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From Conquerors to Development Partners: The Changing Roles of Traditional Authorities in Local Level Development and Governance in Ghana.

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Abstract

Over the past few decades, the role of traditional authorities in local level development and governance under the current decentralization system has provoked debates. One school of thought is that traditional authorities are anachronistic and a throwback to pre-colonial days. Opponents of this view argue that traditional authorities have proven extremely dynamic and continue to play a crucial role in the future social, economic and cultural transformation of communities. This paper contributes to this debate by examining the Wechau Community Hippopotamus Sanctuary (WCHS) and the role of the traditional authorities in the Wechau Traditional Area in bringing local level development. Qualitative research methods were used for this study: these include in-depth interviews, focus group discussions and observation. The study found traditional authorities plays an important role in the development of education, employment creation, preservation of cultural heritage and environmental sustainability in the Wecheau Traditional Area. Drawing on these findings, the paper concludes that the traditional authorities should be considered as one of the main actors in the current decentralization system in Ghana and provided with the necessary resources to enhance their efficiency in local level development and governance.

Keywords: Traditional, Local level, Development, Governance, Roles, Development partners, Authorities, Ghana.

1.0 Introduction

In Ghana chiefs have been an integral part of the political landscape since time immemorial. There have been many changes and perspectives in the roles of chiefs in modern day Ghana throughout the political development of the country (Nabila, 2001). It is an undeniable fact that traditional authorities have been responsive to these changes over the last century to meet the social, economic and political transformations that have occurred in the country (Boafo-Arthur, 2006).

In the pre-colonial era, the chief was the political, social, economic, legal and military head of the traditional state. As political head, he was responsible for the maintenance of good order in his state. He was the guardian of the fundamental values of his people and mediated between them and the spiritual forces. He administered tributes, court fines, market tolls, and other revenues (Adjaye and Misawa, 2006; Abotchie, 2006). Throughout the colonial period, to present, various authorities or governments have in diverse ways tried to influence this role (Nabila, 2001). Under the 'indirect rule' policy of local government administration, chiefs served as a conduit between the native people and the colonial government by collecting taxes, maintaining law and order, settling disputes and managing social and economic development.

Also, in the immediate post independent governments, the chieftaincy institutions were also recognised in local level development. The 1969 Republican Constitution of Ghana, not only legitimised the chieftaincy institution but also reserved two-thirds of the seats in local councils and a third of the seats in districts councils. Also, the current decentralization system recognizes the role of traditional authorities in local level development.

There is no disagreement over the role of traditional authorities in local governance and development. Those who favour the membership of chiefs in local government units, in general, argue that traditionally, the traditional authority is the leader of his people and that despite the decline of chieftaincy as an institution, traditional authorities still command great influence in their areas of jurisdiction (Ayee, 2007). At the local level, the traditional and governmental authority coexists. While people might accept local government authority for some governmental decisions (e.g. local development, infrastructure etc.), they will refer to traditional authorities for other things affecting their lives such as settling of land disputes, religious or social matters (Lenz and Linder, 2004). In spite of traditional authorities being perceived historically as "inept providers of local administration" they have been turned to in the post-colonial period by their people and even the central government in most areas in Ghana as arbitrators and allocators of values because of the incapacity of the central government to provide such administration beyond the city limits (Rathbone, 2000: 164).

Despite the significance of traditional authorities contribution in the socio-economic development over the past decades, under the current decentralization system in Ghana, the provision in the Local Government Act (Act 462) does not give traditional authorities a direct representation. The provision stipulates that 30 per cent of representation to District Assemblies must be done in consultation with Traditional Authorities. The provision does not effectively tap the vast powers and knowledge of traditional authorities for local level development and governance. However, there is an increasingly popular demand for a greater role for traditional authorities as a way to explore more participatory and locally-driven approaches to development (Boafo-Arthur, 2006; CIKOD, 2009).

This article therefore examines the roles of Traditional Authorities in local level development and governance in the Wechau Traditional Area in the Upper West Region as case study with the aim of illustrating how traditional authorities can become a medium for grassroots development and governance.

2.0. Research Methodology

The study examined relevant data from primary and secondary sources. The multi-stage sampling technique was used for the study. The traditional area was stratified into three strata based on ethnicity (Waala, Dagaaba and Birifor). The simple random sampling technique was used to select key informants (five household heads) from each of the strata. Purposive sampling technique was used to select people for interview and focus group discussion.

Primary data was sourced from in-depth interviews, focus group discussions and observation while secondary data was sourced from published and unpublished materials. Five interviews were conducted with the chief, women leader, head teacher, manager of the WCHS and Assembly man. Two focus group discussions were held with women and men (from all the ethnic groups) each consisting of discussants numbering between six and ten.

The data analysis employed mainly qualitative approaches to examine key issues at stake. In the data collection process, qualitative field notes captured on daily basis on events, conversations, interviews and stories on traditional authority's roles during group discussions and interactions with specialized groups was analysed after each days work by an analysis of the content.

3.0 Conceptual Framework

3.1. The Debate on Chieftaincy in Contemporary Africa

Over the past decades there has been considerable debate on the relevance of the chieftaincy institution in modern Africa and for that matter Ghana. This debate has produced respectable literature. The debate has four critical strands (Mengisteab, 2008). One pessimistic strand contends that chieftaincy is anachronistic, a hindrance to the development and transformation of the continent, undemocratic, divisive, and costly. Supporters of this view posit that chieftaincy has been corrupted by the colonial state and by the clientelism of the despotic post-colonial state and is, thus, no longer subject to accountability to the populace (Zack-Williams, 2002), that the hereditary nature of chieftaincy renders it incompatible with democratic governance, which requires competitive elections as one of its cornerstones (Ntsebeza, 2005). Proponents of this school of thought in general call for the abolishing of the chieftaincy institution in Africa. In his work 'Chiefs and the state in independent Zambia', Van Binsbergen (1987) concludes that chieftaincy is obsolete and should be allowed to die out, as it has in Europe, where its remnants (monarchies) can only be seen in the most backward of countries. In line with this discourse, in post independent African states, governments attempted to abolish the chieftaincy institution. For example under Nkrumah in 1954, excluded the chiefs from the local councils and in 1958, he abolished their courts. A major critique of this view is that it failed to consider what democracy and accountability actually means to different cultures and people.

A second view on the relevance of traditional institutions is provided by legal pluralists. This view acknowledges that African traditional legal systems, customary courts, and customary property rights are an empirical reality and need to be recognised and respected (McAuslan, 1998).

Another view asserts that traditional institutions are indispensable for political transformation in Africa, as they represent a major part of the continent‟s history, culture, and political and governance systems (Davidson, 1992; Englebert, 2000; Mengisteab, 2008). This view attributes the ineffectiveness of the African state in bringing about sustained socioeconomic development to its neglect of traditional institutions and its failure to restore African history.

Finally, are those scholars who makes the arguments that chieftaincy can provide the bedrock upon which to construct new mixed governance structures since chiefs serve as custodians of and advocates for the interests of local communities within the broader political structure (Sklar, 1996; Skalnik, 2004); secondly, the conception of traditional institutions that the source and raison d"être of power is the collective good, enables them to provide a strong philosophical basis for establishing accountable governance, (Osaghae, 1987); and finally given that over-centralization of power in the hands of predatory states often obfuscates community-based initiatives and democratic practices at the grassroots, good governance can materialise only through the articulation of indigenous political values and practices and their harmonization with modern democratic practices (AJID, 1996; Ayittey, 1992; Ake, 1987).

3.2 Traditional Authority and Local Governance in Ghana

Traditional authorities comprise all the structures, systems, and processes that communities have evolved in the course of their history and development to govern them (Kendie and Guri, 2007). These are distinct from formal national governance authorities, which are the creations of the modern state. In Ghana, traditional authority is based at the grassroots on community chiefs and elders (Wayo, 2006). Traditional authority revolves around such leaders as chiefs, elders, clan heads, family heads, landlords, queen mothers, and chief priests or priestesses. According to Boateng (1994), villages are organised under sub-divisions, divisions and paramountcies. The organisational structure of traditional authority in Ghana is not homogenous. According to Wayo (2006), it varies markedly from one major traditional or ethnic area to another. The major difference from one area to the other lies in the degree of centralisation. The centralised traditional authorities existed as kingdoms with well structured traditional chieftaincies down to the village level (Boateng, 1995). This centralised structure can be found among the Akans in the south and Dagbon and Mamprugu in the north.

Most ethnic or traditional societies in Ghana did not have centralised political systems but had only clan heads as their natural leaders and were regarded as stateless societies (Wayo, 2006). Chieftaincy was introduced into these societies following the introduction of indirect rule by the colonial masters. These societies include the Tallensi, the Dagaba, the Konkomba, the Sissala, the Ewes and the Kassena according to ethnographic accounts..

Traditional authorities are therefore some of the most enduring traditional institutions in Ghana, which have displayed remarkable resilience from pre-colonial through colonial to postcolonial times. In the past, the role of traditional authorities was to lead people in war to defend, protect and extend their territories. According to Awedoba (2006), the modern role of these traditional authorities is to combat poverty and other social ills: illiteracy, ignorance, environmental degradation, and the depletion of resources.

In Ghana, traditional authorities often play community advocacy roles as they are often seen articulating the felt needs of their communities to government officials and other political leaders who visit them in their communities. It is also argued that traditional institutions have a vital role to play in governance, as it can be a very useful instrument for the promotion of Ghana's local government and decentralisation process. According to Awedoba (2006), traditional authorities especially chiefs should be at the centre, fully involved in planning, implementing and monitoring local development projects in a carefully developed local government system.

Traditional authorities, as Guri (2006) observed, cannot be discussed without appreciating their existence throughout the historical struggle of Ghana. He notes that whiles the colonial rulers used the traditional authorities to perpetuate the indirect rule system in

Ghana, the post-independent state on the other hand perceived them as collaborators of the colonial oppressor and therefore tried to relegate their role to a representation of cultural and symbolic expression of national identity. Currently, it could be said that they have been sidelined politically as the 1992 constitution bars chiefs from partisan politics. Under Article 276 (1) " A chief shall not take part in active party politics; and any chief wishing to do so and seeking election to parliament shall abdicate his stool or skin". A chief is defined in Article 277 as "a person, who, hailing from the appropriate family and lineage, has been validly nominated, elected or selected, and enstooled, enskinned or enstalled as a chief or queenmother in accordance with the relevant customary law and usage". At the national level, traditional authorities (chiefs) are represented on the Council of State and various commissions. At the local level, through the local governance arrangement, government is required to appoint 30% of members of District Assemblies in consultation with traditional authorities. It is then clear that, traditional authorities have no formal space in the mainstream local governance system of Ghana beyond discretionary representation in the District Assemblies.

3.3 Participation of Traditional Authorities in Local Level Development and Governance

An important component of culture is the institutions that enforce the rules, norms and values. Everywhere in the world, the authority and structure of these institutions are clearly defined and this is also so for the traditional institutions in Ghana (Kendie and Guri, 2007). The chieftaincy institution retains major importance for Ghanaians and demonstrates the significant legitimacy of traditional leaders and their potential ability to influence their subjects in development programmes and projects. What is also noteworthy is that, the statements made by the new chiefs at their accession are often on their commitment to development for their communities and the state. These statements of commitment are perhaps best seen as the first stage in their eventual involvement in greater depth in other areas of development.

Traditional authorities are involved in many areas of development and one of the areas that generally appears to be given a great deal of attention is the area of economic development. While social policies like education and health also tend to garner a great deal of the chiefs' attention, support and commitment, economic development seems to be one of their priorities. It is important to note, however, that economic development can take on several different aspects, such as the building of infrastructure such as roads to facilitate the transport of goods to and from markets, or the facilitation of agricultural policies to ensure that crops bring in better income nationally and locally, or the setting up of or the support of industries that can bring employment and income to more people. Even some social policies can fall within this framework. Supporting education means that better knowledge and training can lead to improvements in the country in terms of innovation or employment for individuals. Taken from this standpoint, nearly every development policy or project that chiefs are involved in can be taken to be in support of some aspect of economic development.

Although almost all development practices and policies can be taken to be part of economic development, the nature of some of the projects – that is the fact that infrastructure, tourism, agriculture, factories, mining operations and so forth require access to land, often this requires the direct involvement or at least the direct approval of the community's chief. Traditional leaders, ranging from the head of an extended family to the level of chiefs, control (in one way or another) much of the land held under customary tenure.

4.0. Results

4.1. Introduction

This section analyses the research findings. Areas covered include a historical background to the development of the sanctuary, management structure of the sanctuary and the roles of stakeholders, the role of traditional authorities in socio-economic development, environmental management, preservation of cultural heritage and governance and accountability.

4.2. Background to the Wechau Community Hippopotamus Sanctuary (WCHS)

The Wechau Community Hippopotamus Sanctuary (WCHS) is a community-based Eco-tourist site located on the Black Volta covering about 2 kilometers (both in Ghana and Burkina-Faso). It was established in 1998 by the chief and people of the Wechau Traditional Area with assistance from non-governmental organizations such as Nature conservation. After the sanctuary was discovered as a potential tourist site, there were debates as to who should own and manage the sanctuary. The visionary leader Naa Imoru Nandung Gomah II, paramount chief of the Wechau Traditional Area opted for the community to own and manage the sanctuary rather than transferring ownership to the government. Also, there was the issue of resettlement of communities around the Volta lake especially those living around the habitats of the hippopotamus. Again, the chief opted that these communities should not be resettled but rather a set of rules and regulations be instituted to regulate human activities in the area. This led to the demarcation of a protected area. As a result, the sanctuary is located in seventeen (17) communities and among the three (3) ethnic groups (Dagaaba, Waala and Birifor) which constitute the Wechau Traditional Area. The sanctuary provides the following tourist attractions:

1. *River safari to see hippopotamus*
2. *Bird watching with about 250 bird species*
3. *Cultural displays by the indigenous people that make up the sanctuary*
4. *Botany walk were tourist are shown different plant species and their uses*

Before the establishment of the sanctuary, the now protected area witnessed human activities in the form of farming, lumbering, hunting, fishing and bush burning. This led to the depletion of plant and animal life. However, since the establishment of the sanctuary, the chiefs of Wechau have used his authority to institute bye-laws and regulations guiding human activities to protect plant and animal life, especially that of the hippopotamus. Offenders are fined an amount of cash depending on the gravity of the offense.

4.3: Management system of the sanctuary

The management structure of the WCHS is in five hierarchies as shown in figure 1.

Figure 1: Management Structure of the sanctuary
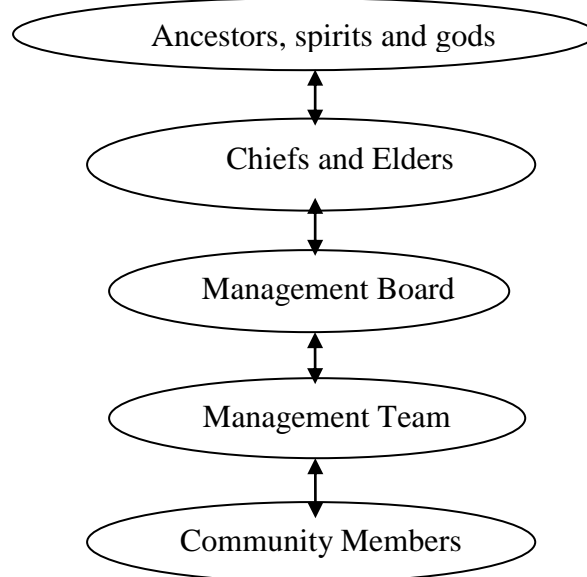
Source: Authors Construct

The first in the hierarchy is the ancestors, spirits and gods of the people. The ancestors, spirits and gods are the embodiment of the people and also guide their everyday life.

The chief and his elders are next on the hierarchy. They draw inspiration and direction from their ancestors, spirits and gods. They have the final say on all decisions regarding the sanctuary. All decisions taken at the lower hierarchical levels are done in consultation with the chiefs and elders. Their decisions are final and binding in all the communities in the traditional area.

This followed by the sanctuary management board. It is made of representatives (two or three from each community) of the seventeen communities within the area. The management board elects its executives-Chairman, Vice Chairman, Secretary, Assistant Secretary and Treasurer. They are responsible for organising meetings and taking policy decisions on the management of the sanctuary. Members of the management board serves as a conduit between their respective communities and the management board. Their duties include reporting all community issues with the sanctuary and also informing community members on all decisions taken at the management board level.

This followed by the management team (staff) which consists of the manager, tour guides, boat paddlers and rangers. The manager is the leader of the management team. He is responsible for organizing the other members of staffs to attend to tourists, keep records of tourist and manage revenues from the sanctuary. The tour guides are take tourists through the various tourist attractions within the sanctuary boat paddlers are responsible for paddling tourists on river safari. The rangers patrol around the demarcated area to prevent poachers and other indiscriminate activities such as lumbering, fishing and hunting. These staffs are paid wages for their work.

At the bottom is the community members. They have the responsibility serve as watchdogs and are suppose to report all issues concerning the sanctuary to their representatives on the sanctuary management board.

Information flow within the management system is in both directions i.e. top-down and bottom-up.

4.4: Socio-economic Development

The World Tourism Organization (2002) notes that sustainable tourism developed in certain geographical areas may become a fundamental tool for economic development and reduction of poverty. The establishment of the sanctuary has impacted positively on the economic lives of the people of Wechau Traditional Area since it provides an additional source of revenue to individuals and the community as a whole. Before the establishment of the sanctuary, the community depended solely on government and non-governmental organizations for development projects. Reports from the Management Team of the sanctuary indicates that on average, the sanctuary generates revenue of about Gh¢2,710.00 (Approximately USD 1,350.00) per month from tourists. The revenue is used for the day-to-day running of the sanctuary, for community projects such as educational scholarship for needy but brilliant children, purchasing of teaching and learning materials for schools and repair and maintenance of boreholes in the communities. The head teacher at Talewonaa community corroborated this as follows:

> *"The school was bedeviled with several problems amongst which include lack of desk for pupils, access to water when the bore hole broke down but with the help of the WCHS management team, we now have desk and the pupils no longer sit on the bare floor. They have also fixed the borehole for the school".*

Apart from the revenue generated for the community by the sanctuary, the establishment of the sanctuary has brought alternative employment opportunities for community members in the areas of shea trade, food vending, rangers and tour guides. For the majority of the women who are engaged in shea nut trade and processing, they have access to organic shea nuts in the protected area and this attracts higher prices than inorganic shea nuts. The Wechau community has recently gained organic certification, which means that the quality and labels of shea nut will give them higher prices in the international market compared to non-organic shea nut. The higher prices and the increasing volumes sold will allow women to increase their incomes and the standard of living of their families. In a focus group discussion an elderly woman said:

> *"We now have good prices for our shea nut than before. Previously we were been cheated by the women from Wa. But now the management team of the sanctuary has found buyers for us and their prices are good".*

Previous studies show that tourism can cause the growth and preservation of other industries that are not directly related to tourism (Egbali et.al, 2011). However, in Wechau, other industries such at the handicraft and food vending are virtually absent. Although, the area is rich in traditional handicrafts such as weavings and carvings, community members are not taking advantage of these sectors. Also, although some women sell food to tourist it was observed that this area was still underdeveloped thereby affecting the number of days tourists spend in the community. There are plans by the management team to open a restaurant and bar to serve the food needs of tourists to generate additional revenue and also to increase time spent by tourists.

According to Egbali et.al (2011), tourism also reduces the communities' dependence on agricultural activities by enhancing village economics into different sectors. Majority of men apart from their main occupation as farmers are also employed as tour guards, boat paddlers and rangers. The paddlers and tour guards are mostly the youth who are in school and take up these jobs on part-time bases during week-ends or have completed their basic education and are waiting to enroll in a secondary educational institution. They earn wages according to the number of tourists they guide or paddle on boats. Inusah, a beneficiary of the WCHS educational scholarship noted that:

> *"If it was not the sponsorship from the WCHS, I would not have made it to senior high school. When I had admission, my parents could not afford the school fees so they contacted one of the management board members in our village and through him they paid all my school fees for me".*

4.5. Environmental Management

The establishment of the WCHS has led to the improvement in biodiversity in the now protected area. In most interview sessions, respondents agreed that biodiversity has improved in the now protected area over the past decade. For example, in 1998, the first census of the hippopotamus population stood at seventeen (17). Currently, the hippopotamus population stands at twenty seven (27), which shows an improvement in the hippopotamus population in the sanctuary. Community members also agree that there has been an increase in the vegetation cover, birds and other animal population in the area. According to the respondents, before the sanctuary was established, the area experienced vast human activities in the form of lumbering, hunting and farming which led to the deterioration of biodervisity in the area. Generally, it was observed that the communities have become conscious of their environment than before due to the benefits they   derive from conservation.

However, during transect walks along the demarcated areas, it was noted that there are some bush burnings in some parts of the protected area. This was attributed to lack of fire belts thereby allowing wild fires to penetrate the demarcated area. Also, on the Burkina Faso side of the sanctuary, it was noted there was lumbering activities going on. The noise produced by these chain-saws can have negative consequences on the stability of the hippopotamus in the sanctuary since it can cause their migration. Opinion leaders agree that, although there are bye-laws governing human activities, some deviant community members do hunt for animals and birds. Others also lumber in the protected area for building purposes. It is believed that the protected area has the best of trees for building.

4.6. Promotion of Cultural Heritage

The *UNESCO Universal Declaration on Cultural Diversity* (2001), states that "cultural diversity is as necessary for humankind as biodiversity is for nature". The desire to encounter and experience different cultures and their material and immaterial expressions is one of the key motivations for tourists and lies at the very heart of many tour operators business (UNESCO, 2006). In Wechau, culture is the common heritage of the people and it is recognized and affirmed for the benefit of present and future generation. An important attraction at the WCHS is cultural displays by the indigenous people. Traditional songs, music and dances are performed. Also,   oral accounts of the history, origins, beliefs and taboos of the people are also narrated to tourists.

The impact of international tourism on the people of developing countries has sparked off much scholarly debate (Wall, 1996; Brown; 1998). The debate has often oscillated on whether tourism destroys or preserves culture. According to interviews and focus group

discussions held with opinion leaders in the traditional area, since the development of the WCHS, there has been positive impact of tourism in the communities. The positive major impacts are the revival of songs, music, dance and preservation of local artifacts and architecture. A leader of one of the cultural troupes in Kpanfa a Birifor community said:

"The development of the WCHS has made us become more aware of our culture. We have formed different cultural groups so that we can learn and practice the different songs and dances of our forefathers. Now we can say that we are preserving our culture than before and also making money out it".

This finding corroborates with previous studies (Irandu, 2004). On the contrary, some earlier studies (Sindiga, 2000; Williams; 1998; King and Steward, 1996), suggest that international tourism leads to negative demonstration effect and commodification of culture. This difference may be due to the fact those studies were carried out at much developed tourist centers.

4.7. Governance and Accountability

The paramount chief of the Wechau traditional area has used his authority enshrined in the custom, taboos, norms and values of the people to govern the management of the sanctuary directly or indirectly through his sub chiefs and household heads. In order to ensure participation of the various ethnic groups and communities, each community is represented at the management board level of the sanctuary.

Moreover, in order to ensure effective governance, the chief together with the management board have instituted bye-laws to guide how human activities are governed within the protected area. As at the time of gathering data, the bye-laws that were in place include, lumbering, hunting, fishing, bush burning and farming. Offenders of these bye-laws are fined an amount of cash depending the gravity of the offense. Hunting for hippopotamus is regarded as the most serious offense. Workers of the sanctuary who were caught breaking these by-laws are dispelled and fined.

In order to ensure effective governance, the chief has contacted authorities of Burkina-Faso to inform them of the eco-tourist site although it has not resulted in the signing a memorandum of understanding (MOU). The involvement of the Wa West-District Assembly will help in facilitating a formal agreement with the Burkinabe authorities so as the help reduce the rate of human activities on the Burkina-Faso side of the sanctuary.

Also, the management board holds meetings every quarter to account for the proceeds and expenditures made by the sanctuary.

4.8. Emerging challenges in the management of the sanctuary

Although, the sanctuary is currently having positive impacts on the people of Wechau traditional area, there are emerging issues that when left unchecked could be detrimental to the sustenance of the sanctuary. These include poaching, bush burning, fishing and lumbering.

Poaching for hippopotamus remains one of the greatest challenges to the sustenance of the sanctuary. Although, the sanctuary has rangers that protect the area against poachers, it was observed that they were inadequate and lacked the requisite logistics to enable them operate efficiently, especially at night.

Secondly, bush burning is also common in the area especially during the dry season. This problem poses a challenge due the fact that the demarcated areas do not have bush fire belts. The threat of bush burning is that it can lead to the depletion of biodiversity.

Again, fishing in the demarcated area poses threat to the hippopotami, since fish serves as their main food. The depletion fishing of the fish stock in the area is likely to force the hippopotami to migrate.

Finally, lumbering especially at the Burkina-Faso side of the sanctuary has serious consequence on the ecology of the hippopotami. As amphibians, plants at the banks of the lake serve as food and also protection for the hippopotami at night when they are out of the water.

