-13.

¹²⁷ See Chambers, *The Mediaeval Stage*, vol. II, 439. See also Pollard, *English Miracle Plays Moralities and Interludes*, 77-96.

¹²⁸ See Williams, *The Drama of Medieval England*, 143.

¹²⁹ Potter, *The English Morality Play*, 6.