5.0. Conclusion and Recommendation

The study points to the fact the traditional authority's plays crucial developmental roles at the local level and the role of the chieftaincy institution in the case of the WCHS is a shining example that can be replicated by other communities for their own development. The dualism of the formal and traditional institutions at the local level presents vast opportunities for the active participation of local people in their own development in Ghana's decentralization system. The only way these opportunities can be fully tapped is collaboration between these institutions. On the basis of this it is recommended that the current decentralization system in Ghana should be relooked at with view of incorporating the traditional institutions in areas were they are best at while creating avenues for formal institutions to cater for governmental interest.

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Campus design and symbolic Order in Contemporary Nigeria: A Case Study of Covenant University Campus, Ota. Nigeria

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Abstract

Many researches in Africa particularly after their independents exert lots of thrust in capital cities and housing development more than any other areas of physical planning. However, some few years ago a new trend of development in university education, (including campus) and other related activities have began to emerge. About a decade ago, Covenant University was established among others as a reformer to offer a more holistic education which addresses man's totality and provide a befitting campus environment that command international admiration. The study in its review of existing literature focuses on the uniqueness of Campus land-uses planning with the aim to dissect Covenant University campus design which is symbolic in all intent. The authors employ the data from calibrations of spatial situation of existing structures, street density and accessibility factors to determine the degree of coordination of the campus and the graph network or connectivity's of the campus. In the analysis of the entire campus built form and agglomeration, the study observed a loose coordination in the campus spatial structure. Moreover there is need for additional pedestrian walkways with plant shade in the campus. The study recommends compact development and beef up in the pedestrian paths as a measure to reducing long travel (walk) within the campus; equally it is to minimize continuous interference of vehicular traffic with pedestrians and cyclists alike. Larger open spaces in the campus should be filled with structures that are akin to the activity dominating the area. This becomes imperative in order that the unique design is not thrown out as a 'romantic nonsense' entity that can no longer magnetize attention or that which has lost its convenience attribute to the detriment of the community dwellers. The corrective measure is a proposition that can still be accommodated

Key words: Campus, Contemporary, Design, Order, Plan, Sustainability, Symbolism

1. Introduction

Researches in the areas of community design, socio-economic and environmental effects of the built environment are beginning to emerge particularly in a number of African nations; some of these have to follow the same trend of research and development that exist in the advance nations that colonized the Africa continent. Since after the independence of those developing nations there have not been tangible areas of successful planning efforts. Recently, in furthering research to specific areas of need, Africa researchers in the field of planning have shown passion in urban environment and more importantly the urban land use planning and their effects on the built environment. With urgency to trigger transformation in every facet of physical development, most African nations had focused in creating a befitting and environmental friendly academic campus that are symbolic in nature. Consensus opinions have recommended that if the institutions of higher education are to reflect coherence, order and function in their over all design symbolically, steps must be taken to improve the campus design. Dober (2012) equally argues that institutions of higher education, as the leading edge of thought, have a societal obligation to search out and engender those methods of physical planning which are useful in their own way to the institutions and have application in other areas as well. It is however very lamentable that only few campuses are organized for this purposeful planning today, despite universally recognized benefits which such plans afford.

Here in Nigeria frantic effort to fostering land uses that support activities and service needs at the university community level has gained wide support especially as more universities with private initiatives are being built to compliment the existing overcrowded ones. Before the new millennium in Nigeria the power to establishment university education was primarily vested on the two tiers of government – the federal and the state, as such the nature of those universities design in practical term (physically and program wise) were absolutely influenced by the government that funded them. At the set of the millennium several non-governmental organizations upon the approval of the federal government have established their own universities, majority of which strive to birth reforms both in the curriculum and in the physical environment (including the campus layout plan). The focus of this paper is on the later, which emphasizes more on the spatial uniqueness of a place.

This consideration and need for sustainable university campus design to fit environmental space, boost social and economic growth sustainably in the contemporary Nigeria can not be overemphasized. In many quarters sustainable campuses planning have been advocated by the institution responsible for higher education establishment, however, the challenge to achieving good results has been around bringing everyone to a common thought. Aside this, the deep gap that must be bridged is the knowledge on how to create and sustain desired design of campus land uses, symbolic physical structures and their relatedness in space. All these are still very much under explored in Nigeria.

This study in a nutshell investigates the factors that give rise to the existing university campuses structural layout design with particularly reference to Covenant University, a Nigerian private university that was established to make a difference in the nation educational landscape. Implicitly the investigators consider a case study of facilities locations and structure design of one of the acclaimed 'most beautiful' Nigerian University campus (see picture plates in the appendix). Covenant University, by all physical attributes, has been adjudged most attractive when compared with other Nigerian university campuses. This attainment by implication will help setting a benchmark for other emerging higher institutions in Nigeria.

It is the authors' intention to analyze which built form, land use, and agglomeration factors explain the observed deficiency or otherwise in structural layout of the referencing

campuses. The researcher is particularly interested in how major facilities usage (densities of use) is affected by the spatial configuration of the built environment - the physical pattern of the community infrastructure, the geometry and density of buildings and circulation routes. Since we have modeled our analysis at a fine spatial resolution across a small area, using individual buildings in the campus as a unit of analysis, this allows to some extent the application of graph theory type metrics to quantify the attributes of campus form around each building, and to model access to certain opportunities under a realistic constraints of the street network and built fabric. The contention here is that it is important to make a clear distinction between attributes of accessibility that results from campus form, and those that result from land use and transit attractions. Carrying out this allows for estimate and knowledge of how strongly used facilities are affected by the spatial configuration of the campus built form, as opposed to land use attractions and spatial relationship. The research attempts to estimate the extent to which facilities cluster at locations, for instance, large edifices like the campus guest house, Africa Leadership Development Centre (ALDC) and Cafeteria II are at closer proximity. This however may result from attraction to other facilities, land uses as opposed to attributes of accessibility that result from the spatial configuration of the area.

In all intent and purpose, this study is an applied research and becomes useful on two grounds. First, it contributes to planning literature and neo-classical functional location theory by addressing some scantily understood aspects of university campus activities arrangements; in other words, it endeavours to distinguish between two types of agglomeration factors, and why agglomerations start at particular locations. Second, it suggests workable strategies that aid professionals in devising spatial and policy incentives for generating economically sustainable planned area-scale activities clusters.

2. Background of Covenant University Campus.

Located on a gentle slope terrain, 10 kilometers along Idiroko road, Ota (Lagos suburb), Covenant University as a co-educational learning Centre was established in October 2002 to raise new generation of leaders with expert thinking and managerial skills, providing solutions to the many challenges besetting the nation, Nigeria and the continent of Africa. According to its foundational objectives which includes: a powerful and compelling vision of excellence; quality service rendering which is equaled by none; an academic curriculum that is qualitative, service-based and value driven; an overarching emphasis on human development from a total man concept & Entrepreneurial Development base (Obayan, 2012). The race of excellence is indeed set for the institution which is now rated very highly in the recent Nigerian Universities web metrics just carried out.

Since 2002, Covenant University (CU) has invested colossus amount on its environmentally pleasing and master piece campus, overwhelmingly with ample infrastructure and well maintained landscape in high fashion. In one audacious stroke, propelled by a single master plan CU has transformed a nondescript, well standout building complexes into an international cultural destination. This new status of the university and the need for sustainable development triggered a comprehensive reassessment of campus facilities and its relatedness in space. While this study can only try to estimate the range of achievements at the institutions, it is particularly pleasing to note that the excellence of transformative research and community development have changed people's lives and perspective.

Among the various tasks the University is trying to accomplish, through the development of the campus plan, are: to re-establish a level of consistency in the architecture vocabulary; that is, scale, materials, colors, etc. of new buildings; reinvigorate the open space that were planned to give a strong visual order and connectivity to the campus; and moreover,

to create clearly defined outdoor spaces that work in harmony with the campus plan and ordering system.

As a compliment to these goals, the University has been pursuing several other, more functional, objectives (on a campus-wide basis) which include: to concentrate more on the pedestrian as the predominant users of the facilities—and therefore to attempt in every project to facilitate pedestrian movement and safety, and to create a comfortable atmosphere for pedestrians. Efforts have also been geared recently to rationalize the utility systems that serve the campus buildings, and to provide controlled access for service and delivery vehicles, concentrate necessary inner campus vehicular parking in accessible locations.

The University library otherwise known as Centre for learning resources (CLR) has a well-maintained physical building(s) that is geographically and physically accessible to members of the community and the larger community outside the university campus. Each situated facility is secure, comfortable, and conducive for all users including the aged and the physically challenged persons.

The library has adequate interior lighting, temperature controls, and appropriate furnishings to provide an atmosphere conducive for visitors and staff users alike. Basically and in line with international requirement, Covenant University library ensures that building has the required emergency facilities provision like fire alarms and extinguishers, emergency evacuation routes and exits, first aid supplies, and has provided for convenient and safe accessibility to well-lit parking areas at the front or few meters away to share with the university chapel parking lots. It must be noted that parking of visitors' cars is free for the time the library opens to all users.

It is worth saying here that space utilization challenge is not yet a concern in view of the limited numbers of users that patronize the library. Most libraries in the advanced cities usually conduct a study of the utilization of space in each facility at least once every few years. This assessment is meant to evaluate current space requirements, current community analysis, and estimated changes in technology, size of collections, and types of materials. This definitely is forecasting into the future of the library, particularly as the university continues to admit more students into different programs or expansion of its programs.

3. Review of Literature

Campus planning is being conceived as the intended guidance of the amount, quality, and location of facilities for higher education so as to achieve a predetermined objective that is the plan which may be illustrated as a physical form depending on the type of plan, the form may range from a portion of a building to the entire campus and its environs (Dober, 2012). A good numbers of campus studies revealed several factors that determine the land use mix within a physical environmental space set up for academic community as they are often called, more like the requirements for a larger planned area, campus planning is purposeful in all ramification considering the diversified activities that must be integrated to achieve success. For example most parts of campus are highly pedestrianized, in some instances the landuses within the microsphere of the planned community buy into ideas of segregation of non related activities and aggregation of the similar uses. In the observation, of Zegras (2004), the purpose of a higher concentration of non-work land uses appears to reduce vehicle miles traveled and in perhaps decrease urban energy consumption (Newman and Kensworthy, 1999), produce better health indicators (Joseph et al., 2009), and foster social cohesion (Gans, 1962). The US Green Building Council few years back had established a programme known as Leadership in Energy and Environmental Design (LEED) to aid certifying the process of identifying projects and existing buildings that meet set standards in any given habitation. (EEER, 2006) Usually the

LEED project checklist is composed of prerequisites and creditable items in the major categories of building, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation etc.

This programme imposes some measures of influences on the quality and the relative growth rate of any given place. The consciousness of this component parts, often allows a series of thought which translate the visual pattern as we see it, into perception of possible models of urban area. From planning point of view attempts are made to connect these concepts with what obtains elsewhere to build a thoughtfully designed and common physical attributes of cities.

For ages past urban phenomena were linked principally by their concrete physical characteristics in terms of spatial arrangements. Accordingly, the grouping of the various land uses gives the impression of a concept in which each segment represents a separate unit essentially independent from the other segments. The residential, commercial, educational, industrial, recreation, and agricultural facilities present in urban environment are usually regarded as elements of development (Basorun, 2004).

Generally, campus land use planning, though a plan at a micro or suburbia level relates to two bodies of literature such as retail location theory, and configurational studies of the built environment. Both, over the years have developed vital tools for explaining the spatial distribution of land uses. However, a joint modeling framework and a mutual adoption of methods remain a challenge.

The road transport system is one of the most significant factors responsible for shaping the urban centers (Dickey, 1975), aside this transportation system acts as a basic component of urban areas' social, economic and physical structure. According to Andres (2010) the importance of studying accessibility is in order to understand the locational advantages of individual building rather than rely on traditional bid-rent theory. Graph theory is relevant to studies on accessibility and connectivity of two or more locations (Oni, 2008).

The built form or structure studies often suggest practical methods for measuring socially meaningful properties of the built environment using graph theory type indexes (Hillier and Hanson, 1984, Porta et al., 2009), but their methodology has not really been tied to urban economics operations. The research strategy presented in this study moves toward a joint approach, where spatial attributes of the built environment (including the academic institution environment) are evaluated from both social and cultural points rather than a wholesome economic perspective of land use location choices. In a knighted conception, Marshall (2005) has observed that in real conventional situation where a typical layout has diverse nodes and streets which can not distinguish the particular kinds of structure or hierarchy this suggests the need to consider alternative forms of analysis, that can appropriately represent the structure of urban street networks, by putting the lines of movement at centre stage.

4. Research Method.

This study derived its data from two sources. First is the actual calibration of various structures (buildings) and their interrelated distances in meters. Second is using the existing documented data from the Master-plan of the campus. Basically, a brief interview was conducted to ascertain wide range opinions on the entire campus connectivity and inter-relationship, the very character which an ideal university planning must possess.

From the first, we obtained data by actual measurement of facilities location and their inter-distance relationship from Covenant University (here refers as CU). Streets' building density is derived from the field survey. The individual building in the campus is given as

geographically referenced points that include edifice attributes and a unique categorization code that distinguishes buildings structure by type. The data includes a total of 15 individual building (edifice) of all categories in CU. Of these, we selected edifices that are categorized as activities generators and food services, which constitute a total of 8 establishments, and 2 eating (cafeteria and butteries) Data from all these allowed us to measure the distribution of the population or jobs holders from all the establishments at the individual building. Engaging the obtained datasets, we computed shortest path accessibility measures from each actively functioning buildings whether academic blocks or otherwise to senate house as business establishments. See figure 2.0 for the graph network.

5. Structure and Evaluation of CU Campus design

CU campus strives to be an ever accommodating and enduring environment; its planning, landscape and architecture continue to reflect this. The existing operational physical Plans are to preserve the character symbolism defined in the original campus plan, while directing future growth and change is sensitively inclined and at the discretion of the Founder. The plan goal is to allow and to encourage the campus to continue to evolve in such a way that each building (and its programmatic needs) develops a distinct value of its own, while respecting and contributing to the overall campus environs; i.e., the sense of place that is Covenant University.

The Covenant University central campus is a balance of physical planning, philosophical evolution, and technological progress. The environment instills confidence in faculty, students, staff and visitors through the humanity of scale; it equally confirms commitment to a sustainable future; and exhibits detail finished work on its spaces in order to achieve an overall physical harmony.

Although not intended to be substantially prescriptive for a specific design outcome, the University's design guidelines aimed to define parameters within which a compatible design can be achieved. As it is the working design guidelines provide direction for both the project design team and the user representatives in understanding the physical characteristics of a building and/or landscape design that is acceptable within the CU context. The resulting designs often reflect the university's commitment to its traditions of excellence, its respect for its heritage, and its relationship to the immediate environment. This however is a matter of interpretation and not imitation.

The CU Campus spatial design with its fundamental principles were developed during the conceptual preliminary stage of the Master Plan planning process.. Ordinarily the campus spatial design as it is often reflected in the diagram allows the designers to consider relationships without focusing on particular details or the exact location of elements. This can also serve as a tool for gaining agreement on the whole direction of the Master Plan and articulate the relationships between component parts of campus.

In every planned space where this is employed, the campus spatial designed framework or diagram exemplifies the following conceptual assumptions which in turn, address the primary planning issues earlier identified in the Plan.

5.1 Circulation and Way-finding:

The streets naming project in the university was recently carried out by the department of Estate Management in the School of Environmental Sciences. The streets and roads are named in accordance with the philosophy and core values of the school. Mandate road which is the longest serves as the primary commuter transportation routes, the road is a medium-speed roadway with an admirable character. Unlike what obtains in certain set up, there is no special

road set apart for visitors. For safety and security of users all the inner roads network are low-speed and have features of urban, pedestrian-oriented scale. The academic core is contained within the inner Roads.

5.2 Open space design and spatial distribution

The campus design and spatial distribution of major open space or outdoor recreation have been strategically accomplished basically to provide a contrast to the type of open space provided in some related formal setting, it also takes account of existing campus features and vegetation. (See appendix 2 for the list of existing plants species in the campus). Among other intentions the overall open space design on one hand ensures good access to a variety of recreational spots for all students, staff and future residents and on the other hand, it is to strengthen ecological and aid integration with existing path networks.

A decade of active plan and development activities have allowed building structures to face on to spaces, thereby increasing the value of such facilities or amenities. On the size and number of outdoor /open space, the university development framework has implemented a limited number of large open spaces rather than countless smaller spaces. This approach, as it is obvious has afforded the following benefits among others: first, ability to create meaningful habitat and ecological corridors, second, has helped to create meaningful and usable open space which allows more efficient maintenance.

5.3 Parking:

The issue of parking is germane to the efficiency of the campus. Parking is located at every major building and well connected to all Roads. Parking is also hierarchical by location, with housing parking being the furthest out, then commuter parking, and event parking closest to the inner circular road. Both visitor and worker have accessible parking that exist around every terminal point.

5.4 Utilities and Infrastructure situation

In conformity with the best practice all buildings within the campus are situated along or adjacent to the existing utility corridors or utility system. The overall infrastructure of the campus itself is hierarchical and this allows the utility corridors and infrastructure capabilities to be explored at the site design level

5.5 Environment and Community Impact

As a macro planned community, all visitors usually among the faith based church members enjoy a common attention just like every-day campus users in terms of circulation and parking. It is the plan of management that the campus sport arena and other facilities are maintained regularly to enable public access to them especially during the week ends and public holiday periods when patronage to the arena is thickest. The ultra modern swimming pool has been constantly used by the Living Faith mega church members on weekly basis.

5.6 Building Segregation

Both aggregation and segregation design styles of structural are adequately engaged to blend with the Campus setting. The university's Senate building is distinctively separated from other buildings but at a reasonable walking distance from the major academic buildings. Refer to picture plates in the appendix page.

While Housing Estate occurs in the campus border zone, all academic buildings (eight in numbers) are contained within the campus but loosely connected by pedestrinized walkways and free vehicular access. In the campus high-rise building patterns is common. This

segregation of land uses supports long-range land reserves for future expansion of academic buildings and central facilities as they may be needed.

5.7 Pedestrian and Peculiar Site Studies

Like a commonly used style of segregation of vehicular traffics from the pedestrians, the campus is characterized by a mix set up. The core area is not fundamentally a pedestrian space – the inner access networks are partly pedestrian oriented which favours slow vehicular speeds. The existing pedestrian routes follow in parallel fashion with the existing vehicular routes within the campus. Only in a very few cases one can observe a pedestrian walkway disconnected from a vehicular road. This style of communication route orientation has its own defects as the pedestrian are in constant interference with motorized vehicles noises and offensive fumes. To ensure efficient flow of storm water from the road down slope several of the pedestrians route are cut at interval into troughs. Rain storm often leave crevices on the surface of the walkways which are built with low cement-sand mixed. The future plan may consider outright replacement with better materials such as interlocking burnt bricks or tiles that can withstand any harsh weather condition of the site.

5.8 Existing Plant (trees and shrubs) in CU Campus

The table in *appendix 2* shows the varieties of existing trees and shrubs in the campus of which majority are planted to blend with the campus's micro climatic conditions (characterized by high rainfall, high sunshine and relative humidity).The entire area occupied by the campus arose from abandoned kola nut (*Cola millenii)* plantation farm, that basically explains the reason for older trees which currently provide shades to other young ones. However, they will gradually fade off and be replaced with some exotic or local species adaptable in the campus environment..

6. The Campus Future Growth and Sustainability Plan

With the University Master Plan (Fig.2) which depicts the general layout and interconnectedness of individual elements on the CU Campus, one can anticipate the future of the campus in terms of Context and Community, detailing future pedestrian and vehicular access to the campus on one hand and on the other hand, the proposed housing village expansion which when allow can trigger the surrounding neighborhoods for commercial activities development.

As noticed in the attached picture plates green areas development through good landscaping is what has been practiced to enhance the look of the campus. The future greenly community will ensure that green spaces are maintained and preserved in all open spaces; green arena with varieties of park-like landscape introduced to the core of campus and green belt preserved between existing housing estate and academic core.

Future Campus Entrance may be redesigned to blend with the community landscape. The following are anticipated in the near future: Entry point may be well provided with space to accommodate visitors parking; moreover, there will be limited access between the university library and student halls of residence from the rears, Campus square development may emerge in a suitable space
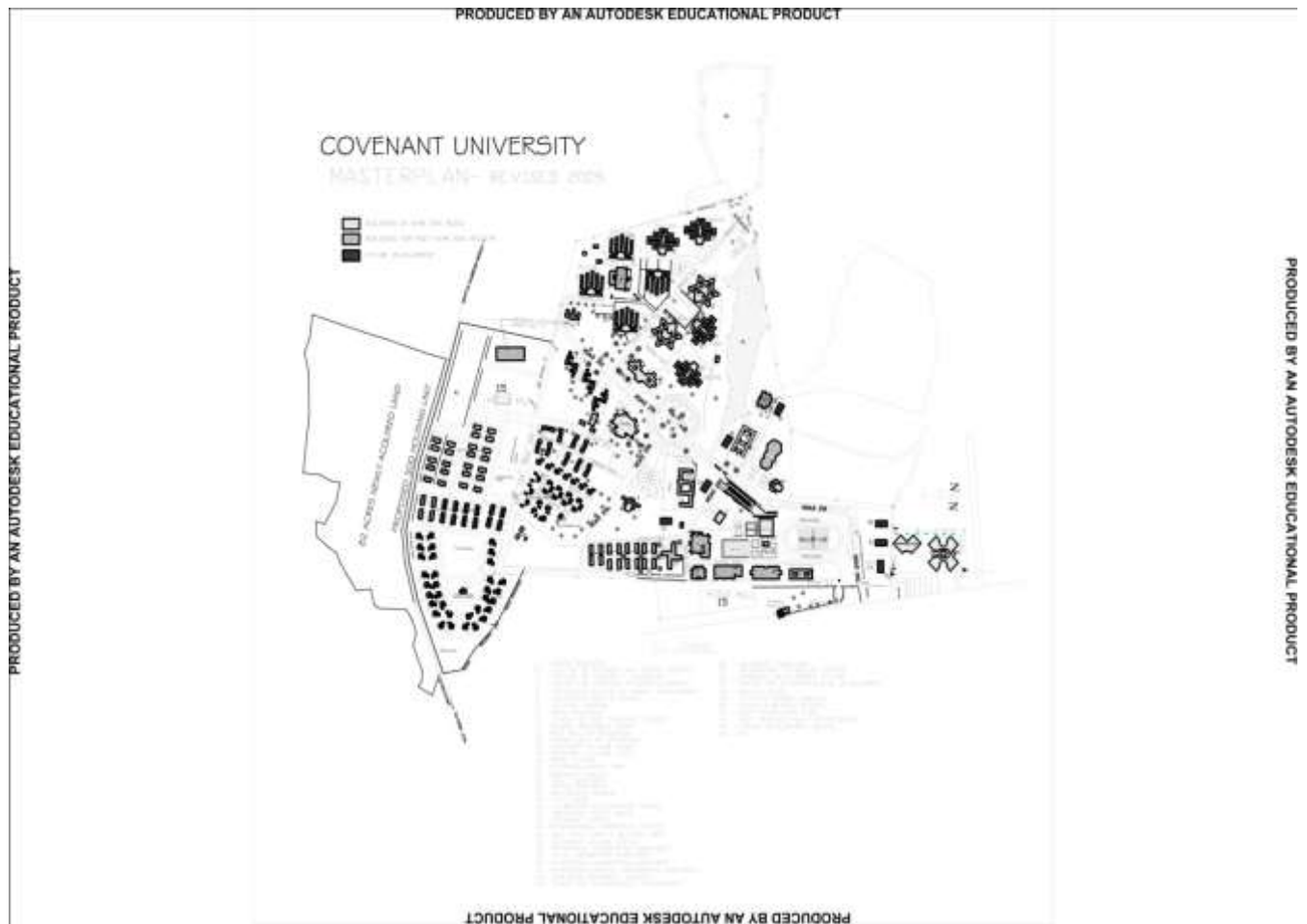
Fig. 1.0 : Structural plan of Covenant University Campus.

Source: Covenant University Master Plan.

7. Assessment of Route Network and Major Facilities Accessibility

In any built environment, while it is a complete misfit for building facilities to lack adequate access and even more absurd to infiltrate core campus with vehicular traffic we can begin to segregate functional facilities with utmost caution. There is therefore a need for an effective structural design in a place like an academic community which is more or less a 'pedestrianized community'- an environment where huge percentage of the residents walks on foot. Basically, from the point of view of an individual element the campus structure imposes upon itself a cordial relationship – to things outside, to a very larger extent. Roads and streets connectivity are adequately provided to each existing major element or building. The networks of circulation are at different scales or hierarchies of nodes. It is important to recognize networks of pedestrians' paths that run parallel to the motorized routes, except in very few areas. Table 1.0 provides the roads connectivity with the major campus edifices and their distances to the nearest building.

Table 1. Main Building (Facility) Spatial location and inter-distance configuration

Facility/Major Building	Street location	Distant to the nearest building in Metre
ALDC	Grace lane/ Wisdom way	25
Café 2	Goodness road	32
Guest House	Grace lane	35
Senate Building	Goodness road	120
Mechanical Eng	Wisdom way	60
Civil Eng Block	Wisdom way	60
EIE Block	Wisdom way	60
CDS Building	Off Mandate	208
CST Building	Mandate/vision close	60
Petro & Chemical Building	Vision Close	10
Lecture Theater	Vision Close	60
University Library	Mandate way	60
University Chapel	Mandate way	60

Source: Field measurements survey by the Authors (January, 2013)

The analysis of these measurements suggests that the elements in question are loosely connected to each other in term of trekable distance rather than by connectivity by road or routes of travel. The location of the senate building is considered very central enough for reasonable access from all major academic blocks namely: CST, CDS, Lecture Theater, the three engineering departments - EIE, Civil and Mechanical and the two others that is, Petroleum and Chemical which shared a common block along the vision close. The accessibility by vehicle from west end of the senate may not easily be achieved without first navigating the long distant through the ring road to make a turn. However, a future redesign of the arena for adequate vehicular access is in the offing. It is definitely going to be a reliable proposition if the adjacent lot is developed into a visitors' park, thereby helping to relief stress within the limited parking around the senate house. Moreover, it is an issue that borders on convenience, security or safety to free the senate house of dense parking of cars. Fire fighting van and Service crane must be well accommodated against any form of emergency need.
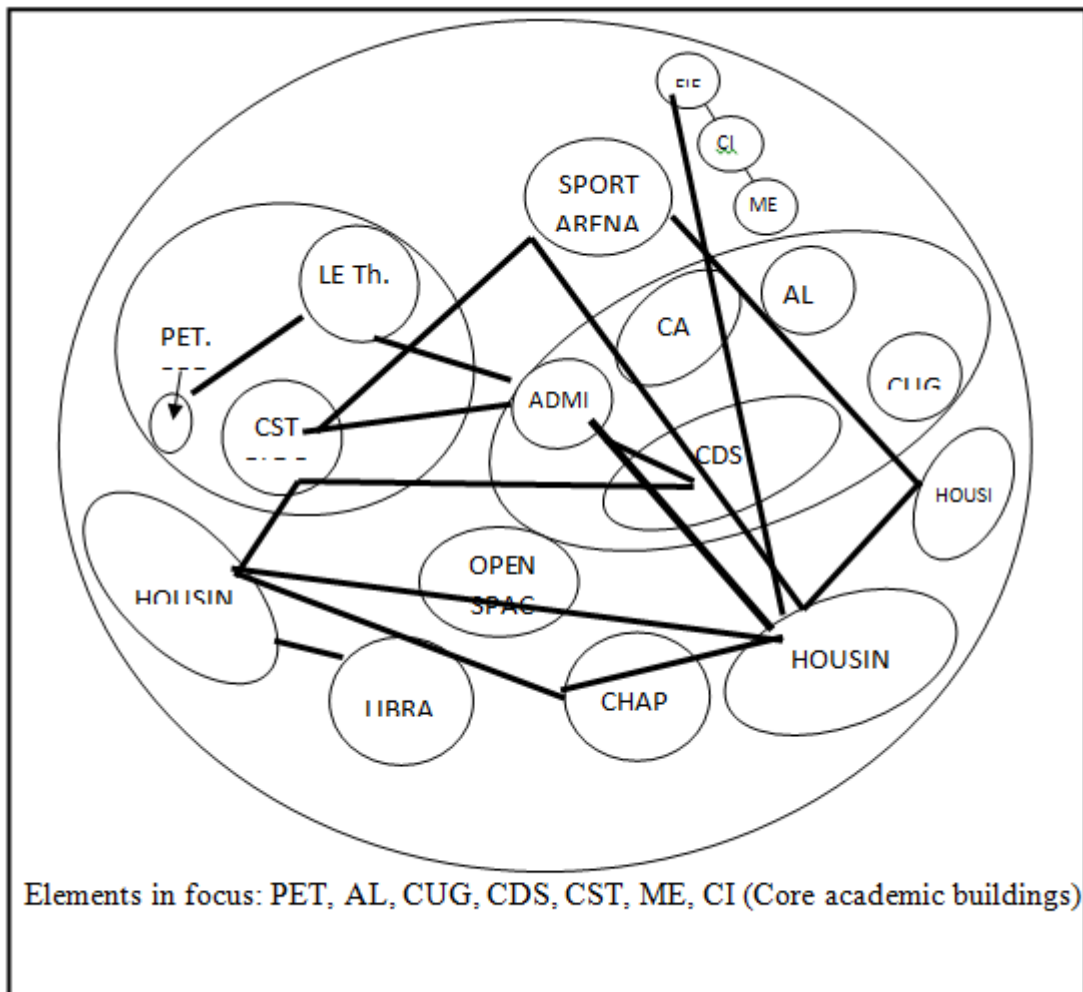
Fig.2.0: Covenant University Campus diagram and Graph Networks.

9. Conclusion and Recommendation:

Arising from this study are the various proposals that can improve the campus in a number of ways. These are further discussed here.

There is need for Policies that will boost social integration: Policies must be developed to strengthen the entire campus as a meeting place for not only academic activities but equally for social and cultural activities. The CU campus can further introduce a mixture of uses like outdoor recreation and commercial so as to re-sustain the spirited living of the residents and reduce out-of-town shopping. The university Shops should be planned with the mind that students, visitors and staff alike will patronize the centre, moreover it is of utmost necessary to know that residence staff are more permanent than either the students or visiting guests.

A pertinent feature of a harmonious campus environment is the development of idea of the living neighbourhood which possesses a good quality residential plan and can be served by all crucial local services and the likes. Residents within the community must be provided with all local services provision including leisure activities; again this helps to reduce any form of incidental stress build up.

It is a good thinking that the university of this status weighs objectively the benefits that could be accrued from decision to be compact structurally rather than other wise. Compact development often help beef up social relationships, spiritual cohesions and pedestrian

precincts which offer a measure to reducing long travel (walk) within the campus and minimize continuous interference of vehicular traffic with pedestrians and cyclists alike.

Larger areas of open spaces in the campus should be filled with structures that are akin to the activity dominating the area. This becomes imperative in order that the unique design is not seen as a romantic nonentity that can no longer magnetize attention or that which has lost its convenience attribute to the detriment of the overall community dwellers. Looking at the enormosity of investment on the campus (facilities wise), it is questionable whether the campus will attract people from outside, whose goal is not to work but basically constitute adequate critical mass that help sustain the whole variety of services and facilities like leisure, shops, hospitality and restaurants facilities in the place. Nevertheless since design and planning are continuous process, any proposed corrective measure can still be accommodated under a future redevelopment schemes.

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Appendix 1

Plate 1: The University vista from the major road depicting the ring road and some major buildings

Plate 2: The Aerial view of CU Campus capturing the university chapel and the library at a distance

Appendix 2

Some Existing Plant (trees and shrubs) in CU Campus

Plant Name	Family	Common Name	Yoruba
Acacia auriculiformis	Fabaceae	Ear pod Wattle, Earleaf Acacia	
Acalypha wilkesiana	Euphorbiaceae	Copper leaf, Beefsteak plant	
Adenanthera pavonina	Fabaceae	Sandalwood, Red Bead Tree	
Agave sisalana	Agavaceae	Sisal hemp	
Albizia lebbeck	Fabaceae	Lebbeck Tree, Woman's tongue	
Albizia zygia	Fabaceae	West African Albizia	
Alstonia booneii	Apocynaceae	Devil Tree, Stool wood, Alstonia	Awin
Anacardium occidentale	Anacardiaceae	Cashew tree	Kaju
Antocleista djalonensis	Loganiaceae	Cabbage tree	
Azadirachta indica	Meliaceae	Neem Tree	Dogoyaro
Bambusa vulgaris	Poaceae	Bamboo	Oparu
Bauhinia monandra	Fabaceae		
Bauhinia purpurea	Fabaceae	Orchid tree, Camel's foot tree	
Bauhinia tomentosa	Fabaceae	Orchid tree, Yellow Bell Bauhinia	
Blighia sapida	Sapindaceae	Ackee	Isin
Boungevillea	Nyctaginaceae		
Caryota mitis	Aracaceae		
Cassia fistula	Fabaceae	Golden Shower Tree	
Cassia roxburghii	Fabaceae	Red Cassia, Ceylon Senna	
Ceasalpina pulcherrima	Fabaceae		
Ceiba pentandra	Malvaceae	Silk cotton, Ceiba	
Cestrum nocturnum	Solanaceae		
Chrysophyllum albidum	Sapindaceae	Star apple	Agbalumo
Citrus aurantium	Rubiaceae	Bitter Orange	Osan were
Citrus sinensis	Rubiaceae	Sweet Orange	Osan didun
Citrus sp	Rubiaceae	Orange,	Osan
Cola acuminata	Sterculiaceae	Bitter Kola	Orogbo
Cola millenii	Sterculiaceae	Kola nut	
Cola nitida	Sterculiaceae	Kola	Obi
Cycas revoluta	Cycadaceae	Sago cycad, Sago palm	
Delonix regia	Fabaceae	Flamboyant tree, Flame tree	Sekeseke
Dialium guineense	Fabaceae	Tumble tree, Velvet Tamarind	Awin
Elaeis guineensis	Aracaceae	African oil palm, Palm wine	Ope
Ficus benjamina	Moraceae	Weeping Fig	
Ficus lyrata	Moraceae	Fiddle-leaf fig	
Ficus racemosa ??	Moraceae	Fig tree	
Garcinia cola	Clusiaceae	Bitter Kola	
Irvingia wombolu	Irvingiaceae	Bitter Mango tree, Dika nut	
Irvingia gabonensis	Irvingiaceae	African Mango tree, Dika nut	Oro
Livistona chinensis	Aracaceae		

Musa paradisiaca	*Musaceae*	*Banana*	*Ogede*
Musa sp	*Musaceae*	*Plantain*	*Ogede agbagba*
Musanga cecropioides	*Moraceae*	*Umbrella Tree, Cork wood*	
Newbouldia Leavis	*Bignoniaceae*	*Boundary Tree*	
Olax subscorpioidea	*Olacaceae*		
Oreodoxa oleracea	*Arecaceae*		
Peltophorum pterocarpum	*Fabaceae*	*Rain tree, Golden flame*	
Pentaclethra macrophylla	*Fabaceae*	*Oil bean tree*	
Persea americana	*Lauraceae*	*Medang, Avocado-pear*	*Eko-Oyinbo*
Platycladus orientalis	*Cupressaceae*	*Biota, Chinese Arborvita*	
Polyalthia longifolia	*Annonaceae*	*False Ashoka, Masqurade tree*	
Pycnanthus angolensis	*Myristicaceae*	*African nutmeg*	
Rauvolfia vomitoria	*Apocynaceae*	*Swizzle stick,*	*Asofeyeje*
Ricinodendron heudelotii	*Euphorbiaceae*	*False rubber, Njangsa*	
Senna siamea	*Fabaceae*	*Yellow cassia, Black wood cassia*	
Spondias mombin	*Anacardiaceae*	*hog-plum fruitstone kernel*	
Sterculia apetala	*Sterculiaceae*		
Syzygium malaccense	*Myrtaceae*	*Malay Apple, Mountain Apple*	
Tabebuia heterophylla var. pallida	*Bignoniaceae*	*White Tabebuia, White cedar*	
Tabebuia impetiginosa	*Bignoniaceae*	*Purple Tabebuia*	
Tecoma stans	*Bignoniaceae*	*Yellow trumpetbush, Tecoma*	
Tectona grandis	*Verbanaceae*	*Teak*	
Terminalia catappa	*Combretaceae*	*Tropical almond*	*Furutu*
Terminalia ivorensis	*Combretaceae*	*Black Afara, Idigbo*	
Terminalia superba	*Combretaceae*	*Afara*	
Treculia africana	*Moraceae*	*African bread friut*	
Vigna unguiculata	*Fabaceae*	*Cowpea*	*Ewa*
Phaseolus vulgaris	*Fabaceae*	*Brown beans*	
Amorpha fruticosa	*Fabaceae*	*False Indigo bush*	
Afzelia africana	*Fabaceae*	*African mahogany, Afzelia, Lenke*	*Apa*
Arachis hypogaea	*Fabaceae*	*Groundnut, Peanut*	
Acacia scorpioides	*Fabaceae*	*Arabic Gum Tree*	

Source: Omonhinmin Conrad (2012) & Field survey (2013)

Effect of Social Facilitation on Classroom Performance

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Abstract

This study examined the effect of social facilitation on the performance of teachers and students in Lagos state secondary schools. One hundred and twenty six teachers and three hundred and seventy students formed sample for the study. The instrument used for the study is Teachers' and Students' Performance Scale (TSPS). TSPS was used to assess the performance of teachers and students in the classroom. Two hypotheses were tested. Results showed statistically significant effect of social facilitation and audience effect on classroom performance (t, -7.895= p $0.000 < 0.05$. and t, -13.001= p $0.000 < 0.05$), which was attributed to the type of presence and the kind of consequence associated to the presence.

Key Words: Classroom performance, summative assessment, formative assessment, evaluation, Social facilitation

Introduction

Classroom performance is a good indicator of a school's overall effectiveness, the productivity and accountability demonstrated by students and teachers. To achieve the main objective of education, which is to equip students with requisite knowledge and skills to enable them contribute effectively to national development, classroom performance became the priority of stakeholders. Students as well as teachers' performance are assessed in the classroom to ascertain how well certain skills and methods are being successfully applied to meet students' learning needs and their level of understanding and competence. Therefore, Black and William (1998) emphasised the need to utilise both summative and formative assessment methods in the classroom for students' performance and learning evaluation. Summative assessment is evaluation conducted at the end of certain periods of time in order to judge the sufficiency of students' or teachers' performances and knowledge. It is used to evaluate certain learning needs and for administrative/personnel decisions like promotion, salary increase, demotion, dismissal, awards and/or meeting public/government accountability demands. Formative assessment on the other hand evaluates the process of learning, is a part of the teaching process used to discover gaps and adjust both teaching and learning processes to the students' learning needs immediately in the process of learning Results of formative evaluation are used to improve classroom instruction, student learning, and to foster professional growth of the teacher (Gold, 2001).

Unfortunately, in contemporary Nigeria, summative evaluation has emerged as the major established yardstick and the most practical way of assessment, formative assessment is in rare use. Teachers' performance is based on examination not on feedback from quality of teaching and the result of evaluation has never been geared towards helping teachers improve their skills individually or collectively. Evaluations are generally conducted as infrequent and perfunctory events in satisfaction of bureaucratic requirements, basically for promotion. Gao (2002) however asserts that one form of assessment cannot provide a full picture of the situation, relying on one of the two methods of classroom assessment may lead to student learning needs becoming unclear. Thompson, Sebastienelli and Murray (2009) added that grades are just the most common manifestation of a broader tendency on the part of schools to value product more than process, results more than discovery and achievement more than learning. If teachers and students are led to focus on how well they are doing more than on what they're doing, they may do whatever they think is necessary to make it look as though they are succeeding. Kirby (2011) asserts that individual's performance does not rely solely on their abilities, but is also impacted by the internal awareness of being evaluated. Performance can be greatly affected by situation factors, thus making it possible to entirely alter the outcome of a situation. This can be very important when considering how anyone will perform under evaluation and how to potentially prepare for those situations.

Thus, social psychologists emphasised the importance of social facilitation on individual's performance. Social facilitation according to Straus (2001) is the tendency for individuals to do better on simple tasks (well-learned) but worse on complex task (not well-learned) when in the presence of others. The mere presence of other people will enhance performance in speed and accuracy of well-practiced tasks, but will degrade the performance of less familiar tasks (Aiello and Svec, 1993). The mere or imagined presence of individuals in social situations creates an atmosphere of evaluation. Studies on social facilitation Triplett (1889), Allport (1920), Zajonc (1969), Baron (1980) and Thompson, Sebastienelli and Murray (2009) provide explanation for the effect of social presence on learning and performance, why in the presence of others simple task performance is enhanced and complex task performance is impaired. Triplet (1989) and Allport (1920) establish the effect of the mere presence of others

on performance, Zajonc (1969, 1980) asserts that change in performance due to the mere presence of others is a drive or an arousal which enhances simple task performance or impairs complex task performance.

Baron (1980) argues that when other people are watching, it creates an attention conflict between the task being performed and the watching others. When the task is easy individuals can successfully narrow their focus to the task at hand, hence performance improves because of the drive effect to which Zajonc refers. When the task is tricky or complex individuals suffer from attention overload and performance gets worse. Huguet, Galvaing Monteil & Dumas (1999) however noted that the way the audience is perceived determines the performance, who is the audience? Are they evaluators, co-actors, competitors or passive observers. The role of the person observing has significant effect on evaluation, Is the person an expert or a novice. Huguet et al. in their studies found that attentive audiences are more distracting than inattentive audiences. According to Aiello & Douthitt (2001) the type of presence and the kind of consequence associated to the presence influences performance. The presence of someone considered to be evaluative would likely trigger more drive than the precence of someone who was not able to evaluate performance.

Consequently, this implies that people's performance does not rely solely on their abilities, but is also impacted by the internal awareness of being evaluated. Performance can be greatly affected by situation factors, thus making it possible to entirely alter the outcome of the situation. This explains the need for the use of both summative and formative evaluation for classroom performance. It also suggests that teachers and students would likely prepare adequately for their lessons in anticipation for evaluation to ensure positive performance.

The Problem

In contemporary Nigerian society summative evaluation has emerged as the major established yardstick and the most practical way of classroom assessment than formative evaluation because summative assessment is much simpler to conduct and it provides an objective picture of the respondent' skills and knowledge. However, psychologists have asserted that individual's performance does not rely solely on their abilities, but is also impacted by the internal awareness of being evaluated. Hence, the need for formative assessment, which should be applied more often in the classroom to facilitate adequate and current information about teaching and learning needs.

Contemporary counsellors such as Bryan, Holcomb-McCoy, Moore-Thomas, & Day-Vines (2009) have ceased to see counselling as only a problem solving process but a preventive process which aims at restraining potential problems. Hence, since one of the major areas of counselling is educational counselling, it is inevitable to be concerned about teaching and learning in order to identify and address learning needs. Therefore, the contemporary state of focusing more on summative evaluation than formative evaluation in Nigerian schools calls for preventive counselling intervention.

Purpose of Study

The purpose of this study is to examine the effect of social facilitation on classroom performance of teachers and students in Lagos State Secondary Schools

Hypotheses

1. There will be no significant effect of social facilitation on classroom performance of teachers and students in Lagos State Secondary Schools.

2. There will be no significant audience effect on the performance of teachers and students in Lagos State Secondary Schools.

Methods

Research Design

The study is designed to be a one-group pre-test-post-test design with the observation of classroom teaching without the knowledge of the teacher and students followed by another observation with the knowledge of the teacher and students and the information that the audience are from the inspectorate division.

Participants

The sample selected for this study consists of 126 teachers and 370 students randomly selected from six public secondary schools in Lagos State. Twenty one (21) teachers were selected from each school. Twenty teachers are to observe and rate the performance of a teacher and the students using TSPS, one to teach and all the students in the class that is taught by a teacher represent the sample for each school. Each class has a minimum of 55 and maximum of 70 students.

Instrument

The instrument used for the study is a questionnaire named Teachers' and Students' Performance Scale (TSPS) which was modified from the Teaching Practice Assessment Form of the Faculty of Education Lagos State University. TSPS is a 25items questionnaire of five sections, namely, Lesson Plan, Instructional Materials, Presentation, Class Management & Control and Students and Teachers Personality. The rating scale of TSPS is 5-point, with zero (0) as the lowest obtainable score and 4 the highest. A total score of 39 and below = 0point, 40 – 49 = 1point, 50-59 = 2, 60-69 = 3, 70 above = 4points. To ensure internal consistency, content validity was re-established by a panel of experts consisting of members of the Faculty of Education, Lagos State University. Reliability of the instrument was conducted with a sample of teachers and secondary school students who were not part of the sample for the study. A reliability coefficient score of $r = 0.86$ was established for the instrument.

Methods of Data Analysis

Data collected was analysed with the t-test statistical tool and all analyses were held significant at 0.05 level of significant.

Results

The first hypothesis states that there is no significant effect of social facilitation on classroom performance of teachers and students in Lagos State Secondary Schools. Results presented in Table 1 shows a statistically significant effect of social facilitation on classroom performance t, -13.001= p 0.000 < 0.05. The hypothesis is therefore rejected.

Table 1: The t-test of Effect of Social Facilitation on Performance

Classroom Assessment	N	Mean	Mean diff	t	df	Sig.
Observation without knowledge	120	2.20				
Observation with knowledge	120	3.87	-1.667	-13.001	119	.000

The second hypothesis states that there is no significant audience effect on the performance of teachers and students in Lagos State Secondary Schools. Result presented in Table 2 shows a statistically significant audience effect on classroom performance t, -7.895= p 0.000 < 0.05, which means teachers and students' performances improved when the observer was an Inspector from the board of Education.

Table 2: The t-test of Audience Effect on Classroom Performance

Classroom Assessment	N	Mean	Mean diff	t	df	Sig.
Researcher	120	3.87				
Inspector	120	4.56	-.865	-7.895	119	.000

Discussion

The statistically significant effect of social facilitation on teachers and students performance in the classroom is not surprising. Huguet, Galvaing Monteil & Dumas (1999) already noted that the way the audience is perceived determines the performance, who is the audience? Hence, the drastic improvement in the performance of teachers and learners in this study is attributed to the presence of others and the kind of consequence associated to the presence of others. Performance of participants in this study improved when they realised that they are being assessed, more importantly when they were informed that the assessor is from the Inspectorate Division of the board of Education. This finding is in line with the position and findings of related studies (Baron, 1980; Aiello and Svec, 1993; Aiello and Douthitt, 2001; Straus, 2001; & Thompson, Sebastienelli and Murray, 2009) that provided explanation for the effect of social presence on individuals performance.

In line with Huguet, Galvaing Monteil & Dumas (1999) that the way the audience is perceived determines the performance, is applicable in this study, majority of the classroom rules that were neglected when participants were not aware of being evaluated were taken into consideration when they realised they are being evaluated. For example in the first assessment, teachers did not use teaching aids at all, they were a bit indifferent on classroom management and students' level of comportment was very low.

However with the awareness that they are assessed these aspects as well as other aspects improved. The fact that the teachers were informed that they would be evaluated made them to adequately prepare for the lesson thus confirming the position of Straus (2001) that individuals will do better on well-learned tasks but worse on not well-learned task in the presence of others. Rather than the task to be complex as a result of the presence of the inspector, it became simple because of the preparation (well-learned) and the implication of not wanting to face the board for query or at the extreme loosing their job.

Therefore, the position of Black and William (1998) on the need to utilise both summative and formative assessment methods to improve classroom performance and learning is confirmed. Once teachers realise that their promotion is strictly a result of their performance (summative and formative) then, it becomes the drive (Zajonc, 1980) that will enhance performance. The fact that instructional materials and classroom management improves drastically when teachers realised they are being evaluated by a significant observer (inspector), further emphasised the need for formative assessment and confirmed the assertion of Gold (2001) that formative assessment will expose the gaps in the teaching and learning process and immediately corrective measures to adjust both teaching and learning processes to students' learning needs is ensured.

Recommendations and Conclusion

The findings of this study have implications for policy and practice, based on these findings it is recommended that classroom evaluation should be strictly through summative and formative assessment. The contemporary position of evaluating only through summative assessment should be reconsidered because of the advantages of using both over only one form. Assessment based on both will fulfil two related purposes of personal growth and accountability (Duke & Stiggins, 1990). Both purposes of teacher support and accountability can be addressed in a single evaluation system if carefully designed and implemented.

There is urgent need for formative evaluation in our classrooms to ensure effective teaching and learning and probably reduce the cheating syndrome. A structured observation, where occasionally the representative of the inspectorate division visits the classroom to complete a checklist or ratings form on classroom performance, which forms part of teachers' evaluation and feedback on classroom performance.

It is important to communicate results of the observation to teachers so that areas of defects could be noted and adjusted. This will enhance adequate preparedness and appropriate methodology as displayed by participants in this study

In conclusion, if the overall aim of educators and policymakers is to improve the quality of education in schools and if the quality of education could only be improved through evaluation, then the central focus should be on ensuring the use of formative and summative evaluation to enhance effective classroom performance.

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Stimulating the Spirit of Neighbourliness among Ethnicities in Residential Areas through Urban Cultural Landscapes

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Abstract

This paper aims to look the potential of urban cultural landscapes to stimulate the spirit of neighbourliness among ethnicities in residential areas. The contribution of cultural landscapes in urban residential areas is not well established as one of the ways to enhance the physical character of residential areas because these greens are mainly perceived as being behind the times in design, outdated, old-fashioned and not being relevant in today's technological world. In order to bridge this gap, this qualitative research adopted a focus group discussion (FGD) in the data process to capture the views of professional towards the cultural landscape as medium to stimulate neighbourhood values among residents of mixed ethnicities. The findings of this research affirm that urban cultural landscapes embedded high values and potential be used as elements to address the important issues pertaining to ethnicity and culture. At the same time, an urban cultural landscape helps to stimulate the feeling of neighbourliness although it is not well appreciated by the professionals and local authorities.

Keywords: Urban cultural landscape; Neighbourliness**.**

1. Introduction

Since its independence in 1957, Malaysia as a multicultural country has not been exempt from the challenges posed by social and ethnic issues. Factors that contribute to racial issues are; (a) education, for example, interaction among students is still lacking due to the ethnic and cultural mix; (b) economic aspect, such as uneven economic distribution for economic development among ethnicities, and (c) politics and social aspects which refer to the struggle for political power. Even faced with these challenges, Malaysia remains one of the world's successful developing countries. These issues, however, still require continuous attention, especially in terms of improving the integration among residents.

In order to improve integration among citizens, a number of efforts have been carried out by the government. From educational aspect, school curriculum and examinations were centralised to ensure integration, aside from teaching tolerance and national consciousness (Mustapha, Azman, Karim, Ahmad, & Lubis, 2009). An attempt at integration from the social aspect can be seen in using ICT and community networking as enablers (Hashim, Abdul Rahman, Md. Jahi, & Marzuki, 2011). In addition, Nobaya et al. (2008) concluded that youths can be agents of integration through ICT, especially in television broadcasting media. The introduction of the New Economic Policy (NEP) contributed to national integration which improves inter-ethnic relations (Hassan, 1990). Another approach is using housing schemes where the majority of residential areas in Malaysia comprise mixed ethnicities, namely Malay, Chinese and Indian communities. Malaysia's sixth prime minister, YAB Dato' Sri Haji Mohd Najib bin Tun Haji Abdul Razak, recently launched the 'One Malaysia' concept which aims at national integration regardless of religion, race, and culture as part of Malaysia's vision to be a developed country. This concept is being implemented through the introduction of the 1Malaysia housing programme, 1Malaysia shops, 1Malaysia Clinic and even theme songs to improve integration and unity among the various communities.

However, there have been only minimal efforts made at ethnic integration using the environmental aspect even though there is evidence of its effectiveness, as shown in previous study. For example, a study shows that the environment can contribute towards social cohesion, especially through community gardens (Tanaka & Krasny, 2004). Another study which supports this evidence is the research done by Ezeanya (2004) who stated that current trends in property development highlight attractive landscape as one of the factors or criteria that increase market value as demand increases. In line with today's emphasis on technology, the modern living concept is a preference for people. The trends in landscape have slowly changed to mirror contemporary concepts and updated designs are preferred. Due to urban growth, the cultural landscape is perceived as a design that behind the times and outdated. Modern and contemporary trends dominate the preferences of people who live in urban areas.

Although they live in urban areas, landscape alterations happen when residents make changes to their home landscape (Ismail, 2010). Ismail pointed out that a few residents expressed their feelings through their selection of plants. Certain species of plants have sentimental value for them and remind them of memorable moments. The landscapes that they present are their cultural landscapes where they made alterations which are influenced by their own cultural values.

The function of a garden is as a place–based social dynamic, in addition to enhancing physical character, as a source of oxygen, and to provide benefits for health (Teig, Amulya, Bardwell, Buchenau, Marshall, & Litt, 2009). Sempik and Aldrigde's (2005) study also reveal that a garden represents a variety of activities which have a purpose that lead to promoting social cohesion. The role and influence of the landscape on people have been widely covered in

previous studies. However, there is a lack of studies done on landscape characteristics that can contribute towards social cohesion.

Therefore, the significance of this paper is to provide evidence that an urban cultural landscape can stimulate a spirit of neighbourliness among ethnicities in residential areas.

2. Urban Cultural Landscape

Landscape is defined as all the features of an area that consists of physical, living, and human elements such as human activity and built–up environment. In a word, a landscape is what we see in front of our eyes.

Sauer (1925) stated that "The cultural landscape is fashioned from a natural landscape by a cultural group (see Figure 1). Culture is the agent, the natural area the medium, the cultural landscape (see Figure 2) the result". The World Heritage Convention defines cultural landscape as the "Combined works of nature and of man". The UNESCO World Heritage Committee also divides cultural landscape into three categories namely:

A landscape designed and created intentionally by man;

ii). Organically evolved landscape; and

iii). Associative cultural landscape.

Figure 1. Natural landscape and cultural landscape (urce: wps.prenhall.com).
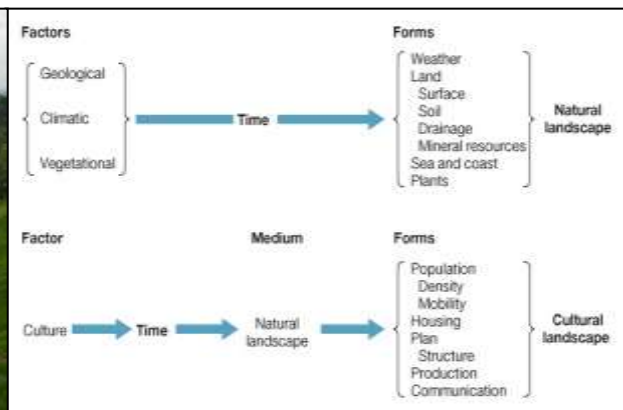
Figure 2. Example of cultural landscape (source: everything-everywhere.com – UNESCO world heritage site #179: cultural landscape of Bali province).

Hence, urban cultural landscapes can be expressed as cultural landscapes in urban areas, regardless of whether they are naturally evolved or man-made creations.

Urban cultural landscapes, with their richness of biodiversity, are very important for maintaining and balancing the biodiversity of our ecosystem. To emphasise the importance of a cultural landscape, the Committee of World Heritage Centre acknowledges the cultural landscapes and place protection for cultural landscapes in many regions of the world. Rapid urban development has slowly threatened the environment and impacted the biodiversity. When the biodiversity is disturbed, it affects the living elements, including human. Therefore, urban cultural landscapes should be applied in urban living even though the function of landscape itself is seen as having only aesthetic value.

Landscape is perceived as the elements used to enhance the physical characteristics of the houses, especially in modern cities. Landscapes with modern concepts are in greater

demand in urban areas compared to cultural landscapes as cultural landscapes are perceived as old fashioned in design. This situation contributes to the fact that cultural landscapes do not feature as a choice. The dominance of modern landscapes has resulted in the slow disappearance of cultural landscapes in urban areas.

This idea is strengthened by previous studies which found that, besides their aesthetic value, landscapes can also contribute towards (i) non-ecologically balanced biodiversity, (ii) lacking in identity, (iii) social non-interaction, and (iv) poor response to urban heat island issues. On the other hand, cultural landscapes offer significant values for biodiversity, identity, and can be therapeutic.

2.1. Defining Urban Cultural Landscape in Malaysia

The communities in Malaysia comprise three main ethnicities, namely Malay, Chinese and Indians, all of whom have their own cultures traditions and beliefs. Their actions and behaviours can be related to their cultures such as in food (as shown in Figure 3), attire and events. Malay food is usually rich in spices and some dishes use coconut milk as an ingredient. Among well–known Malay cuisine are nasi lemak, nasi dagang, nasi kerabu, and satay. The Chinese have a variety of cooking styles that represent the Cantonese, Hokkien, Hainanese, Hakka and Szechuan communities. Chinese dishes are mildly flavoured compared to Malay dishes which are spicier. In contrast, the culture of Indians is synonymous with various spices blended together. The traditional attire of each ethnic group is also different. For example, Malays wear baju kurung, and baju melayu while the cheongsam is popular with the Chinese. Saree and kurta are the Indians' traditional attire. Figure 4 shows the traditional attire of each ethnic group in Malaysia. These cultures are still practised even in urban setting.

One of the significant characteristics of cultural landscapes in Malaysia can be seen in the gardens of houses in which these mixed ethnic residents live. Each resident's garden is represented by different designs, plant selection, and is embedded with cultural and religious meaning. The scope of this study defines urban cultural landscape as associative landscape. The associative landscape is relevant to culture and spirituality as defined by Said (2001), who says that "cultural landscape symbolises the belief and cultural values of an ethnic in a homogeneous or a heterogeneous society".

This paper emphasizes the cultural landscape of the three main ethnicities, namely Malay, Chinese, and Indian. Malay communities will always be associated with herb species in their gardens. They use these plants for cooking. Examples of plants grown are Cymbopogon citratus (serai), Citrofortunella microcarpa (limau kasturi), Musa spp. (pisang), and Cocos nucifera (pokok kelapa) (Ismail, 2010). Other elements that complement the landscape are hardscapes. Two popular elements in Malay houses are bench and cradle, also known as pangkin and buaian, (see Figure 5 and 6). The function of these elements is for leisure activities such as gathering together, and as a play spot for children.

Figure 3. **Malaysian cultural food (source: kwjinmalaysia.blogspot.com, life123.com, nava-k.com).**

Figure 4. **Traditional clothing in Malaysia**

Figure5. *pangkin*

Figure 6.

The Chinese on the other hand, rely on feng shui which is tied to human and environmental relationship principles. The practised selections of elements in their houses are based on spiritual beliefs that these will bring good fortune (Said, 2001). The Chinese are also synonymous with the colour red as an element that can bring fortune. They prefer red even in the choice of plant species for example, Cyrtostachys renda (red palms).

The character of Indian gardens can normally be identified with the common species of plants, for example, Moringa ptergosperma (kacang kelo), Ocimum santun (thulsi), Ervatamia coronaria (susun kelapa), and Gardenia jaminoides (jasmine). Most of the plants have functions and meanings, for example, for cooking, medicinal or ritual purposes. They even believe that plants are sacred element as mentioned by Mazumdar and Mazumdar (2008, p. 7) who stated that "many trees, plants, flowers, fruits and even blades of grass are sacred".

Although living in urban residential areas, these cultures are still practised by each ethnic community when they made alterations to their home gardens according to their preferences (Ismail, 2010).

2.2. Landscape as medium of integration

The role of landscape and its influence on communities have been widely covered by many scholars. However, most of these studies focused on large scale of landscapes such as urban parks, community parks, or neighbourhood parks. The majority of the studies focused on the functions of landscape, such as for beautifying the city, as a source of oxygen for humans and balancing the ecosystem, and psychologically to give benefit to health. This study posits that besides all these above mentioned functions, landscape can also promote social cohesion.

The key to social integration through the use of residential landscapes is children (Marcus & Sarkissian, 1986). This theory is supported by a few researches that show similar results. For example, children appreciate landscape when they prefer and use the garden as their 'playscape' due to the variety of spaces and elements which they can use to play (Mohd Suhaizan, 2008). Adolescents prefer landscapes that offer opportunities for activities which involve contact with people, for example, boys fully use green spaces for sport activities, while

girls appreciate greenery when walking, jogging and hanging around (Makinen & Tyrvainen, 2008). Seeland, Dubendorfer, and Hansmann (2009) supported this theory when they perceived that children and youths make contacts and friends across cultures through their use of public urban green spaces.

Landscape functions as a medium of social and ethnic integration as it comprises a variety of elements such as spaces, plant species and landforms among others. The findings of Catell, Dines, Gesler and Curtis (2008) strengthen the theory of landscape acting as a medium for socialising activities where people use spaces to bring the community together. This study also emphasises that the space can support ethnic–based network and promote a sense of pride and cross-cultural identities.

Other studies that agree with the theory that landscape can foster social and ethnic integration are those carried out by McCormack, Rock, Toohey, and Hignell (2010), Peters, Elands, and Buijs, (2010), Tanaka and Krasny (2004), Matsuoka and Kaplan (2008), Teig, Amulya, Bardwell, Buchenau, Marshall, and Litt (2009), Sempik and Aldridge's, (2005), Khotdee, Singhirunnusorn, and Sahachaisaeree (2011), and Gobster (1998).

Local researcher Ismail (2010) conducted a study on landscape alterations made by residents. She mentioned that the purposes of making alterations to landscape include: (i) to have space or a place for integration due to limited living spaces in urban residential areas, (ii) as a functional garden, such as for decoration, food and medicine, (iii) as a symbolic home garden, and (iv) recreating a home garden.

It can be analysed that overall, the majority of previous studies provide evidence that landscape can stimulate social cohesion. However, most of these studies covered a wide range of landscapes and therefore, research on residential landscape planning is still lacking. The characteristics of landscape that is suited for stimulating social cohesion is still unrecognised.

Therefore, in order to bridge the gap left by previous research, this study was carried out to obtain input from professionals in order to determine specific landscape characteristics that are able to stimulate the spirit of neighbourliness among residents in a mixed neighbourhood in urban residential areas.

3. Methodology

Wong (2008) defines a focus group discussion (FGD) as "a small group of participants gather to discuss a specified topic or an issue to generate data."

In this study, a focus group discussion (FGD) was adopted to capture the professionals' views on the contribution of cultural landscapes in order to address the lack of neighbourliness among ethnicities in urban residential areas.

A focus group discussion was conducted with a small group of eight participants in a convenient and comfortable room (see Figure 7). The discussion lasted approximately two hours.
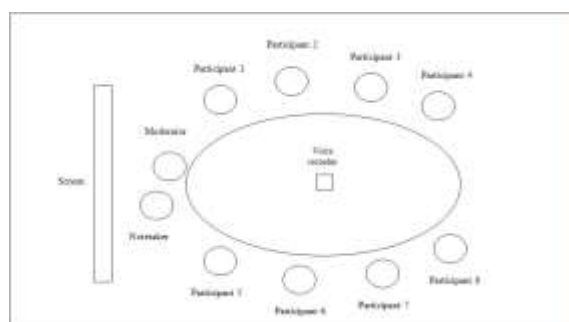

Figure 7.**View of focus group discussion setting.**

The discussion focused on two main variables for semi-structured questions, which are residential landscape characteristics and fostering social and ethnic integration. In order to get reviews and perceptions, the participants of this focus group discussion were professionals who are involved in built environmental designs including landscape architects, planner, and local authority officer. Each participant shared his or her opinion, experiences and ideas during the discussion. There were several common perspectives gathered from the professionals during the discussion. For example, one participant highlighted the utilitarian aspect of gardens in residential areas across cultures, such as for cooking, beautifying house, and ritual purposes. The factors that lead to less integration in urban area were also discussed. People's attitudes were identified as one of the factors that limit integration among ethnicities. The details of the output from the discussion are shown in the results and discussion section.

During the conducting of this focus group discussion, there were challenges faced, including some technical problems where the projector did not function well, misunderstanding regarding the room setting and other small technical problems. Challenges faced when the discussion started included getting responses from the professionals during the warming up stage. The situation became gloomy when some of the respondents were too shy to express their opinion. Focus group ran smoothly and well in the middle of the discussion until the end, after the moderator called on the respondents by name to give some opinions and comments. All participants gave good cooperation and shared a lot of opinions and experiences during the two-hour discussion. At the end of the discussion, the overall output indicated that cultural landscapes can stimulate social cohesion and lead to the spirit of neighbourliness among ethnicities.

The output from this discussion was thematically analysed. Certain categories emerged and a theme was derived. Detailed output from the discussion are presented and discussed in the next chapte

4. Results and discussion

Eight professionals comprising of landscape architects, architects, planner, and academician who are currently involved in built and environment took part in the focus group discussion. The professionals shared common perspectives regarding integration stimulated through cultural landscapes:

- Low and medium cost housing utilise landscapes for certain functions (for example, cooking, beautifying house, ritual purposes, medicine, and food).
- Some people are aware of landscapes but not all are.
- One way to tackle this awareness is to involve the public during the launching stage (public participation), not only to promote their project, but to tell people what it is all about its function, spaces and so on.
- A community expresses its ethnic influences in landscape through overall landscape (for example, plant species, arrangement of plants, hardscape).
- In landscape, cultural differences are used to connect.
- Comprehensive design should consider environmental landscape design and help to connect people to the gardens.

- There is a guideline in landscape approval which states that in designing for residential areas, space for people is a must and should be provided during the planning process.
- The social aspect must be considered in the initial planning process or before construction.
- A residential landscape with ethnic influences has the potential to foster social integration, for example, through exchange of plants.
- Low cost residential areas still have this kind of culture (sharing plants).
- Social and ethnic integration can also be seen in medium cost housing, but as different approaches where parents bring their children to green spaces or playgrounds. While monitoring their children, there will be some/small informal discussions among parents.
- Integration can be seen more at low and medium cost housing compared to more expensive developments.
- One factor that results in less integration is people's attitudes. Low and medium cost housing residents are more open-minded and their attitude is more relaxed. They tend to exchange greetings and visit each other.
- Residents in higher end developments do not practise a similar culture, like exchanging plants, perhaps due to a lack of interest. The developer will maintain the landscape, and residents are not allowed to plant their own herbs outside their garden.
- Social integration should be no problem for low and medium cost housing residents. A community garden is a need for them.
- Relationships among residents, especially in low and medium cost developments, are very good. They mix around more and are more friendly and sharing.
- The same objective (for example, safer environment, safety purposes) tends to bring them together, to meet and work together to ensure that the objective will be achieved.
- Residents in higher cost developments tend to keep their activities to themselves (privacy). However, they are willing to participate in any function or occasion held around the neighbourhood.
- Safety and security are main factors when moving to a new neighbourhood.
- In Hong Kong, the garden is a place for socialising due to the limited space in each unit of the house (for example, apartments).
- The tendency for people to go to open spaces to interact is less now due to safety concerns (children are not allowed to go alone).
- People appreciate spaces more if there is a sense of belonging.
- The small portions of space in front of houses are sometimes not being used because there is not enough space even to put benches for socialising activities.
- Road medians are fully used by residents to create own gardens, and as space for them to socialise.
- Sometimes they even use a minimal space such as that beneath a small mango tree.
- Depending on the neighbourhood, some have very minimal space while others still have space for socialising. In the village, integration happens when people use the yard or garden for gathering purposes.
- Due to small spaces, residents are unable to have more interaction.
- In cases where the spaces are small, integration happens when residents grow and share some herb species for cooking purposes.

Using a coded key word approach, certain categories and a theme emerged, as shown in Figure 8. Examples of key words found are function, spaces, culture, tradition, differences, social value, attitude, sharing, goal, safety, security and interest.
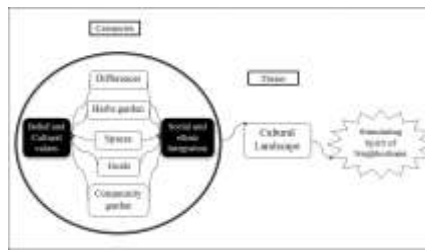
Figure 8. **Illustration of relationship and linkage between theme and**

The coded key words were structured to suit categories. The two main categories are: belief and cultural values, and social and ethnic integration. These categories are linked together by five sub-categories, namely differences, herbs garden, spaces, goals and community garden. The differences represent a variety of cultural values and beliefs among ethnic groups in a neighbourhood. For example, Indians believe that plants are sacred element (Mazumdar & Mazumdar, 2008), while the Chinese are tied feng shui which points out that certain characters of landscape bring good fortune. Even though there are differences among ethnic groups, this variety brings them together via the utilisation of the landscape, such as certain plants used for cooking, food and medicinal purposes. Hence, these differences lead to social and ethnic integration.

One of the respondents emphasised that herb gardens link cultural values and integrate communities as well. Some residents removed all the existing plants provided by the developers and planted herb species instead. Sharing some herbs for cooking is the one of their ways of communicating with neighbours. Cultural values can be seen in the selection of plants for the herbs garden where residents even practise their gardening preferences of their parents' generation.

Another sub-category highlighted is that "spaces for people are a must". This idea was mentioned by the respondents during the focus group discussion. In the local villages, people traditionally used to gather in open spaces, spending their leisure time with neighbours. The communities, however, cannot engage in this kind of culture and practice in urban due to limited space.

The fourth sub-category refers to the residents' goal. The communities have a goal when they live in a neighbourhood which is a secure and safe environment. To keep their neighbourhood safe and secure, the communities have meetings, and work together. The cooperation among residents stimulates the feeling of neighbourliness, besides keeping the environment in a good condition.

Most housing layouts in urban residential developments provide only limited spaces for green areas. Due to space limitations, residents make some alterations to their gardens. This happens because they are looking for space for gardening or for a community garden, as mentioned in the discussion. The professionals believe that this community garden is a need. Residents can express their culture through gardening, and having a centre for gathering. They even emphasise that the produce of the community garden will be shared together among the residents.

These five categories are closely related to each other and linked to the belief and cultural values, as well as to the social and ethnic integration approach. Hence, the main theme is derived from the categories, namely cultural landscape as can be seen in Figure 8. Cultural

landscapes, as affirmed by professionals, can foster social and ethnic integration and at the same time, stimulate the spirit of neighbourliness among ethnicities in an urban residential area.

5. Conclusion

The urban cultural landscape has huge potential to be utilised as a medium for integration among ethnicities, mainly in mixed neighbourhoods in urban areas. Since the cultural landscape symbolises the beliefs and cultural values of communities, the opportunity to integrate people is greater. Living in a modern city does not limit residents in the practice of their culture. People can freely express their ethnic beliefs and practices via urban cultural landscapes. All the professionals in the focus group discussion affirm that urban cultural landscapes embed the cultural values of each ethnic group and can foster social and ethnic integration which may lead to stimulating the spirit of neighbourliness among them.

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Empirical Analysis of Counterfeiting and Consumer Behaviour in A Counterfeit Prone Culture

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Abstract:

Counterfeiting is becoming a booming business in many European and African countries with its potential damaging consequences. Empirical support for the damaging consequences of counterfeiting to the economy of a counterfeit prone country (country of study), was provided by, assessing the level of confusion of some consumers and marketers of two counterfeited products in that country. The level of confusion was assessed in two studies, in which the ability of some marketers and consumers to discriminate between the genuine products studied and their counterfeits was assessed. For the first product which is a particular brand of ball point pens, participants were asked to identify the genuine one among its counterfeits. For the second product which is a brand of automobile brake fluid, participants were to identify the brand name of the products when presented to them and the features they used to identify them. Results obtained indicated that the consumers and marketers studied were increasingly finding it difficult to differentiate between the original of these products and their counterfeits. The results were discussed in terms of the implications of counterfeiting for intellectual property rights violation, and impending disaster of crippling the businesses and consequently destroying the economies of counterfeit prone cultures where counterfeiting business thrives.

Key words: Counterfeiting Consumer Behaviour Counterfeit Prone Culture

Introduction:

What is Counterfeiting?

Counterfeiting according to Alabi (2007), is the criminal offence of imitating an article with the intent to defraud others into accepting it as the genuine item. According to the CEC (1998)'s Green paper as reported in NIPE WP 4/2006, the concepts of counterfeiting and piracy cover all products, processes and services which are the subject matter of an infringement of an intellectual property right such as (trade mark, trade name, industrial design or model, industrial label, patent, utility, model, and geographical indication), of a copy right or a neighbouring right. Counterfeiting therefore embraces not only products which are copied fraudulently (fakes), but also products which are identical to the original ones, but which are made without the right holder's consent.

Counterfeiting has been around for as long as there is something of value that someone wants to have. Counterfeiting of money was one of the oldest crimes in history. It is believed to be the most counterfeited material in the history of the world, and at some point in early history it was considered treasonous and punishable by death.

Today counterfeiting has become widespread and massive, and covers all products. The global research carried out by the Business Action to stop Counterfeiting and Piracy, (BASCAP) analyzed 1,479 incidents of counterfeiting and piracy activity valued at US $1.54 Billion from 80 countries in 2005, revealed some trends in the business of counterfeiting. These trends showed that about 27% of the counterfeited brands came from top brands that include software giants, clothe designers, pharmaceutical companies, printer manufacturers, and luxury goods retailers. When other forms of counterfeiting were added the percentage rose to more than 40%. This increase might be connected to the ease and speed with which large quantities of counterfeited products can be produced using modern photographic and printing equipments. Counterfeiting and piracy activities across the globe have been reported to have a damaging effect on businesses, national economies, consumers and on the society as a whole, and represents a real threat to global security, consumer health and safety, economic development and good governance, Ribeiro & Santos (2006).

Theoretical Framework: Hofstede's Cultural Model of a Nation

Hofstede (1991), in his cultural model used four dimensions to define the culture of a nation. These are "large versus small power distance", individualism versus collectivism, masculinity versus femininity, and strong versus weak uncertainty avoidance.

Power distance in this context refers to the extent to which the less powerful members of institutions within a country expect and accept that power is distributed unequally. People who possess large power distance values would accept gaps in power, believe that there is an order of inequality in the world, and everybody has a predetermined place, and hence the acceptance of power hierarchy in the world by such people. People with small power distance values would not accept power inequality. Rather they would believe that power should be distributed evenly. It is claimed that power distance is the cultural dimension most related to the perception of corruption Husted (1999). This makes power distance to be particularly useful for understanding whether or not counterfeiting will be acceptable to enforcement authorities and the government of the country where it thrives. It is expected that in large power distance societies (e.g. Country of study) conspicuous consumption and flaunting of wealth would be tolerated, and the very few rich (the powerful), get away with corrupt practices like counterfeiting.

Individualism in Hofstede's model, describes the relationship between the individual and the collectivity which prevails in a given society. Individualism is reflected in the way people live together and it has all kinds of value implications. People in individualistic societies, look after themselves and their immediate families, while those in collectivistic societies are strongly integrated into cohesive in-groups. The country of study possesses a high power distance and its nationals are very individualistic in behaviour and performance.

Ribeiro and Santos (2006), carried out a study on European counterfeiting market, and found a positive correlation between counterfeiting and individualism. They also discovered that most consumers in poor countries were not willing to pay higher prices for authentic products if the counterfeit products offer similar qualities. Similarly majority of the people in the country of study are poor and would readily settle for the products with cheaper prizes as long as they meet their needs.

Marcketti & Shelley (2009), studied consumers' concern about, knowledge and attitude towards counterfeit apparel products. They found that willingness to pay more for non-counterfeit goods increased directly with greater concern, knowledge and attitude towards counterfeit apparel goods. Swami, Chamorro-Premnzic & Furnham (2009), in their own study examined the demographic, personality and individual difference predictors of willingness to buy counterfeit goods (WBCG). They found that attitudes towards counterfeiting were the strongest predictors of (WBCG). In another study, Phau, Sequeira & Dix (2009), examined consumers' willingness to purchase counterfeit products. Their results indicated that integrity is the only factor influencing attitudes towards counterfeit products. They found that the useful life of a counterfeit luxury brand significantly influenced consumers' willingness to purchase counterfeit products while attitudinal and personality factors had no influence. In another study, Bian & Moutinho (2011), examined the impact of perceived brand image, direct and indirect effects of product involvement and product knowledge on consumer purchase intention of counterfeits in the context of non-deceptive counterfeiting. They found perceived brand personality to play a more dominant role in explaining consumers' purchase intentions of counterfeit products than other factors. In yet another study Norum & Cuno (2011), investigated the factors affecting consumer demand for counterfeit goods. They found that students' sensitivity to the counterfeit problem did not significantly deter the purchase of counterfeit goods. The implication of the above reviewed findings is that consumers' attitudes, personality and products' knowledge have some noticeable influence on their willingness and decision to purchase counterfeit products.

The ability and readiness of consumers to discriminate between a genuine product and its fake when purchasing goods has also attracted attention. A consumer's readiness to discriminate between a product and "its look alike" that fake it requires several and repeated exposure to the product. This exposure may come through advertisement or use or both, and repetition increases the strength of association of stimuli and heightens discrimination between stimuli Markintosh (1983); Terence (1991); Carolyn & Brucks (1992); Schiffman & Kanuk (1997). Therefore, the longer the exposure to, the product the more likely a consumer would discriminate the product among others that are similar. A consumer's readiness to discriminate a product also depends on the degree of involvement with the product. In this regard, the social judgement theory suggests that consumers who are highly involved with a product are narrow categorizers with narrow latitude of acceptance and wide latitude of rejection. Such consumers are likely to be high involvement purchasers of the product, because the product has a high degree of personal importance to them, Schiffman & Kanuk (1997); Sherif, Sherif & Nebergall (1965); Poiesz & DeBont (1995). Such consumers will also be familiar with the product such

that the more involved they are with it, the more familiar they will be with it and the sharper their discrimination of it.

However, product exposure beyond a certain point can lead to satiation or wear out, which may lead to decline in (i) attention to the product, (ii) retention of the discrimination cues, and (iii) consumer discrimination readiness. In essence, long and repeated exposure to a product increases the potential to discriminate the product among others only to the point of perceptual saturation. Beyond this point, the potential decreases probably because the perceiver has reached a stage of cognitive despondency or inertia, and the product recedes from consciousness as the perceiver's relationship with it becomes a routine. This would lead to errors of discrimination and confusion between the original product and its "look alike". If there are many "look-alikes" of the product in the market, consumers can become over-saturated with information on the product and this may lead to information or cognitive overload. The resultant overload can lead to confusion of consumers, and consequently their making poor purchasing decisions Schiffman & Kanuk (1997); Jacoby (1984)). Bian, & Veloutsou (2007), in another study investigated consumers' views on counterfeit brands and contrasted them with genuine brands and non-logo products in UK and China. Their findings suggested that consumers find it difficult to distinguish between the genuine and the counterfeit brands and when the counterfeits were compared with the genuine brands the British participants indicated that counterfeits are less trustworthy and the Chinese value them less. In this present study the participants were also expected to experience difficulties in discriminating between the genuine products and their counterfeits. The products were: particular brands of ball point pen, and automobile brake fluid.

Study A: Ball Point Pen Study

In study A, a particular brand of ball point pen (the genuine brand), labeled **"A"** was studied in the midst of seven other brand names that look like it. The seven other brand names are labeled B, C, D, E, F, G, and X (where X is the counterfeit of pen A). The aim of the study was to confirm or refute the suspicion of difficulty of participants in differentiating between fake and genuine products by testing these hypotheses:

In the absence of a genuine ball point pen

1), a significant proportion of participants would mis-identify one or both of the fake to be the genuine.

2) The mis-identification of fake as genuine product would increase as a function of familiarity with the product in the following order: students, professionals, civil servants, and artisans.

3) In the presence of the genuine ball point pen, a significant proportion of the participants would still mis-identify the counterfeit as the genuine.

 Method:

Two studies were carried out, and for each study there was a survey part and a field experiment part.

Study A.I: Survey

Participants

158 respondents participated in the survey. They were randomly selected from four populations of Artisans, Civil servants, High professionals, and secondary school students. It was thought that in the main, these covered the range of people who habitually use and

purchase ball point pens. The artisans comprising of Fitters, Plumbers, Mechanics, Electricians, were sampled from public work departments, the Civil Servants from public service departments, the Professionals (Doctors, Lawyers, Architects, Engineers, Quantity Surveyors) were randomly selected from the private sector of the economy, and the students came from a secondary school in the study locality.

Procedure

The researchers worked in pairs and established rapport with the participants. The first researcher presented two ball point pen "X" which fake the genuine pen (A) to each of the participants. He then asked, "is there a genuine pen (A) here?" The participants' behaviour and responses were recorded by the second researcher.

Study A.II: Survey

Participants:

The same set and number of participants used for the survey in study I were also used for the survey in study II.

Procedure:

This part began with the second trial and ended with the eighth trial using a pen dispenser that can contain nine pens. The dispenser is a flat wooden case with nine compartments, each for one of the nine pens being tested against the original pen (A). The compartments were such that the pens can easily be taken out and put back in its slot.

The pens under study were pre-arranged and their compartments coded for ease of identification as shown below:

Code	Referent	Code	Referent
1	Pen X	6	Pen D
2	Pen X	7	Pen E
3	Genuine pen A	8	Pen F
4	Pen B	9	Pen G
5	Pen C		

A strategy that allowed the building up of a series of arrangement of the pens was used in this segment of the study. The participants were requested to make a judgement on each of the series. There were seven trials per participant in this segment. On trial I, each of the participants was presented three pens from slots 1, 2, and 3, that is, Pen X, Pen X, and Genuine Pen A. The design of the pen dispenser is such that disallowed the participants from seeing which pens were being removed from which compartments. The participant was then asked: "Which ones are genuine pen A ?".

After the participant's behaviour and response had been recorded, the pens were withdrawn and the next trial commenced with the presentation of four pens taken from slots 1, 2, 3, and 4, to the participant, and asking the same question as the one in trial I. The trials continued until trial seven when the participants were requested to select those that are genuine pen A from the entire series of nine pens. Care was taken to ensure that no one pen stayed in the same position within a series on two successive trials. Once the pens were out of their slot, the participants were allowed to look at them, and place them wherever they wished within the series. A chart was used for ease of recording.

Study A.I: Field Experiment

Participants:

It was reasoned that the frequency of purchase of ball point pens would be highest among secondary school students and undergraduates of tertiary Educational institutions. Hence participants were randomly selected from one secondary, and one tertiary Educational Institutions. Specifically, 30 students (15males,15females), from a secondary school, and 30 undergraduates (15males, 15females), from a Federal College of Education took part in this Experiment. Two teachers were recruited from each Institution, and served as confederates for the researchers.

Procedure:

Each confederate sat in his office and simply asked every fifth student/undergraduate who walked in, to please help him buy a pen A from a named retail outlet close to his office, within the premises of the Institution. This polite request was preceded by feigning the loss of a pen. Naturally the confederate paid for the pen. The investigators had obtained permission of the retailer to use his outlet for the study. So the retailer displayed the researchers' ball point pens which comprised the following:

Two genuine pen A cartons A and B, two pen X cartons, C and D, and two pen G cartons, E and F. Cartons A, C, and E, contained 28 pens each, made up of 4 each of 7 different pens. Cartons B, D, and F, contained 49 pens each, made up of 7 each of 7 different pens. It is important to note here that there was no single genuine pen A in these cartons. There was a retailing outlet in each school/Institution. At each outlet were two researchers browsing through books or pretending to be interested in one thing or the other, but actually observing the participants as they each came to buy a ballpoint pen. Recordings were made of the participants' behaviour before each purchase. As soon as each participant left, what was bought was replaced so that all participants chose from contexts that are similar in terms of quantity of pens, number and packaging of cartons.

Study A.II: Field Experiment

Participants:

Thirty students, (15males, and 15females), selected from another secondary school, and twenty eight undergraduates, (14males, and 14females), from a nearby University participated in this study. Two teachers from the secondary school, and two lecturers from the university served as confederates for the researchers.

Procedure:

The procedure was the same as in study I except for the composition and the number of pens in the cartons. In this case, cartons A, C, and E, contained 24 pens each, made up of 3 each of Genuine Pen A, Pen X , B, C, D, E, F, and G. Cartons B, D, and E, contained 48 pens each, made up of 6 each of the eight pens mentioned above. It is important to note here that the cartons in this study contained Genuine ballpoint pen A, which was absent in the first experiment.

Results

The data collected were analyzed using statistical test for significance of proportions and the results are presented as follows:

Hypothesis 1: In the absence of a genuine ball point pen (A), a significant proportion of participants would mis-identify one or both of the fake to be the genuine.

Table 1: Distribution of False Positive Responses in the absence of Genuine Product
 (Survey trial 1)

GROUPS	False Positive Responses	Total Number of Responses	% of False Positive Responses	Df	X^2c	X^2t
Students (N=45)	23	45	51.1	3	4.126 Not Sig.	7.82
Professionals (N=33)	16	33	48.5			
Civil Servants (N=40)	21	40	52.5			
Artisans (N=40)	29	40	72.5			
Total (N=158)	89	158	56.3			

Results in table 1 offer partial support for hypothesis 1 in the survey, but was fully supported in the field experiment when the participants actually purchased the product in the market as shown in table 2 below.

Table 2: Distribution of Purchase of Fake Products in the absence of Genuine Product

GROUPS	No of Purchases	No of Fake Purchases	% of Fake Purchases	Df	X^2c **P<.01	X^2t
Secondary School Students (No=30)	30	30	100	1	21.7**	6.64
Undergraduates (No=30)	30	25	83.3			
Total (No=60)	60	55	91.7			

Hypothesis 2: The mis-identification of fake as genuine product would increase as a function of familiarity with the product in the following order: students, professionals, civil servants, and artisans.

This hypothesis was tested by comparing the number of false positive responses in two groups classified as familiar and unfamiliar. The results are presented in table 3.

Table 3: Distribution of False Positive Responses for Familiar and Unfamiliar Groups of Respondents in the absence of Genuine Product (Survey trial 1)

GROUPS	No of False Positive Responses	Total No of Responses	% of False Positive Responses	Df	X^2c *P<.05	X^2t
Familiar Group (Students, Professionals, Civil Servants) (No=118)	60	118	50.9	1	4.07*	3.84
Unfamiliar Group (Artisans) (No=40)	29	40	72.5			

Results in table 3 above support the second hypothesis. Additional support for the second hypothesis was found when selections made on trials 2–8 of the survey were analyzed. The analysis showed that even in the presence of the genuine product, the unfamiliar group made more significant errors than the familiar group. This analysis is presented in table 4:

Table 4: Distribution of Incorrect Selection to Total no of Selection for Familiar & unfamiliar Respondents in the presence of Genuine Product (Trials 2-8)

GROUPS	No of Incorrect Selection	Total no of Selection	% of Incorrect Selection	Df	X^2c **P<.01	X^2t
Familiar Group (Students, Professionals, Civil Servants) (N=118)	569	1323	43.0	1	65.58**	6.64
Unfamiliar Group (Artisans) (No=40)	469	732	64.1			

Hypothesis 3: In the presence of the genuine ball point pen, a significant proportion of participants would still mis-identify the counterfeit as the genuine.

Table5: Distribution of Incorrect Selection to Total no of Selection in the presence of Genuine Product (Trials 2-8)

GROUPS	No of Incorrect Selection	No of Correct Selection	Total no Selected	% of Incorrect Selection
Students (N = 45)	175	288	463	37.8
Professionals (N = 33)	192	189	381	50.4
Civil Servants (N = 40)	202	277	479	42.2
Artisans (N = 40)	469	263	732	64.1
Total (N = 158)	1038	1017 (49.5%)	2055	50.5

Table 6: Distribution of Purchase of Fake Products in the presence of Genuine Product

GROUPS	No of Purchases	No of Fake Purchases	% of Fake Purchases	df	X^2c	X^2t
Secondary School Students (N=30)	30	17	56.7	1	2.06	3.84
Undergraduates (N=28)	28	19	67.9			
Total (N=58)	58	36	62.1			

From the results in tables 5 and 6, hypothesis 3 was not supported statistically both in the survey and in the actual purchase experiment, but there was a clear trend in that direction.

Discussion

The prediction that mis-identification will occur significantly was not confirmed in the survey, although the tendency cannot be ignored, but was confirmed in the field experiment, and this outcome is interesting for several reasons.

Firstly, only students participated in the field experiment. One would have thought that students would be the most discerning group, and yet by their responses, they were fooled by the fake products. Secondly the population of the country where the study took place is a young one with almost 68% below the age of 22 years (NPC 1991), and 63% below the age of 25 years (NDHS, 1999). Given that the country's population is estimated at 115 million, and with about 45% of them in secondary and tertiary institutions of learning (NDHS,1999), and therefore are bound to use ball point pens, the proportion of students who were fooled is staggering, (100%) for those in secondary school, and (83%) for those in tertiary institution. Surely this must have a huge financial loss for manufacturers of genuine pens and enormous financial gain for counterfeiters. Even in the survey, 50% of mis-identification represents a

substantial loss of money for investors. The hypothesis that mis-identification would increase as a function of familiarity was confirmed whether or not the genuine product was present. This finding has marketing policy implications for manufacturers of genuine products. The third hypothesis predicted that mis-identification would occur significantly in the presence of the genuine product. This was neither confirmed in the survey nor in the experiment, but it is instructive to note that in each case, over 50% of errors were made. Within the context of economic considerations such as purchasing power, loss of investment, and job loss, 50% is a highly significant financial loss. In addition, the over 50% also indicates how near perfect the counterfeits were.

Study B: Automobile Brake Fluid Study

The objective of this study was to determine whether the brand of brake fluid under study labeled "A" and designated "the blind stimulus" was recognized by its distinctive packaging design, colour, and shape of can and establish how long it has been in the market as acknowledged by the participants. The hypotheses that guided the survey were:

4). In the absence of trade-marks and country of manufacture, a significant proportion of participants would use the packaging features such as design, colour, and shape of can to identify the genuine brand of product

5). The features mostly associated with the genuine brand would be used to identify it

Method:

Participants:

244 participants made up of 201 motor spare parts traders, 32 mechanics, 5 drivers and 6 petrol attendants participated in the survey. The participants were selected from eight Zones in the city where the study took place. The composition of the sample was based on the pilot study that revealed that the spare parts traders (who were in the majority of the survey sample), were those who actually showed interest in the product and were well informed about brake fluids including the brand under study.

Procedure

Cans of the brake fluid brand studied were prepared as stimuli (the blind stimuli), for the survey. In preparing them the trademarks and the country of manufacture were carefully blotted out. Thereafter, every can of the stimuli was referred to as "the blind stimulus". The survey was carried out by four research assistants who were recruited and trained on how to conduct the survey. A structured questionnaire constructed by the researchers was administered to each of the participants. The research assistants working in pairs established rapport with the participants and secured their cooperation and participation.

The first researcher presented the blind stimulus to each of the participants and asked them to mention the brand name associated with the stimulus, the features that they used to identify the brand and for how long they think the brand has been in the market. The participants' responses were recorded in the questionnaires by the second researcher.

Results
Hypothesis 4: In the absence of trade-marks and country of manufacture, a significant proportion of participants would use the packaging features such as design, colour, and shape of can to identify the genuine brand of product.
Hypothesis 5: The features mostly associated with the genuine brand would be used to

identify it

Table 7: Frequency of Brand Names Given to the Blind Stimulus "A" and Other Brands
B, C, D, E,

Brand Label	Frequency	Percentage	X^2 **P<.01
A	167	68.44%	
B	44	18.0%	A vs. B: 14.7**
C	27	11.1%	
D	3	1.2%	
E	3	1.2%	
Total	244		

As shown in table 7 above, 167 or 68.44% of the respondents identified the blind stimulus as brand "A" the genuine brand mentioning the trademarks that were blotted out to strengthen their identification. 44 or 18.0% of the respondents identified the blind stimulus as brand B, and 27 or 11.1% of respondents identified the blind stimulus as brand C. These two other brands (B & C) use the trademarks and designs of brand "A" on their products to mimic the brand "A" product. So brands B and C are counterfeits of brand "A". The manufacturers of these two brands (B & C) have created sufficient confusion in the minds of those respondents who identified the genuine brand "A" as the brands of the counterfeiters.

Concerning the features that serve as identification cues, it was discovered that the respondents used the packaging features of the genuine brand to identify the genuine and the look a-likes. This analysis is presented in table 8:

Table 8: Cues used in Naming the Blind Stimulus and Other Brands

Brand Label	Colour Combination And Design	X^2 **P< .01	Shape of Can
A N = 126	76 (60.32%)		34 (27.0%)
B N = 45	34 (75.6%)	A vs. B: 7.04**	8 (17.8%)
C N = 18	11 (61.1%)	A vs. C: 7.40**	7 (38.9%)

From table 8 it can be seen that colour combination and design were the most strongly used cues in identifying the genuine brand and those that mimic it. Specifically, 76 or (60.32%) of respondents who identified the stimulus as "A" used colour combination and the packaging design to identify it, while 34 or (75.6%) of respondents who identified the simulus as "B" also used colour combination and the packaging design as identification cues. Similarly, 11 or (61.1%) of respondents who identified the stimulus as C also used colour combination and the packaging design to identify it. The proportions of the respondents that used the colour combination and design features to identify the stimulus as B and C are significantly higher than the proportion of respondents who used the same features to identify the rightful owner of the features, brand A. By these results, hypotheses 4 & 5 are partially supported, in the sense that the packaging features that were mostly associated with the genuine brand were used to

identify the genuine product. However these same packaging features were used to identify the counterfeits as well. The implication here is that the manufacturers of brands B and C have succeeded in using these features and the designs on their products to create confusion in the minds of the purchasing public, thereby making it difficult for them to differentiate between the original product brand and their own which are counterfeits of the original product. By this act the manufacturers of products B and C are violating intellectual property rights of the owner of the trademark and designs and are engaging in counterfeiting business.

Conclusion

The fact that consumers are increasingly finding it difficult to differentiate between genuine and fake products have been demonstrated by the results of these studies. The dearth of information on anti-counterfeiting measures made the level of actions against counterfeiting activity to be insignificant when compared to the level of counterfeiting activity going on in the country of study.

The World Custom Organisation Secretary General, Michel Danet, (2004b), in a publication titled "Middle Ground", stated that counterfeiting affects everything from money to consumables and others, and that counterfeits displace sales of local brands and kill local industries. In his paper titled 'The Co-operation Challenge',Danet, (2004a), recommended that nations and stakeholders should develop strategies and programmes for combating infringement of copyrights. For manufacturers and intellectual property right owners, such strategies should include giving quality education to their customers (both buyers and consumers), on how to identify genuine products, by drawing their attention to the critical features that may be used to distinguish their products. This may likely put counterfeiters at bay and precipitate the reduction of counterfeiting in the global market.

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Barriers to SMEs' Access to Bank Loan in Nigeria

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Abstract

This paper examined the seeming reluctance of banks to lend to SMEs in Nigeria. The study relied on primary data, got from the feedback from a six item researcher designed questionnaire. The reasons why banks appeared reluctant to lend to SMEs were summarized, using tables and analysed using simple percentages. The population covered fifteen commercial banks in Nigeria and the sample consisted of twenty respondents drawn randomly, from the Credit departments of the banks. The major findings of the study includes that Nigerian banks were reluctant to lend to SMEs because they -sometimes lacked expertise in a proposed SME segment, had limited geographic coverage, could not accept poor financial statements from SMEs and found it difficult to prosecute SME owners in the case of a default. The study recommended that banks should establish more branches, especially, in the rural areas, introduce or expand relationship lending in response to the problem of the poor quality of financial statements of SMEs, review the collateral system to enable it accommodate various types of assets as collateral, and the Nigerian government should take practical steps to improve the judicial system to make it easier to prosecute SME owners in cases of loan default. The paper concludes that, if the recommendations of this study are effectively implemented by the relevant stakeholders, the chances of SMEs to obtain bank loan will improve significantly.

Key Words: Banks, Financial Institutions, Lending, SMEs, Funds

Introduction

There is a growing consensus among experts, that the lack of funds is one of the biggest threats to SMEs (Cook and Nixson, 2000; Ayyagari et al., 2006; Beck et al., 2006; Minton, 2006; Zia, 2007; Tambunan, 2008) and that bank loan is the most common source of funds (Aristeidis and Dimitris, 2005; Rao, 2010). Unfortunately, SMEs in Nigeria appear to find it difficult to access bank loans. For instance, successful loan applications by SMEs in non-African developing countries averaged 81.4%, whereas only 68.7% of such applications were successful in Africa (Peria and Soledad, 2009). This has forced many SMEs to seek funds from a variety of other sources (Idowu, 2011). In sub-Saharan Africa, SMEs increasingly depend on non-bank sources for funds, such as savings, family network, retained earnings (internal funds) and money lenders (informal sector). This is because they are hardly able to produce the kind of collateral demanded by commercial banks (OECD, 2006; Satta, 2003). Other informal sources of funds for SMEs include: Rotating Savings and Credit Associations (ROSCAs), savings clubs, friends, and family, and the characteristics and modus operandi of these sources of funds are the same in most African countries (Mwaniki, 2006). The ROSCAs are groups made up of individuals who decide to associate for a specified period of time, with the objective of saving, lending to one another, helping one another to accumulate assets, and cope with financial stress (Bouman, 1983). Family and friends are often the preferred sources of funding, because they offer the cheapest funds compared to financial institutions and money lenders (Idowu, 2011). Money lenders particularly, charge exorbitant rates even though they are unlicensed entities (Idowu, 2011).

The importance of SMEs to the Nigerian economy is huge. About 95% of all industrial establishments in Nigeria are SMEs (Eriki and Inegbenebor, 2009), 60% of the Nigerian workforce are employed by them (Capaldo, 2008), and they account for 76% of Nigeria's GDP (Capaldo, 2008). Given the significance of SMEs to the Nigerian economy, the Federal Government, through the Central Bank of Nigeria (CBN), took a number of steps, aimed at improving the prospects of SMEs, in terms of access to bank credit. These steps includes the creation of the following agencies and schemes – the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), the Micro, Small and Medium Enterprise (MSME) project, the Small and Medium Enterprises Equity Investment Scheme (SMEEIS) and the introduction of the prudential guidelines for financing SMEs. These were aimed at addressing the difficulties SMEs face in obtaining bank loans, and helping commercial banks develop consistent policies for dealing with SMEs, while ensuring that the provision of loans does not compromise the long term sustainability of the banking industry. Such policy initiatives are necessary, given the importance of SMEs in driving innovation, growth and employment generation. Without supportive government policies SMEs, may become perpetually stunted, and vulnerable to market failure (Beck, 2007). However, despite the efforts of the Federal Government of Nigeria and other stakeholders to make it easier for SMEs to access bank loans, they still appeared to find it difficult to meet the requirements for obtaining bank loans. Although the banking sector should be the largest and most reliable source of credit for SMEs, the combination of a number of factors seem to account for the seeming reluctance of banks to lend to them.

Barriers to SMEs Access to Loans

The lack of sufficient information (information gap) has been identified as a major factor that affects the availability of loans to SMEs. Information-gap, in this context, stipulates that bank officials might not have adequate information regarding certain SME proposals. This could be a proposal for which there is limited available market intelligence, and as such reliable

information is scarce. Usually, proposals for new products or services have incomplete and unclear information (Hall et al, 2000; Schmid, 2001) and assets, and what knowledge there is, often centres exclusively on the founding entrepreneur (Hsu, 2004). For instance, entrepreneurs may decline from providing detailed information on their proposal for fear that such disclosure may compromise their intellectual property, or result in piracy (Shane and Cable, 2002). The lack of adequate information about a proposed SME segment is likely to result in the rejection of a loan application, given that there might not be enough credit available for all sensible proposals that qualify for bank credit (Stiglitz and Weiss, 1981).

In sub-Saharan Africa, several factors are responsible for the information gap between SMEs and financial institutions. One of such factors is that many SMEs operate in the informal sector, and as a result are unable to provide the minimum information (e.g. contact details, financial statements, etc.) required by banks (Lefilleur, 2009). Even some of the SMEs that operate in the formal sector struggle to come-up with the financial information required by banks. The absence of accounting standards and the lack of independent and capable accounting firms, impact negatively on the quality of financial information available to banks (Kauffmann, 2005; IMF, 2006). Similarly, the absence of credit bureaus, or the existence of inefficient credit bureaus, makes it difficult for banks to ascertain the payment behaviour of customers (Lefilleur, 2009).

Another factor that could affect the availability of loans to SMEs is that of reputational effects. Theoretically, reputational effects apply where the personal experiences of SME owners, or that of their acquaintances, hinder them from applying for bank credit. This is also known as the discouraged borrower effect (Kon and Storey, 2003; Fraser, 2005). For instance, some entrepreneurs of SMEs are discouraged from applying for loans as a result of the requirements, perceived bureaucracy, and a previous refusal (Deakins et al, 2005). Reputational effects may also be as a result of distrust for financial institutions by minority groups, who believe that there might be institutional bias against them (Deakins et al, 2008). For instance, female entrepreneurs, setting up businesses, may believe that their chance of obtaining bank loans are limited, and as such, fall into the group of discouraged loan applicants (Roper and Scott, 2007). Though the extent to which reputational effects may affect bank lending is unclear, banks with widespread connections to SMEs are well positioned to handle these effects (Watanabe, 2005).

The need for collateral by financial institutions is also a major obstacle to SME funding in Nigeria, as many of them are unable to come up with the collateral demanded (Terungwa, 2011). Furthermore, some SMEs find it difficult to obtain funds, as a result of their lack of security.

TABLE 1

DISTRIBUTION OF COLLATERAL REQUIREMENT BY TYPES OF FINANCIAL INSTITUTIONS IN NIGERIA

Collateral Requirement	Formal (%)	Informal (%)
Fixed Asset:	65	5
Land	79	3
a) Building	100	9
b) Vehicle	29	27
c) Other equipment Share Certificate	85	4
Guarantors	3	100
Group	61	100

Source: Okpukpara (2009)

Table1 shows the distribution of collateral requirements by different types of financial institutions in Nigeria. Most formal financial institutions, like banks, require assets like land, building, vehicle, and share certificates as collateral, while informal sources of funds, require guarantors or groups, to serve as collaterals. The need for collateral, by both the formal and informal financial institutions, is a major obstacle to SME funding, as many of them are unable to come up with the collaterals demanded. Many SMEs, in developing countries, possess movable assets, such as the goods they produce, their machinery, their account receivables, intellectual properties' rights, etc., which are used by firms in advanced economies, as security to obtain bank loans. However, most of these assets cannot serve as collateral in developing countries because of their unsophisticated collateral system. As a result for instance, about 99% of movable assets that could easily serve as collateral in the United States are not acceptable in Nigeria (Fleisig et al, 2006). It can therefore, be deduced that there is a significant difference between developed countries and developing countries, in terms of assets that are acceptable as collateral.

The difficulty to prosecute SME owners, in cases of loan default, is another important challenge to financing SMEs in Nigeria. In an underdeveloped legal environment, banks usually restrict lending to borrowers that can provide either sufficient guarantees, or adequate information about their proposed projects (Haselmann and Wachtel, 2010). Loan officers face the incentive to lend, as well as the consequences of making a wrong loan decisions. This makes the incentive of loan officers to become flat, and as a result, organisations may face credit constriction in equilibrium (Bernerjee et al, 2009). In Nigeria, the possibility of credit officers facing the consequences of making wrong loan decisions is heightened by the difficulty in prosecuting loan defaulters. The difficulty in prosecuting loan defaulter results from the fact that the legal and contractual environment in Nigeria is largely underdeveloped (Fagbadebo, 2007). The quality of the legal environment influences the pace of credit market growth and the kind of borrowers banks lend to, because the better the legal system, the greater the possibility for banks to accept different types of collateral, and to lend to informationally opaque borrowers (Haselmann and Wachtel, 2010).

Other important factors that affect the availability of loans to SMEs include - proximity to a bank branch, the minimum amounts for SME loans, the charges on SME loans and the processing time for SME loans (*see Table 2, below*).

TABLE 2

BARRIERS TO SME LOANS

Region	Locations to submit loan applications (out of 5)	Minimum amount for a SME loan (% of GDP/cap.)	Fees on a SME loan (% of GDP/cap.)	Days to process
Sub-saharan Africa	2.51	760	15.77	12.04
Latin America and Caribbean	3.82	141	1.15	10.68
Asia	2.45	790	2.93	23.93
Eastern Europe and Central Asia	2.80	441	2.58	8.15
Middle East and North Africa	3.21	339	10.66	12.47
OECD	3.91	14	1.34	6.38

Source: Lefilleur (2009)

Table 2 shows some of the factors that hinder SMEs in Africa from obtaining bank loans. It shows that-

In Sub-Saharan Africa in 2009, there were 2.51 locations to submit loan application per five people. While this figure was slightly higher than that of Asia, with only 2.45 locations per five people, it was significantly lower than that of other regions, like Latin America and the Caribbean, Eastern Europe, Central Asia, Middle East and North Africa and the OECD countries. Available research evidence suggests that proximity to a bank branch is a pre-requisite to monetised transactions, and that developing countries face greater difficulty in accessing bank branches than advanced countries (Peachey and Roe, 2004). Lack of proximity to a bank is arguably, the biggest impediment to accessing bank loan by rural dwellers (OECD, 2008).

In Sub-Saharan Africa the minimum amount for SME loans, as per percentage of GPD per capita, is huge. In 2009, it stood at about 760% of GDP per capita (Sacerdoti, 2009). This figure was significantly higher than that of other developing countries in other regions. For instance, the minimum amount for SME loans was 141% of GDP per capita in Latin America and Caribbean, 441% in Eastern Europe and Central Asia and 339% in Middle East and North Africa (Sacerdoti, 2009).These very high minimum loan requirements in sub-Saharan African countries might be an indication that banks in the region fail to meet the credit requirements of SMEs operating in the region (Beck et al, 2006).

Fees for SME loans were also more expensive in Sub-Saharan Africa than in other regions. It represented about 15.77% of the GDP per capita, compared to 1.15% in Latin America and Caribbean, 2.93% in Asia, 2.38% in Eastern Europe and Central Asia and 10.66% in the Middle East. The high fees discourage existing customers from taking up new loans, and potential customers from taking up loans in the first place, and this trend is likely to have negative implications on financial inclusion, bank lending and the economy as a whole (Ochieng, 2012).

Encouragingly, the processing time for loan applications in sub-Saharan Africa is impressive. According to Lefilleur (2009), it takes about 12.04 days to process one. This is decent when one considers that processing times for loan applications is 10.68 days in Latin America and the Caribbean, 23.93 days in Asia, 8.15 days in Eastern Europe and Central Asia, and 12.47 days in the Middle East and North Africa. However, loans take about 6.38 days to process in OECD countries.

Research Objective

The objective of the study is to determine the reason behind the seeming reluctance of commercial banks to lend to SMEs in Nigeria

Methodology

The study is a survey and the area of the study is Nigeria. Nigeria is the second largest economy in Africa (Nagar and Paterson, 2012), and has a very competitive banking industry. It is the most populated country in Africa and the sixth most populated country in the world (UNPF, 2011). Nigeria is the sixth largest exporter of crude oil, which accounts for 95% of Nigeria's exports *(Ambardar, 2011)*. Fifteen banks in Nigeria were used for the study. A sample of twenty respondents was randomly drawn from the Credit departments of the banks. The study relied on primary data derived from the researcher constructed questionnaire titled "Banks' Attitude Towards Lending to SMEs". The questionnaires were administered to the selected subjects through e-mail. The data were presented in a table, and analysed using simple percentages.

Table 3 shows the percentage distribution of the feedback from the respondents.

Table 3: Data Presentation

Item	Agree	Neutral	Disagree
Lack of interest at the Management level of the bank is an important obstacle to lending to SMEs	0	0	100%
Lack of expertise in a proposed segment is an important obstacle to lending to SMEs	80%	10%	10%
Limited geographic coverage (number of branches, rural presence) is an important obstacle to lending to SMEs	85%	5%	10%
Lack of appropriate information technology tools (scoring models, rating models) is an important obstacle to lending to SMEs	10%	10%	80%
Poor quality of financial statements of SMEs is an important obstacle to lending to them	100%	0	0
Difficulty to prosecute owner in case of default is an important obstacle to lending to SMEs	100%	0	0
Lack of adequate collateral is an important obstacle to lending to SMEs	100%	0	0

The results of the study are as follows-

All the respondents stated that the lack of interest at the management level was not a problem that affected lending to SMEs in Nigeria. This means that the management of banks were positively disposed towards lending to eligible SMEs.

Most of the respondents (80%) affirmed that the lack of expertise in a proposed segment is an important obstacle to lending to SMEs. As stated earlier, not having sufficient knowledge of a proposed SME segment can lead to the rejection of an otherwise sensible proposal (Stiglitz and Weiss, 1981). This is usually true for proposals for which there is limited available market intelligence, and as such reliable information is scarce (Hall et al., 2000).

85% of respondents agreed that the limited geographic coverage of banks within the country was an important obstacle to lending to SMEs. Research evidence supports the finding that proximity to a bank was a pre-requisite to monetised transactions and that SMEs in developing countries faced greater difficulty in accessing bank branches than those in developed countries (Peachey and Roe, 2004). OECD (2008) also found that the lack of proximity to a bank was one of the biggest impediments to accessing bank loan by rural dwellers.

Although credit scoring models help the management of financial institutions to make lending decisions, by offering information that could be used to foretell the possibility of a customer defaulting (FDIC, 2007), most of the respondents (80%) stated that the lack of appropriate information technology tools in Nigeria was not an obstacle to bank lending to SMEs.

All the respondents agreed that the poor quality of financial statements of SMEs was an obstacle to lending to them. The literature reviewed showed that many SMEs in Nigeria operate in the informal sector, and as such may lack the documents required by financial institutions for loan processing (Lefilleur, 2009). Without acceptable financial statement, banks might be reluctant to lend to SMEs, because financial statements help financial institutions to measure the performance of a business organisation, figure out how funds invested in the organisation

were used, and enable the stakeholders in the organisation to make appropriate decisions (Kitindi et al., 2007). Financial statement information is considered important in making a loan decision (Kim, 2008).

All the respondents agreed that the difficulty to prosecute owners, in the case of a loan default was a major obstacle to lending to SMEs in Nigeria. As stated earlier, loan officers face the incentive to lend, as well as the consequences of making a wrong loan decisions. This could make the incentive of loan officers to become flat and as a result, organisations may face credit constriction in equilibrium (Bernerjee et al, 2009). In other words the possibility of credit officers facing the consequences of making wrong loan decisions could be heightened by the difficulty in prosecuting loan defaulters in Nigeria. The difficulty is as a result of the fact that the legal and contractual environment in Nigeria is largely underdeveloped (Fagbadebo, 2007). The quality of the legal environment affects the pace of credit market growth and the kind of borrowers banks lend to. The better the legal system, the greater the possibility of banks accepting different types of collateral, to enable them lend to informationally opaque borrowers (Haselmann and Wachtel, 2010). In an underdeveloped legal environment, banks usually restrict lending to borrowers that can provide either sufficient guarantees or adequate information about their proposed projects (Haselmann and Wachtel, 2010).

All the respondents affirmed that the lack of adequate collateral was a major obstacle to lending to SMEs in Nigeria. The need for collateral by financial institutions has been a major obstacle to SMEs' access to funds in Nigeria, as many of them are unable to come up with the needed collateral (Terungwa, 2011). Many SMEs in developing countries possess movable assets such as the goods they produce, their machinery, their account receivables, intellectual properties rights etc., which are used by firms in advanced economies, as security to obtain bank loans. However, most these assets cannot serve as collateral in developing countries because of their unsophisticated collateral system. For instance, about 99% of movable assets that can easily serve as collateral in the United States will not be acceptable in Nigeria (Fleisig et al, 2006).

Recommendations

Banks should explore the possibility of creating sector-specific departments, to help meet the needs of SMEs. Having a sector specific approach enables financial institutions to develop a thorough knowledge of a specific sector, develop a product that matches the needs of the sector, and makes it easier to take loan decisions (Mitchell, 2012). This will address the problem of lack of expertise in the proposed segment of a loan applicant.

Banks should establish more branches, especially in the rural areas in order for SMEs there to have access to bank loan. This will address the problem of having limited geographic coverage within the country (Menon and Rodgers, 2009).

To address the problem of the poor quality of financial statements of SMEs, banks should introduce or expand relationship lending. Relationship lending eliminates the obstacle of lack of acceptable financial statements or opacity, as lending decisions could be based on the information collected by a loan officer, as well as through direct interactions with SMEs (Berger and Udell, 2006).

The Nigerian government should take practical steps to improve the judicial system, to make it easier to prosecute SME owners in case of loan default. There is a strong correlation between poor legal enforcement and the unavailability of credit. Research results show that improvements in the legal system would ultimately lead to an increase in the availability of credit (Cristini et al, 2001).

Since many SMEs in Africa lack the kind of collateral demanded by banks (Terungwa, 2011), banks should review the collateral system, to enable it accommodate more types of assets. Restructuring the collateral system to accommodate various types of assets, will go a long way to solving the problem posed by the lack of collateral to access bank loans.

Conclusion

The results of the study showed that Nigerian banks are reluctant to lend to SMEs because they – at times lack expertise in a proposed SME segment, have limited geographic coverage, cannot accept the poor financial statements some SMEs present, and find it difficult to prosecute SME owners in the case of loan default. Banks need to establish more branches, especially in the rural areas, introduce or expand relationship lending in response to the problem of poor quality financial statements or opacity. There is the need for banks to review the collateral system, to enable it accommodate various types of assets as collateral. The Nigerian government needs to take practical steps to improve the judicial system to make it easier to prosecute SME owners in cases of loan default. The paper concludes that, if the recommendations of the study are effectively implemented by the relevant stakeholders, the chances of SMEs to obtain bank loan will improve, significantly.

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Recruitment, Appointment and Retention for Enhanced Productivity of Teachers in Private Secondary Schools in Lagos State, Nigeria

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Abstract
The study investigated recruitment, appointment and retention for enhanced productivity of teachers in private secondary schools in Lagos state. The study adopted a descriptive survey research design.The population was 10 private secondary schools; the sample for the study comprised all the principals of the ten schools with 200 teachers selected randomly from the schools in Shomolu local government area of Lagos state. A research questionnaire titled Recruitment, appointment and Retention for enhanced productivity of teachers in private secondary schools questionnaire (RAREPTPSSQ) was used for data collection. Data were analysed using mean, standard deviation and Pearson Product moment correlation statistical method. The findings revealed among others that there is a significant relationship between recruitment of teachers and school productivity and that school productivity can be enhanced through retention of teachers. It was also revealed that appointment of competent teachers leads to improved productivity. Based on the findings the study recommended that stakeholders in education should ensure recruitment of competent. Recruitment should be devoid of any primordial affiliation or any form of corrupt practices, rather most be based on merit. Also the

welfare packages of teachers who are the implementers of curriculum in the school system should be enhanced to encourage their retention in the system

Introduction

The major goal of every school system is to provide a high quality education to every student. To do so requires an adequate supply of competent individuals who are willing and able to serve as teachers in the face of a growing school aged population, schools must struggle to maintain standard for teaching quality while continuously recruiting bright new teachers and seeking to retain their most effective existing teachers as the claim goes that the quality of education is not higher than the quality of its teachers. Teachers play great role in maintaining the quality of education in any institution of learning so their recruitment, appointment and retention in educational system must be given high priority among other things.

The recruitment and retention policies (which has direct impact on their ability to fill the desired number of teaching slots) together with the current labour market conditions, have direct impact on the decision of teachers or prospective teachers to remain in or enter the teaching profession(Cassandra& Glenn, 2006). Teacher shortage occurs in the labour market when the demand is greater than the supply; the rate of attrition is alarming while the transition rate from being a student teacher to becoming a teacher of students is fast declining. In his study on teachers turn over in some school districts in New York, Watkins (2005) found that the average yearly turnover rate in education is 13.2 % compared to 11 % in other profession. He went further to state that in some district up to 40% of the new teachers resign within their first two years; this finding supported the works done by Hope (1999) and (Ingersoll, 2001; Liu, Kardos, Kauffman, Preske and Johnson 2000) who reported that one-third to one-half of all new teachers leave the teaching profession within the first five years. The teacher turnover rate greatly affects the adequacy of education in urban schools, to meet the challenge of teacher shortage, states and districts have responded with various policies intended to attract and retain qualified teachers in the difficult-to-staff schools; some states offer scholarship to college students and bonuses to teachers by "growing their own teachers" (Yu 2011). In Nigeria, attrition of teachers has been a challenge degenerating education system. Researchers have found various attrition rate between 20 and 65% at different levels (USSAID, 1995) findings have shown that men have higher attrition than women, untrained teachers have higher attrition rate than the trained ones, the younger teachers than the older ones and the science teachers also have higher attrition rate than the non- science teachers. With this high attrition rate, it is understandable that teaching is characterized as a profession that "eats its young" (Weiss, 1999). Poor salaries, poor condition of service, lack of promotion, low public image, low morale, low status and lack of job satisfaction are all reasons for the exodus of teachers for the profession (Ojo, 1971; Aghenta, 1982 and Kabiru, 2002). Initially poor salaries and allowance were thought to be the sole reason behind teachers' attrition but Udoji salary award of the year seemed to have brought teachers' salaries as par with those of their counterparts in government at least at the early years of their career. In spite of this adjustment, the exodus continues (Ojo, 1971).

The objectives of any private schools is reaching the determined goals, that is being productive, a strategy of setting turnover benchmarks and selected retention practices, providing opportunities for input to operating decisions, allowing significant autonomy in job responsibilities have been associated with enhanced productivity (Shaw, 1999 and Mgadia, 2003).

Across the nation, many states and local districts are faced with the challenges of meeting the increased demand for teachers while at the same time ensuring a quality education

for students. as noted by Banicky, (2001) in his study of the study of the trend of teachers' supply and demand in Delaware in United states, 2 Million teachers will need to be hired to meet the demand by 2006 considering students' enrollment and attrition for both retirement and non-retirement reasons. Harbison and Meyers (1965) researched on the recruitment; turnover and retention of teachers in Puerto Rico concluded that was handicapped by low salary. Benry, (1985) found that while 31% of teachers left for other occupation, even fewer left for higher paying ones

Retention is the ability of the school system to make teachers stay on the job till retirement. Such factors as appropriate pay packages, attractive condition of service, conducive working environment, adequate staff development programmes, promotion as and when due, recognition, good image for the profession and assurance of a good life after retirement among others have been identified to help retain teachers on the job. Agbaje, (2012) opined that teachers' morale, motivation and their satisfaction on the job are all related to teachers' effectiveness and their staying longer on the job. Teachers are primarily attracted to teaching by intrinsic motivation, but extrinsic factors play a major role in retaining them (Cooper & Alarado 2006), they went further to buttress the fact that when teachers are recruited, trained and retained in their teaching profession it leads to high academic performance in the student which culminates into school productivity. When employees are motivated through the provision of opportunities for personal growth, recognition and promotion, they are led into a psychological process that gives their activities purpose and direction needed to spur them towards higher performances. Once this is achieved depending on the extent to which the organization is viewed as meeting the workers' own needs and expectations, teachers' morale is boosted and their achievements on the job give the satisfaction that is likely to keep them longer on the job. This view is shared by Lumsden (1998) who feels that low morale can lead to a decrease in teacher productivity or even burn out (which is associated with a loss of concern for the detachment from the people with whom one works). Ruhland (2001) stated that teacher retention and thus attrition is a function of teachers' personal characteristics, educational preparation, initial commitment to teaching, quality of first teaching experience, social and professional integration into teaching and external influences. A skillful and well supported leadership team in schools can help foster a sense of ownership and purpose in the way that teachers approach their job. Conferring a professional autonomy to teachers will enhance the attractiveness of the profession as a career choice and will improve the quality of the classroom teaching practice. Teachers who work together in a meaningful and purposeful ways have been found to be likely to remain in the profession because they feel valued and supported in their work (Mulford, 2003)

Purpose of the study

The purpose of this study was to determine the extent to which recruitment, appointment and retention of teachers in private secondary school in Lagos state relate to their productivity.

Research hypotheses
1. There is no significant relationship between teacher recruitment and school productivity.
2. There is no significant relationship between retention of teachers and school productivity.

Methods

The Research Design

The research design adopted for the study was descriptive survey research design. This research design tries to describe the current status of a phenomenon in education, facts about current situations with respect to educational problems.

Population of the study

The study population comprised all the private secondary schools in Shomolu Local Government Area of Lagos state

Sample and Sampling Techniques

A total of ten private secondary schools from Shomolu Local Government area provided the sample for the study. The principals of the ten secondary schools with 200 teachers selected randomly from the schools formed the sample. The simple random sampling technique was employed to select the sample for the study.

Research Instrument

The major instrument of the study is the questionnaire titled "Recruitment, Appointment and Retention for Enhanced Productivity of Teachers in Private Secondary Schools Questionnaire" (RAREPTPSSQ) The questionnaire was in two sections: section A contains information on the biodata and B contains questions drawn in line with the research questions and the hypotheses stated.

Administration and procedure for data collection

The researcher personally went round the selected schools and administered the questionnaire to the respective principals and teachers selected and collected them back. The permission of the schools' principal in all the selected schools were sought and obtained. Copies of the questionnaire were administered with the assistance of the vice principal while confidentiality was assured.

Data Analysis

Data from section A was analysed using percentage, while the hypotheses were analyzed using Pearson's Product moment correlation statistics.

Research question one:

What influence does recruitment of teachers have on private secondary schools' productivity?

Table one: observed response on recruitment of teachers and school productivity.

	Recruitment of teachers and school productivity	Agree		Disagree	
		No	%	No	%
	Appointment of competent teachers leads to improved productivity	191	95.5	9	4.5
	Recruitment on merit leads to better output and enhanced productivity.	166	83	34	17
	Adequate supply of teachers enhances school productivity	179	89.5	21	10.5
	Recruitment of teachers according to the needs will lead to enhanced	153	76.5	47	23.5

productivity.				

As presented on table one, 95.5% of the respondent agreed that appointment of competent teachers' leads to improved productivity while 4.5% of them disagreed. 83% of the respondents agreed that recruitment on merit leads to better output and enhanced productivity while 17% of them disagreed. 89.5% of the respondents agreed that adequate supply of teachers enhances school productivity while 11.5% of them disagreed. 76.5% of the respondents were of the opinion that recruitment of teacher according to the needs will lead to enhanced productivity while 23.5% of them were of different opinion.

Research question two: will retention of teachers enhance school productivity?

Table 2: observed response on teachers' retention and school productivity

	Teachers' Retention and school productivity	Agree		Disagre	
		N	%	No	%
	Attrition of teachers which has been linked with the teachers' poor image may affect commitment to teaching and eventually lead to low productivity.	121	60.5	79	39.5
	Schools that retain teachers through motivation do have greater productivity.	155	77.5	45	22
	Teachers' low morale reduces their sense of worthiness and make them to be frustrated out of the teaching service.	34	7	6	3
	Teachers' salaries have a big role to play in teachers' retention and this on the long run affects productivity.	67	3.5	3	6.5
	Retention of teachers brings about improved productivity.	88	4	2	
	Improved conditions of service encourage teachers to stay long in teaching profession.	71	5.5	29	4.5

From table two, 60.5% of the respondents agreed that attrition of teachers which has been linked with the teachers' poor image may affect commitment to teaching and eventually lead to low productivity, while 39.5% of them disagreed. 77.5% agreed that school that retain teachers through motivation do have greater productivity than 22.5% of them who disagreed. 67% of the respondents agreed that teachers' low morale reduces their sense of worthiness and makes them to be frustrated out of teaching service while 33% of them disagreed with the statement. 83.5% of the respondents were of the opinion that teachers' salaries has a big role to play in teachers' retention and this on the long run will influence productivity while 16.5% of them think differently. 94% agreed that retention of teachers brings about improved productivity while 6% of them disagreed. 85.5% of the respondents agreed that improved condition of service encourages teachers to stay long in teaching profession while 14.5 disagreed with them.

Testing of hypotheses

Hypothesis one

H_01: There is no significant relationship between recruitment of teachers' and school productivity.

Table 3: Relationship between recruitment of teachers and school productivity

Variables	X	SD	N	df	P	r-cal	r-tab	Remark
Teachers recruitment	**15.7**	**2.86**						**Ho rejected**
School Productivity	**25.6**	**11.7**	**200**	**198**	**0.05**	**0.97**	**0.148**	

** Correlation is significant at the 0.05 level (2-tailed)

Table three shows that the calculated correlation coefficient (r-cal) of 0.97 is greater than the critical value (r-tab) of 0.148 at 0.05 level of significance and 198 degree of freedom. This means that there is significant relationship between recruitment of teachers and school productivity. Therefore, the null hypothesis four which states that there is no significant relationship between recruitment of teachers and school productivity" is rejected.

Hypothesis two

H_02: there is no significant relationship between retention of teachers and school productivity.

Table four: Relationship between retention of teachers and productivity.

Variables	X	SD	N	df	P	r-cal	r-tab	Remark
Teachers retention	**23.7**	**12.8**						**Ho rejected**
School Productivity	**25.6**	**11.7**	**200**	**198**	**0.05**	**0.78**	**0.148**	

** Correlation is significant at the 0.05 level (2-tailed)

The result in table 4 shows that the calculated correlation coefficient (r-cal) is 0.78 is greater than the critical value (r-tab) of 0.148 at 0.05 level of significance and 198 degree of freedom. This means that there is significant relationship between retention of teachers and school productivity. Therefore, the null hypothesis which states that "there is no significant relationship between retention of teachers and school productivity" is rejected.

Results and discussion

Summary of findings

Having subjected the data collected to statistical analysis, the following emerged as the major findings

1. There is a significant relationship between Teachers Recruitment and school productivity
2. There is a significant relationship between retention of teachers and school productivity.

Discussion of findings

Teachers' Recruitment and School productivity

Hypothesis one shows a significant relationship between recruitment of teachers and school productivity. This implies that recruitment of teachers at regular intervals have significant relationship with school productivity. Collaborating this finding, Alabi (2002) stated that recruitment refers to those activities or operations which the school administrator undertakes with the intent of attracting and securing personnel for the desired quality and in the desired quantity to satisfy the needs of the school. Recruitment is usually preceded by determination of human resources requirements, competences and other characteristic of applicants needed for effective school productivity. The effective and achievement of school productivity is determined by the right placement of persons with right jobs in the school. In support of these findings, Oduwaiye (1991) investigated an evaluation of procedures of recruitment, placement and promotion of staff in Kwara state civil service and concluded from the research that recruitment, placemen and promotion of staff in civil service have positive

influence on their effectiveness at work. Sanders and Rivers, (1996) stated from their research on teacher quality that providing students with competent and qualified teachers has a greater impact on students achievement than class size, school climate, ability grouping or location of the school, thus the need to recruit the right teachers for the right subjects. Ogunsaju (2004) advanced that the personnel department is responsible for the promotion of professional effectiveness of teachers and the improvement of the working condition of teachers which will greatly enhance productivity of the school

Retention of teachers and school Productivity

Hypothesis two shows a significant relationship between retention of teachers and school productivity. This means that when teachers are retained in a school over a long period, there is equilibrium in the system, mastery is encouraged and greater productivity emerges since the teacher gets better on the job with constant practices. This finding is supported by Ingersoll (2002) who stated that turnover influences the performance and effectiveness of the school since the school as an organization has production processes requiring extensive interaction among educators and is therefore prone to suffer when subjected to high rates of turnover. Consequently, turnover disrupts the quality of school cohesion and performance hence the need for retention of teachers. In collaboration with these findings (Cooper & Alvador, 2006) concluded from their work on recruitment, selection and retention that when recruiting academically successful students into the teaching profession, preparing them for the challenges of teaching and retaining them in the profession have become a key goal in helping students achieve high academic standard (school productivity)

Conclusion

The study concludes that when qualified teachers are recruited into a teaching profession and posted to school according to their areas of need, school productivity will be enhanced and when the stakeholders in education embrace the idea of maintaining good school environment, impressive motivational packages and a conducive atmosphere for learning, teachers will be contented and satisfied with their job and will do everything to retain the job hence leading to school productivity.

Recommendation

Based on the findings of the study the following recommendations were made:

- In the course of recruitment of teacher, those in charge should ensure that qualified ones and specialized teachers are recruited to meet the need of the students and therefore enhance school productivity.
- The teachers' welfare should be given priority among other things since it will encourage them to stay on the job and also assist the school in the retention of the qualified and skillful teachers (the best hands).

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Effectiveness of Information and Communication Technology (ICT) in Policing in Nigeria

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Abstract

This paper examined the impact of Information and Communication Technology (ICT) in Effective Policing. It is an indisputable fact that the problem of crime has become acute that the police force as a government apparatus has no choice other than to employ the use of technologies to curb crime. However, in order to achieve the objective of the work, cross sectional survey method was used as a research method and instrument to collect data from respondents on the area of enquiry. The respondents were selected using the Multi-stage, Simple (probability) Random Sampling and Purposive Technique, six hundred sample sizes were chosen. The data collected was analyzed using the Statistical Package for Social Sciences (SPSS). Hypotheses were formulated and tested using the Pearson's Product Moment Correlation. It was found out that the use of ICT and other Technologies enhances the performance and effectiveness of the Police.

Keywords: ICT, Nigeria Police Force, Crime control, Law enforcement

1. INTRODUCTION

The Nigeria Police Force (NPF) has been trying to operate a means to ensure that the internal security of the country is maintained, but in spite of this effort, there appears to be growing uncertainty in public order, as reports of high crime rate such as armed robbery, assassination, kidnapping and child trafficking seem to be on the increase (Punch Newspaper, May 29, 2009, Pg. 7). With increasing anxieties of the fast growing cities and slums full of poor, anonymous and potentially dangerous classes, it has been argued that the police hardly see itself as the law enforcer and the defender of the society against lawbreakers. As such, this is responsible for the public criticism of the inability of the police to fight crime in the society, as the police morale has also been dampened over the years. There is no doubt that the need for technologies to help the police fight crime can never be over-emphasized as the relationship between both the police and technologies goes a long way in the determination of the achievement and sustainability of their ultimate goals, and also, the success and well-being of the nation at large. The role of technology in police institutions and police practices has long been recognized as relevant and ambivalent (Ogunbameru, 2008). Technological advances are particularly relevant for policing because they are seen to influence the organization and practices of police in the ways that intimately connect to the police function of crime control. New and more efficient means of crime detection, communication among police, and police transportation, all these influence how successful police is doing its job as a group of crime fighters, and additionally affecting the level of legitimacy police receive from the public and relevant bodies of governments (Simon, 2004).

Striking a more general theme of societal modernization in the development of policing, police's reliance on technology generates some tension between demands for effective crime control on the one hand, and a continued and revived focus on issues of justice and rights, on the other hand. The increasing use of technology in police institutions was virtually synonymous with advancing progress and civilization. However, soon after technologies were introduced and applied by police, suspicions also mounted against an excessive and unbalanced reliance on technology. In particular, civil-liberation currents sought to curb technologically driven police practices that were motivated by a blind reliance on the often assumed, but largely unproven merits of technologies at the expense of concerns of civil rights and constitutional demands of due process. The tension between a need for efficacy in crime control and the recognition and respect for citizen and human rights has remained a central topic of controversy since when technologies were applied in policing.

We are in the era of law enforcement where ICT and other advanced technologies are becoming a powerful tool for responding to criminals, engaging in hotspots policing, solving violent crimes, monitoring employees' performance and many other functions. Technologies, such as video cameras, data mining systems, heat sensors, biometrics, GPS tracking, Internet and telecommunication systems are being used for the detection, investigation, prosecution and prevention of crime in the law enforcement community. As it did in the middle of the 20th century, technology is beginning to alter the nature of policing and to impact on the management and delivery of police services. Emerging models of policing in the 21st century demand accurate real-time information for strategic planning, problem analysis, deployment decisions, community interface, inter-organizational communication, accountability, threat detection and many other functions.

The new "information imperative" for police organizations would have been impossible to satisfy only a decade ago, but it is now feasible because of affordable advances in information technology and the intense pressure on police to detect threats in advance. While we can expect more tactical and strategic changes in the near future as diverse forms of

technology take center stage today, the largest influence on police decision making has come from data mining systems.

This paper is organized as follows: Section one examined the background which includes introduction that gave insight and helpful hints on the subject matter. Section two attempted a related empirical and theoretical literature review of the work done by scholars and researchers in the area of inquiry of the study. Section three formulated the two hypotheses used in the study. Section four enumerated the methodology of the study; primary and secondary sources of data were employed to obtain information from the sampled respondents. Section five covered the data presentation and analysis, that is, the organization, manipulation and interpretation of data gathered were done using Statistical Package for Social Sciences (SPSS). Section six gives an in-depth discussion on the findings of the study. Section seven is the concluding section of this research study. It also contains the summary of the work, conclusions, recommendations, and suggestions for further studies on the basis of the study.

2. Historical Role of Technology in Support of Police Work

The issue of crime is a social problem that needs to be seriously dealt with. However, it has become a threat to the citizenry and it also concerns various governments of the world most especially the developing countries (Agre, 2003). The latest round of innovation in policing has occurred during the information technology era(Cowper, 2003). This is a very exciting and provocative time in the law enforcement as agencies explore a wide array of technological tools to fight crime. As agencies seek to adopt the latest applications of technology and the most popular strategies for fighting crime, this is also a time for reflection and caution. While police organizations should fully exploit information technology toward the goal of increase public safety, at the same time, they must be continuously vigilant to ensure that strategies and tactics are both effective and fair for all segments of our society. Information and communication with distant colleagues through other technologies is an emerging phenomenon in the business world.

The police have a long tradition of supporting geographically distributed work through the employment of state-of-the-art technologies. From the introduction of the telegraph in the late 1800s to the usage of two-way radios and computer-aided dispatching during the 1900s (Agar, 2003), ICTs have radically changed the organization of police work and the expectations of various police services. The advent of the Internet age has fuelled the boom in Internet cafes, though Internet access rate is currently very low in numbers. This is bound to pick up with the development of mobile telephony networks to support Internet access. The importance of the latest developments in technology, as seen with mobile telephony, cannot be overemphasized in enhancing effective, responsive and efficient policing to the community. Since the year 2000, police agencies for instance in the United States and all over the world are applying this technology for patrol operations by equipping their vehicles with mobile video recording equipment.

Although the early attempts to place cameras in patrol vehicles were plagued with technical and safety problems, miniaturization and advances in technology have made the use of the mobile video recorder practical and affordable. As technology in the field of audio/visual recordings evolves, equipping police vehicles with in-car cameras was the norm and no longer the exception (Rosenblatt et al. 2004). The next step was wireless communication. In 1921, the Berkeley Police Department put two-way radios in police cars for the first time (Vila & Morris, 1999). By the mid 1930s, police departments around the nation had adapted two-way radio communication for patrol cars and motorcycles. Radio certainly helped the police to respond to calls quicker and also allowed stations to keep an eye, or ear, on their units patrolling the

streets. The two-way radio technology is still being used today as the main method of communication between officers and their central dispatch. Hand-in-hand with communication advancements, the development of better transportation also changed the way police did its job. Foot patrols were often inefficient, and even as late as the 1920s, many cities operated patrols under plans that had not changed in over fifty years, failing to take into account the dramatic changes such as urbanized growth and wrought on cities across the United States (Wadman and Allison, 2004). Walking a beat of several square blocks meant that the single-foot patrolman could not be everywhere at once. Foot patrolmen were predictable and regular in their beats. All would-be criminal needed to do then was to wait for the officer to pass and then commit the crime (Fosdick, 1969).

In 1881, the Chicago Police Department started using horse and wagon to transport officers to patrol different areas, and this eased the burden on police departments somehow. Along with improved communication, wagons enabled police to concentrate large numbers of men at a central point to respond to larger emergency situations, such as manhunts and riots (Flinn &Wilkie, 1971). The New York City Police Department introduced a bicycle squad in the mid-1890s. With only 29 officers, the New York Bicycle Squad made over thirteen hundred arrests in its first year of operation. Ultimately, the squad would grow to over one hundred officers who did everything from arresting drunks to chasing down runaway carriages, all on bicycles (Berman, 1987).With the car, a patrol could cover more ground faster than ever before (Wadman & Allison, 2004). Kansas City and Berkeley were the first large cities to try automobiles as replacements for foot patrols. Berkeley Police Department made a successful switch to cars, finding out that a patrol officer, in a small Ford, could cover one thousand street miles per month. Moreover, patrol officers in-cars could respond to calls faster, not tired out when they arrived the scene of the crime, and overall could perform much more effectively and efficiently (Fosdick, 1969).

Photography was one of the earliest technological developments to impact on police work (Richardson, 1970). Police and technology now go hand-in-hand. Technological advances in communication, transportation, criminalistics, and other areas combined with the police's use of science and scientific methods, gave the public an image of the police as leaders of progress. Early Video Cassette Recorders (VCRs) were massive devices, and their size and power requirements made them unsuited for mobile use (Dees, 2003). The first video tape recording systems became available in the early 1960s. However, video technology of the 60's, was not conducive to the mounting of cameras in police vehicles. In the late 1960s, the Connecticut State Police installed a video camera and recorder in a patrol car. The camera was on a small tripod that required the full passenger side of the front seat with the back seat fully loaded with a recorder and cables that connected the two devices. While the equipment was far too cumbersome to make it practical for routine use in patrol vehicles, this experiment illustrated that video recording could play an important role in patrol operations (Rosenblatt et al. 2004). This increased use of technology may be a clear indication that more specific algorithms will be used in the future, which will allow for better intelligence for upcoming crimes. Also, the use of technology has made crime mapping reports more accessible and easier to produce. This may suggest that future reports may be distributed daily, or even by shift, to keep officers better informed and allocate patrol most effectively. Lastly, the improvements in technology have allowed for the definition of more specific areas as hot spots. This focus implies that future crime mapping will be extremely precise, identifying exact areas of distinct crimes.

Hot spot policing uses computer technology to disseminate and illustrate statistical trends in criminal data. This technique, also called crime mapping, is built off the premise that

crime is distributed unevenly across an area. These problem areas can be targeted by increased police patrols in an attempt to reduce specific crime problems within that area (Braga, 2007; Sherman et al., 2002). Crime mapping is a broad term, broken down into two categories: statistical spatial analysis and spatial modeling, both of which focus on the distribution of crime within an area, but with two main differences. Statistical spatial analysis concentrates primarily on the spatial relationship between datum points of crime activity in a specific region. The analysis is conducted exclusively on spatial patterns of similar crimes and offender demographics. On the other hand, Spatial modeling focuses on the technology and the application of data into an understandable grid (Ratcliffe, 2004). Today, spatial modeling uses computers to map statistical data taken from law enforcement agencies. The advantage of using this technology is that data can be easily entered and viewed by using demographics, type of crime, and many other variables. Using the variables of crime to create maps enables an individual to analyze effectively specific types of crime patterns, which can be useful in the future prevention of that particular crime. Although, the early attempts to place cameras in patrol vehicles were plagued with technical and safety problems, miniaturization and advances in technology have made the use of the mobile video recorder practical and affordable. As technology in the field of audio/visual recordings evolves, equipping police vehicles with in-car cameras will be the norm and no longer the exception.

4. Research Methodology

Research methodology is a specification of procedure for collection and analyzing data necessary in carrying out a research study. A research may be defined as a systematic activity which leads to reach a set of organized knowledge. Choosing a particular research method depends on the objectives and type of subject the researcher is working on. Therefore we can decide on the research methodology when the purpose and domain of the research are well recognized thereby we can reach the objectives easily, inexpensively and exactly. This method analyzes the various methods used in the collection of information. With the information gathered, the researcher will be able to obtain a comprehensive data on the possible impact of ICT and others technologies on effective policing.The purpose of research design therefore, is to minimize the possible errors by maximizing the reliability and validity of the data. It also guides a researcher in the process of selection of the respondents. It also defines the relevance of specific research instruments, methods and levels, and more importantly, in choosing appropriate sample size which must be representative of the study population.

In order to ascertain the role of ICT and other technologies in effective policing, the primary data of this study were gathered quantitatively through cross- sectional survey method. Cross sectional survey method was adopted because data were collected at a particular point in time from the selected sample and their responses were used to describe and explain the characteristics of the entire study population. The sample size for this study was six hundred (600) police officers which were randomly selected in ten different departments of the Police Headquarters, Ikeja Area, Lagos State. Data for the study was collected in the various departments across the ten departments. Multi-stage and Simple Random Sampling and Purposeful Techniques were adopted for the selection of the respondents. Interview schedule and questionnaire were used as research instruments. Pearson's Product Moment Correlation Statistical Test was used for the testing of the hypotheses using the Statistical Package for Social Sciences (SPSS). This enabled us to establish the relationship between the identified variables.

This work is meant to investigate and critically ascertain the impact of information technology and other technologies on effective policing, but due to logistic, resources and time,

the objectives will be unrealistic. This is the reason why the study limits its scope to Police Headquarters at Ikeja Area, Lagos State. Data for the study were collected in various departments across the departments of the Police Headquarters, while respondents were selected among the police officers. Interview was scheduled and copies of questionnaire were used as the research instrument to collect primary data required for the study. The secondary data were sourced from textbooks, journals and articles etc.

One of the critical issues to consider at this stage is the decision on whom to interview or how the researcher should go about selecting the sample. It is desirable that the selected sample should be unbiased. Otherwise, there will be sampling bias. The aim is to generalize the findings of the study to the wider population. The sampling technique includes probability and non-probability sampling techniques. For the purpose of this study, the multi-stage, simple random sampling and purposive sampling was adopted. The following strategy was put in place to select the respondents:

Stage 1: Multi-stage was used to select ten departments. Each department was divided into sections; ideally, multi-stage is used in the study because it helps in breaking the stages into steps. Such as: DEPARTMENTS – SECTIONS– UNITS.

Stage 2: This stage is a very crucial stage to the researcher. However, since the departments have been divided into sections; it is impossible for the researcher to cover all the sections in the various departments in Police Headquarters, Ikeja Area, Lagos State. The researcher therefore, picked six sections from each of the departments. More so, the researcher moves to the selected sections and randomly selects ten police officers from each section chosen.

Stage 3: This stage enables the researcher to randomly select sixty (60) respondents from each department. (How? Since six sections were chosen from each of the departments and 600 police officers were randomly selected i.e., $6 \times 10 = 60$. $60 \times 10 = 600$).

Stage 4: This stage is a stage that enables the researcher to select her respondents, which was done through purposive sampling technique. The researcher move strength to the selected sections and purposively samples each police officer allocated to the sections. The 60 police officers in a section were represented in each department. Sixty in a department and 600 (six hundred) police officers in 60 sections make up the sample size.

Source of Data

Primarily, the method of data collection can only be done in two ways: i.e. which are survey and non-survey methods; but the relevant method for this study is the survey method of data collection because it entails a direct contact between the researcher and the respondents available for interview. Survey methods can be further broken down into two main types, according to their time span. They are cross-sectional survey and longitudinal survey. For the purpose of this study the conditions encapsulate the use of cross sectional survey method for the collection of data; this is because we collects data at a particular point in time from a selected sample of respondents in order to describe or explain characteristics of the larger population at a particular point in time. Therefore, for this study, the research instrument that was adopted as a source of data collection is the Questionnaire, which was used to generate information from the respondents on the phenomenon under study. Structural questionnaire was adopted because it gives an opportunity to interact one –on- one with the respondents and it also gives room for self- assessment.

5. Research Hypotheses

To empirically carry out this work and come up with findings that validate fact and figures, the following hypotheses were tested;

1) **H$_1$:** The use of ICT and other technologies does not enhance the performance and effectiveness of the police.

2) **H$_1$:** The use of ICT and other technologies enhances the performance and effectiveness of the police.

5.1. Testing the Use of ICTs on Performance and Effectiveness of the Police.

Hypotheses one

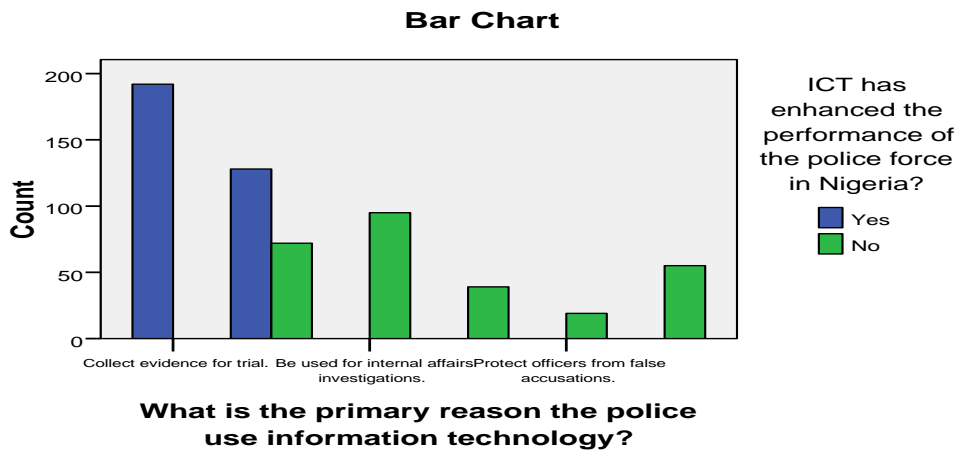**H$_O$:** The use of ICT does not enhance the performance and effectiveness of the police

H$_1$: The use of ICT enhances the performance and effectiveness of the police.

Table 1: The primary reason why the police use Information Technology and ICT to enhanced the performance of the police force in Nigeria

		What is the primary reason the police use information technology?	Has ICT enhanced the performance of the police force in Nigeria?
What is the primary reason the police use information technology?	Pearson Correlation Sig. (2-tailed) N	1 600	0.725(**) .000 600
ICT has enhanced the performance of the police force in Nigeria?	Pearson Correlation Sig. (2-tailed) N	0.725(**) 0.000 600	1 600

** Correlation is significant at the 0.01 level (2-tailed).Source: Field Survey, 2011

r = 0.725, N=600, p < 0.01

From Table 1, we observe the Pearson's product moment correlation between the primary reason the police use information technology has enhanced the performance of the police force in Nigeria. The **r**value for the primary reason the police use information technology and ICT has enhanced the performance of the police force in Nigeria = 0.73. The results that **the use of ICT enhances the performance and effectiveness of the police is** 0.01 level of significance. The statistical implication is that ICT has impacted on the effectiveness of the police.

5.2. Testing the Use of Technologies on Performance and Effectiveness of Police

Hypotheses two

    H$_O$: The use of other technologies does not enhance the performance and effectiveness of the police

    H$_1$: The use of other technologies enhances the performance and effectiveness of the police

    Table 2: Correlation matrix: do you think other technologies have impacted on the police force and what is the primary reason why the police usesInformation Technology

		Do you think other technologies have impacted on the police force	What is the primary reason why the police use information technology?
Do you think other technologies have impacted on the police force	Pearson Correlation Sig. (2-tailed) N	1 600	.799(**) .000 600
What is the primary reason why the police uses information technology?	Pearson Correlation Sig. (2-tailed) N	.799(**) .000 600	1 600

** Correlation is significant at the 0.01 level (2-tailed).   **Source:** Field Survey, 2011

r = 0.799, N=600, p < 0.01
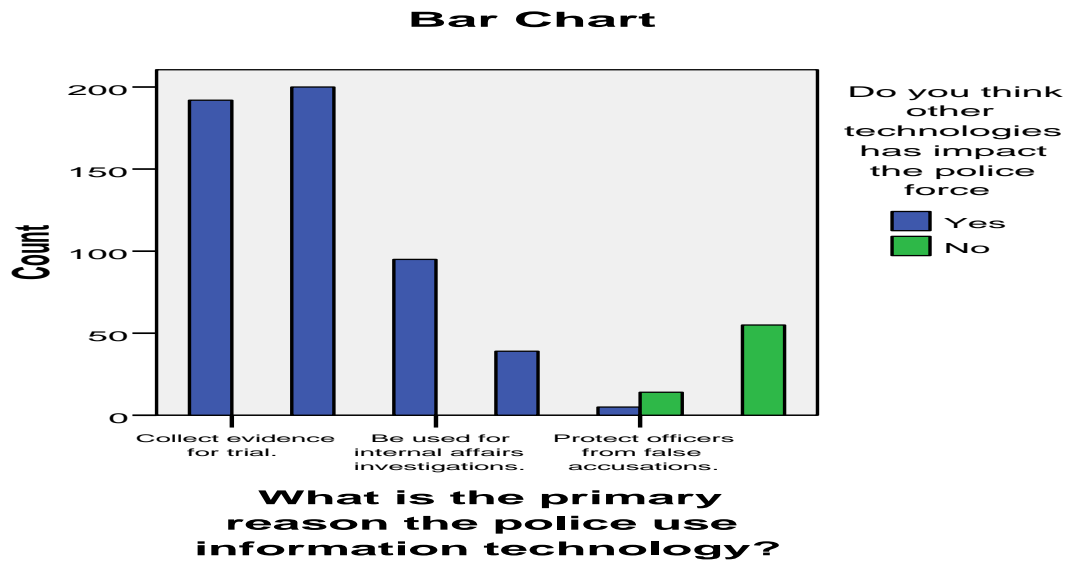
Bar Chart

From Table 2, we observe the Pearson's product moment correlation between "do you think other technologies have impacted on the police force" and "the primary reason why the police uses information technology". The **r** value of the "do you think other technologies have impacted on the police force" = 0.79. The results indicated that **the use of other technologies enhances the performance and effectiveness of the police** is at 0.01 level of significance. The statistical implication is that other technologies have impacted on the effectiveness of the police.

6. Results of the Hypotheses Testing

The paper presents here the results of the research hypotheses

6.1. Results of Testing Hypotheses one (H1)

The result of the first hypothesis before the conclusion of this finding sought out the respondents' view on the relationship between the primary reason why the police uses information technology and ICT having enhanced the performance of the police force in Nigeria.It was discovered from the tablethat 192 respondents which constitute 32.0% claimed that the reason why the police uses information technology is to collect evidence for trial, 200 respondents which constitute 33.3% claimed that the reason why the police uses information technology is to curb crime, 95 respondents which constitutes 15.80% claimed that the reason is to use it for internal affairs investigations, 39 respondents which constitute 6.5% claimed that the reason is to improve public relation, 19 respondents which constitute 3.2% claimed that the reason is to protect officers from false accusations while the remaining 55 respondents which constitute 9.2%, claimed that the reason why the police uses information technology is given by other's view. Also, Table 2 shows that 320 respondents, which constitute 53.3%, claimed that ICT has enhanced the performance of the police force in Nigeria while 280 respondents, which constitute 46.7%, claimed that ICT has not in any way enhanced the performance of the police force in Nigeria. It was very clear from the respondents' view that there is a correlation between ICT and the performance and effectiveness of the police. However, the finding, as a result of the hypotheses tested using Pearson's Product Moment Correlation stated that "The use of ICT enhances the performance and effectiveness of the police". This bridges the empirical finding of Allen's (2009) about impact of ICT on police force. He discovered that

change is not always synonymous with progress, and winning the battle is not the same as winning the war, as the cliché goes. While police organizations should fully exploit information technology toward the goal of increase public safety, at the same time, they must continuously be vigilant to ensure that strategies and tactics are both effective and fair for all segments of our society.

6.2. Results of Testing Hypotheses Two (H2)

The result of the second hypothesis before the conclusion of the finding also sought out the respondents' view on the relationship between "if other technologies have impacted on the police force" and the primary reason why the police uses information technology". However, respondents view was discovered from table 1 that 485 respondents, which constitute 80.8%, claimed that other technologies had impacted on Nigeria's police force while the remaining 115 respondents which constitute 19.2%, claimed that other technologies do not have impact on Nigeria's police force. While it was also discovered from table 2 that 192 respondents, which constitute 32.0%, claimed that the reason why the police uses information technology is to collect evidence for trial,200 respondents, which constitute 33.3%, claimed that the reason why the police uses information technology is to curb crime, 95 respondents, which constitute 15.80%, claimed that the reason why the police uses information technology is to use it for internal affairs investigations, 39 respondents which constitutes 6.5% claimed that the reason is to improve public relation, 19 respondents which constitutes 3.2% claimed that the reason is to protect officers from false accusations while the remaining 55 respondents which constitutes 9.2% claimed that the reason the police use information technology is given by other's view. The result from the respondents' view shows that there is a correlation between other technologies and the performance and effectiveness of the police. However, the finding as a result of the hypothesis tested using Pearson's Product Moment Correlation stated that "The use of other Technologies enhances the performance and effectiveness of the police".

This supports the empirical finding of Adewale (2003) that technological advances are particularly relevant for policing because they are seen to influence the organization and practices of police in ways that intimately connect to the police function of crime control. New and more efficient means of crime detection, communication among police, and police transportation all influence how successful police people are doing their job as crime fighters. Additionally affecting the level of legitimacy police receive from the public and relevant bodies of governments. Maghan et.al (2002) argued that the use of others technologies in policing such as Compstat, Hotspots policing, Surveillance Technologies, Fingerprints, Integrated Automated Fingerprint Identification, Inter-jurisdictional Communication Technology, Mobile Communications, Automatic Vehicle Monitoring (AVM), MATE's video analytics system, Brief Cam's solution, Systems, Thermal Imaging, Hand held Computers, Telephonic Advance, Mobile Digital Terminals (MDT), *Hot* Spot Policing, In-Car Mobile Video System, Mobile Technologies are ambivalent. Striking a more general theme of societal modernization in the development of policing, police's reliance on technology generates some tension between demands for effective crime control, on the one hand, and a continued and revived focus on issues of justice and rights, on the other.

7. Conclusion

This work investigates and critically ascertains the role of information technology and other technologies in effective policing. The findings revealed that the use of ICT and other Technologies enhances the performance and effectiveness of the police. However, it is clear that without advance technologies, crime will be impossible to deal with. The police, as government apparatus has come up with mechanism to curb crime, but still, crime is on the

increase in Nigeria and other countries around the world. Police achieves its own success or failure on the basis of what it does with technology, which in turn shapes its future career since the manner and utilization of the technologies depends on them. Police performance is therefore dependent on the information technology relation between the police and other technologies in the quest for curbing crime. It is recommended in this IT era that police officers need to be trained and need to make use of the technologies each day or else the technology of relation will dissolve; barrier needs to also be created to the acquisition of knowledge meant for intellectual improvement of the police. More so, police should learn to use technology as a tool to help achieve objectives, rather than as a driving force that dictates strategies and tactics. Technology carries no inherent value as good or evil. It can be used to improve or worsen the human condition either intentionally or unintentionally. Therefore, police executives should be thoughtful and strategic as they exploit the power of biometric systems, data mining systems, camera surveillance systems and other technological advances. Police organizations must become learning organizations that routinely collect, analyze, and respond to information relevant to program success, including both expected and unexpected effects, and both positive and negative outcomes.

The research is of importance to police force, education planners, researchers, policy makers, public, state and federal government, and also serves the purpose of reference to the public, thereby bringing to the limelight some issues bothering on the area of inquiry. The work will enable government as an entity to look into the police force and transform the police force as it were, address their primary role of prevention of crime, detection of criminals, the preservation of order and the protection of citizens and their properties via the use of information technology and other technologies.

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Appedix 1

Please tick (   ) the appropriate codes that correspond with your answer.

Section A: Socio-Demographic Data of Respondent

S/N	Question	Response	Code
1.	Sex	Male Female	1 2
2	How long have you been a police officer?	Less than 2years 3 – 5years 6 – 10years 11 – 20years 21 years above	1 2 3 4 5
3	What is your current assignment?	Uniformed Patrol Criminal Investigation DivTraffic Specialised Division (SRO, Crime Analysis, Research and Planning Administration	1 2 3 4 5 6
4	What is your current rank?	Police Officer Sergeant Lieutenant Deputy Chief or above	1 2 3 4

| 5 | What is your current shift assignment? | Day shift
Evening Shift
Midnight Shift
Swing Shift | 1
2
3
4 |
| 6 | What is the level of your monthly income? | Less than N20,000
N20,000 - N40,000
N40,000 - N60,000
N60,000 - N80,000
N80,000 - N100,000
Above N100,000 | 1
2
3
4
5
6 |

Questions That Relate To Ict & Other Technologies On Effective Policing

S/N	Question	Response	Code
7	Are you familiar with ICT and other technologies as a police officer?	Yes No	
8	Are you trained to make use of the technologies available to police force?	Yes No	
9	Does Nigeria's police have access to this technologies?		
10	Do you believe that crime is on the high rate?	Yes No	
11	Have you been able to curb crime with advanced technologies made available to the police ?	Yes No	
12	If no, why?		
13	How do you rate the level of ICT in Nigeria police force?		
14	What is the primary reason why the police uses information technology?	Collect evidence for trial. Curb crime. Use for internal affairs investigations. Improve public relations. Protect officers from false accusations. Others.	1 2 3 4 5 6
15	According to the department's policy and procedures, when do officers require to activate the technologies?	Only during detention or arrest. Only during traffic stops. During all citizen contacts. When he/she thinks it is necessary. Others	1 2 3 4 5
16	ICT has enhanced the performance of the police force in Nigeria	Agree Disagree	
17	What other technologies are available to Nigeria's police force, specify……..		
18	Do you think other technologies have impacted on Nigeria's police force?	Yes No	1 2
19	Do you think ICT and other technologies have enhanced the improvement of police force	Yes No	
20	How effective do you think the Nigeria Police people are in the area of crime control?	Effective Very effective Ineffective Very Ineffective	

| 21 | Which of the technologies do you prefer? | | |
| 22 | What is the challenge of the technologies? | | |

Thank you for your anticipated cooperation

Groundwater Vulnerability Mapping: DRASTIC versus Simplified Overlay Version

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Abstract:
DRASTIC is widely used to measure vulnerability of groundwater resource, being easily applied, generally understandable and useful for preliminary management options. However, DRASTIC has been criticised as being rather obscure and unclear as a consequence of spuriously weighted of seven parameters all of which are not independent but strongly correlated. This study has evaluated the DRASTIC method and suggested a simpler overlay approach based on the interaction of only two parameters - clay thickness and geology. This latter method has advantages in communicating the concept of groundwater vulnerability and is recommended for future use in Malaysia in preference to more complex method. However, maps will not be applied for regulatory or policy making purpose until the model and data uncertainties are incorporated into the assessment or been validated.

Keywords: GIS, DRASTIC, simplified overlay, groundwater vulnerability, Malaysia

1.0 Introduction

Groundwater vulnerability is defined as a function of the accessibility of the saturated zone in a hydraulic sense to the penetration of pollutants, and the attenuation capacity of the strata overlying the saturated zone as a result of the physical retention and chemical reaction with contaminants (Foster and Hirata, 1988). A groundwater vulnerability map can be an indispensable tool for both the effective management of water resources and as a support to environmental planning.

In general, there are three main approaches to producing a groundwater vulnerability map: (a) a process-based simulation; (b) a statistically based models; and (c) overlay and index methods (Lindström, 2005). The level of complexity, extensive data, time consuming and requirement for more expertise has limits the use of process-based simulation and statistical approach. The overlay and index method is widely used in groundwater vulnerability mapping and was developed as a means of creating a numerical index to rank sites in terms of their vulnerability to contamination. Examples of these methods are DRASTIC, SINTACS, COP, etc.

DRASTIC was developed by the United State Environmental Protection Agency and widely used to measure vulnerability of groundwater resource in respective regions (Aller *et al.*, 1987; Rahman, 2008; Babiker *et al.*, 2005; Secunda *et al.*, 1998; Chitsazan & Akhtari, 2009; Sener *et al.*, 2009; Pathak *et al.*, 2009; Hamzaa *et al.*, 2007; Rahman, 2008; Berkhoff, 2008). The DRASTIC model is based on three assumptions: 1) the contaminant is introduced at the ground surface; 2) the contaminant is flushed into the groundwater by precipitation; and 3) the contaminant has the mobility of water. The DRASTIC index is a numerical qualitative risk category of low, moderate, high, and very high, corresponding to class intervals based on the expert opinion as to the weighting between factors, such as soil type, geology, topography etc. (Worrall, 2002; Gogu and Dassargues, 2000). This model make relatively few requirements for data inputs, which are simple in calculation, easily applied, generally understandable, easy in modifications and useful for preliminary management options (EPA, 2003; Aller *et al.,* 1987). Moreover, it can be used as a screening tool to investigate broad geographic areas for susceptibility to groundwater contamination (Rosen, 1994), appropriate for larger scale studies and is relatively cost effective (Smith *et al.*, 1994; Babiker *et al.,* 2005).

However, DRASTIC also has various drawbacks such as the inclusion and exclusion of variables in DRASTIC is very subjective, and the weights between factors are based on expert opinion rather than observations or measurements of groundwater contamination (Worrall 2002). DRASTIC has been criticised as being rather obscure and unclear as a consequence of the interaction between too many spuriously weighted parameters, all of which are not independent but strongly correlated (Foster and Skinner, 1995). Results from this method can be difficult to interpret and understand, especially when they are in contrast to the known geological characteristics (Maas *et al.*, 1995). DRASTIC is also prone to errors and uncertainties resulting from the process of rasterising, digitising and overlaying many map layers in a GIS (Burrough and McDonnell, 2004).

In addition, aquifer bypass processes – those by which water moves through only a small volume of the total porosity, controlled by thickness of soil cover, vegetation cover and rainfall (Jones and Cooper, 1998) – not being considered in DRASTIC. For example, in the UK, the National vulnerability maps have been produced from the overlay of the nature of overlying soil, the presence and nature of any overlying superficial or glacial deposits, the nature of the geological strata forming the aquifer and the thickness of the saturated zone or thickness of confining beds (Hiscock *et al.*, 1995).

Therefore, in order to overcome such drawbacks and for a transparent methodology, DRASTIC was compared with a simplified overlay approach. The simplified approach overlay two maps; clay thickness and geology - those associated with the infiltration rate of substances from the ground surface to the water table e.g. substances infiltrate rapidly in an area with highly permeable geology and a very thin clay layer. This corresponds to those that influence vulnerability most in the DRASTIC, i.e. depth to water table and the impact of vadose zone. This to compare the variation and reliability of the DRASTIC technique as opposed to the simplified overlay version and to determine which of the map is appropriate to represent groundwater vulnerability for the study area.

The greatest concern in simple overlay is the precision of the parameter map (Foster and Skinner, 1995). Uncertainties can arise from interpolation, the digitising process, conversion of vector to raster dataset and error propagation in the overlay operations (Hiscock *et al.*, 1995). In fact, uncertainty is inherent in all vulnerability assessments (Foster and Skinner, 1995), thus the question of uncertainties cannot be dismissed in this method either. Importantly, the construction of data overlay maps based on sparse information is facilitated by geo-statistical methods i.e. standard error, that can provide insight into data uncertainty and guide supplemental data collection efforts (Loague *et al.*, 1996).

Although such maps will not be applied for regulatory or policy making purpose until the model and data uncertainties are incorporated into the assessment (Loague *et al.*, 1996) or the maps have been validated (Hiscock *et al.*, 1995), this study has provide a basis of risk identification of certain area that require special attention in further assessment.

2.0 Description of study area

Malaysia is one of the South East Asia countries, comprising thirteen states and three federal territories, with a total surface area of 329,700 km^2 (Figure 1). The capital city of Malaysia is Kuala Lumpur, with Putrajaya as the seat of the federal government. Malaysia lies north of the equator, strategically located along the Straits of Malacca and the southern South China Sea. Geographically, Malaysia is divided into two parts: Peninsular Malaysia and Borneo (Sabah and Sarawak), separated by approximately 530 km of the South China Sea.

Malaysia is aiming to achieve high income status by 2020. The country also aims to double its real gross domestic product every ten years between 1990 and 2020, as envisaged in Vision 2020, the National Development Policy (NDP), 1991. Moreover, the real gross domestic product is predicted to increase from $115 billion in 1990 to approximately $920 billion in 2020 at 1990 prices. Selangor is the most outstanding in terms of development out of 14 states in Malaysia (Figure 2.1). Selangor has recorded the highest gross domestic product per capita of Malaysian states in recent years (RM 27.6 million in 2009) and makes the highest contribution to national GDP (22.1% in 2010) followed by Kuala Lumpur (13.9%) (Department of Statistic Malaysia, 2010). The state GDP is projected to grow 6–7% in 2010 based on the encouraging global economic performance (Bernama, 2008) with the main sectors contributing to this being manufacturing (28.0%), construction (37.8%) and services (23.2%) (Department of Statistic Malaysia, 2010).

In a context of this study, Selangor has the most significant risk of groundwater pollution. Literatures have indicated the major source of groundwater contaminations in Selangor are from waste landfills (Ahmed and Sulaiman, (2001); Fauziah and Agamuthu, (2005); Hamzah *et al.*, (2006); Bahaa-eldin *et al.*, (2010), industrial and agricultural activities (JICA, 2002). For instance, the main water catchment area of Kuala Langat in Selangor, with an area of 2,750 km^2 have more than 30 industrial estates and 337 factories operating and intensive agricultural activities utilises about 51% of the total land (JICA, 2002). The dominant

agricultural activities are palm oil plantation, rubber, pig production, poultry, aquaculture, cattle and orchards. Tin and sand mining operations have also caused serious deterioration of water quality in this catchment. These have undoubtedly contributed to significant environment pollution especially groundwater. In addition, the unlimited abstraction and low charges policy by the government have encouraged the over-exploitation of groundwater in Selangor and subsequently caused serious deterioration in groundwater quality (JICA, 2002). In response, the Malaysian government has given the highest priority to groundwater development and environmental conservation in the main water catchment area especially in Selangor, thus provide a significant context for groundwater vulnerability assessment to be conducted here.

3.0 Methodology

3.1 The DRASTIC vulnerability index

Seven parameters are involved in DRASTIC: **D**epth to water, net **R**echarge, **A**quifer media, **S**oil media, **T**opography, **I**mpact of vadose zone media, and hydraulic **C**onductivity (Aller *et al*., 1987). Each of the parameters is given a rating *(r)* from 1 to 10, reflecting the significance of risk within each factor, and a weight *(w)* from 1 to 5, indicating the relative importance parameters with respect to each other. The weight *(w)* values in this study were assigned similar to previous literatures (e.g. Aller *et al.*, 1987; Babiker *et al.*, 2005; El-Naqa *et al.*, 2006; Chitsazan and Akhtari, 2009; Pathak *et al.*, 2009; Secunda *et al.*, 1998; Sener *et al.*, 2006; Hamzaa *et al.*, 2007; Berkhoff, 2008; Rahman, 2008). The description of each DRASTIC parameter and the weights assigned is listed in Table 3.1. The vulnerability is expressed as an index value, the sum of (rating x weights) (Eq.1), with a higher score indicating greater vulnerability.

$$\text{DRASTIC index} = D_r D_w + R_r R_w + A_r A_w + S_r S_w + T_r T_w + I_r I_w + C_r C_w \qquad \text{(Eq.1)}$$

3.2 DRASTIC sensitivity analyses

Sensitivity analysis is aim to determine for errors in DRASTIC model, the accuracy of the simulation, the level of confidence in the results, the behaviour of the model, how it responds to changes, and which components of the model are most important in terms of determining the results (Smith and Smith, 2009). The map removal sensitivity analysis measures the effect associated with removing one or more maps from a suitability analysis (Napolitano and Fabbri, 1996) as follows (Eq.2);

$$S = ([V/N - V_i/n] / V) \times 100 \qquad \text{(Babiker *et al*., 2005) (Eq.2)}$$

where S is the sensitivity measure expressed in terms of variation index, V and V_i are the unperturbed and the perturbed vulnerability indices respectively, and N and n are the number of data layers used to compute V and V_i. The vulnerability index, with all seven parameters, is considered to be an unperturbed vulnerability, whilst the vulnerability with six maps is considered to be perturbed vulnerability. The sensitivity can be either positive or negative depending on the influence of the single parameter in decreasing (positive) or increasing (negative) the average vulnerability (Gogu and Dassargues, 2000; Napolitano and Fabbri, 1996).

Single parameter sensitivity determines the importance of the component to the total vulnerability. The single parameter sensitivity analysis was made to compare the 'effect' that

each parameter had on the theoretical weight assigned by DRASTIC. Each parameter contributes with an effective weight to the final vulnerability index (Napolitano and Fabbri 1996). The effective weight (W) in % is measured as (Eq.3):

$$W = (P_r P_w / V) \times 100 \text{ (Babiker } et\ al., 2005)\qquad\qquad (Eq.3)$$

Where P_r is the rating value, P_w is the weight value assigned for each parameter, and V is the overall vulnerability index. The 'effective weights' depend on the variability of each parameter rating and on the 'theoretical weight' chosen in Eq.1. The 'theoretical weights' are the original weights given by the DRASTIC model. Single parameter sensitivity analysis is important for validation and consistency evaluation of the analytical results. From this assessment, the user can select the layers which are more critical for the analysis and require more detailed information and accuracy. This also helps to enable a more efficient interpretation of the vulnerability index.

3.3 Preparation of DRASTIC parameters

3.3.1 Depth to water table

The grid layer of depth to water table was generated through the subtraction of river water level data from 33 river stations with the land surface elevation, and was combined with 32 borehole observations provided by the Minerals and Geo-science Department (JMG). The land surface elevation derived from a digital elevation model provided by the Department of Irrigation and Drainage (DID), Selangor, with 50 m resolution and RMSE value of 7.28 m. The data were interpolated with kriging, and produced a depth to water table ranging of 1 to 32 m from the ground surface with standard error of 4.5 to 8.5 m. Kriging was used as it works well with the data in this study and generated a smooth surface with an acceptably small mean squared error (MSE) of 6.30 compared to IDW (8.9) and Spline (7.2) interpolation.

3.3.2 Net recharge

The net recharge value was calculated as 7% of the total annual rainfall. The net recharge was interpolated through the kriging technique. The total net recharge volume for Selangor is in the range of 100–200 mm/year with standard error of 5.0 to 32.0 mm/year.

3.3.3 Aquifer medium and soil

The grid layer of aquifer medium and soil were scanned and digitised from a hard copy map. The aquifer medium was obtained from the geological map of Selangor and Wilayah Persekutuan (1982), provided by the JMG with a scale of 1:250,000. The soil map was from the reconnaissance soil map of Selangor provided by the Department of Agriculture (DOA) with a scale of 1:250 000 (1982). Scale and resolution are intimately related because there is a lower limit to the size of an object that can be usefully shown on a paper map and this limit is often assumed to be 0.5 mm as a rule of thumb (Goodchild, 1993). The effective resolution of a map with a scale of 1:250,000 is about 250,000 x 0.5 mm or 125 m and 1.56 ha is the minimum resolvable area.

3.3.4 Topography

The topography layer was constructed by converting the digital elevation model (DEM) to slope through the Spatial Analyst extension of ArcGIS. The slope in percent was classified into five groups based on break values used in a groundwater potential zoning study in Selangor by Musa et al., (2000). The slope was classified as; flat (0-7%), undulating to rolling

area (8-20%), hilly terrain (21-55%), steep (56-140%) and very steep mountainous areas (> 140%).

3.3.5 Impact of vadose zone

The grid layer of impact of vadose zone in this study was calculated using the formula from Piscopo, (2001), El-Naqa *et al.*, (2006) and Pathak *et al.* (2009), as detailed below:

$$Ir = Dr + Sr$$

where Ir, is the rating score of impact to vadose zone, D is depth to water table, S is the soil type, and r is the rating value scale of 1 (low vulnerability) to 5 (highly vulnerable), as in Table 3.2.

3.3.6 Hydraulic conductivity

Soil map was used as a grid layer for hydraulic conductivity (C) owing to the absence of this spatial data for the study. This is in agreement with a hydraulic conductivity definition, which is the ability of aquifer materials to transmit water that basically depends upon the soil permeability rate (Pathak *et al.*, 2009). Hydraulic conductivity and soil map will have the same rating score.

Each of the DRASTIC parameters is given a rating value *(r)* from 1–10, reflecting the vulnerable classes within each factor. The rating scores were assigned by a geologist in the Geo-science Division of the state who has wide knowledge and research experienced of twenty years in geology and groundwater management in the state and is amongst those responsible for determining the groundwater management policy in the country. Table 3.3 and Figure 3.1 show the final rating score and weight for the maps.

3.4 The simplified overlay approach

The simplified overlay approach is based on assumption of the pollutants travel time depends upon the permeability of clay, as well as the thickness and the porosity of the geological medium. The clay thickness is overlay with the type of geology lying between the ground surface and the water table in this approach. Clay is selected to be overlaid with geology, owing to the attenuation capacity that it has to protect the aquifer from pollution (Hiscock *et al.*, 1995).

The characteristic of the non-expandable (1:1) clay that has strong hydrogen forces provides no interlayer regions between the silica tetrahedral (Si_2O_5) and aluminium octahedral sheet $Al_2O_4(OH)_2$ for contaminant to infiltrate. This is the main characteristic of kaolinite clay, which is commonly found in hot and moist climates countries like Malaysia (Shamsuddin and Anda, 2008) and which protects the aquifer. The clay thickness represents the interrelation between depth to water table, vadose zone and topography, whilst the geology medium represents the aquifer medium, soil and hydraulic conductivity of DRASTIC. The operations performed are summarised in Figure 3.2.

3.4.1 Preparation of simple overlay parameters

The clay thickness was interpolated based on 101 borehole log profiles combined with the 14 new points. The borehole log profiles were provided by the Mineral and Geo science Department and generated during the assessment of groundwater resources during the water crisis of 1996–2000. Owing to uneven distribution of boreholes in the state, 14 new points were randomly added to the map—especially to the area that had no clay information. Based on the assumption that similar geology types have similar clay thickness, the new points were assigned the mean value of clay thickness based on the geology on which they were lying. The

interpolation with kriging technique produced a clay thickness range between 1 and 40 metres, with an error of 0.3–14 (Figure 3.3).

The clay thickness was reclassified into three groups: high risk (< 10), medium risk (10–30 m) and low risk (> 30 m) before being overlaid with the geology. The minimum boundary of clay layer adequate for groundwater protection was set to 10 metres, which is double the boundary used in Aldrick *et al*. (1999). This is owing to the fact that clays in tropical weather are rapidly transformed (Shamshuddin and Anda, 2008), and if a 5 m boundary is used, this may expose the groundwater to contamination. The minimum boundary of 10 m was also considered to be adequate for groundwater protection in study area, particularly in the waste landfills where the dumping hole was randomly 10 m deep. The geology map also was reclassified based on permeability into three main groups: high risk (alluvium), medium risk (Devonian, Silurian and carboniferous), and low risk (granite) (see Figure 3.4).

4.0 Results and discussion

4.1 DRASTIC map versus simplified overlay version map

The DRASTIC map produced an index value range of 76 to 203 with the mean ± SD of 129 ± 18. Three classes of vulnerability were chosen to display the range of low groundwater vulnerability (76 - 118), medium (119 – 161) and high (162 – 203). The higher the index value, the greater the groundwater vulnerability. The high vulnerability area covers 7% of the surface mostly on the North, the medium vulnerability covers 76% of the surface and the low vulnerability covers 17% of the state, mainly on the East (Figure 4.1).

The sensitivity analyses for DRASTIC map indicated that the greatest variation (greatest mean value) in the vulnerability index was produced upon removal of the impact of vadose zone (1.83) and depth to water table factors (1.62) (Table 4.1). Both of these parameters influence the vulnerability the most. Less variation in the vulnerability results is achieved through removal of aquifer medium (-0.24), net recharge (+0.37), and hydraulic conductivity (+0.93). These are parameters that likely to be the least significant in the assessment owing to weak associations and also low weights assigned to the parameters.

A similar finding with single parameter sensitivity analysis which determined the mean value of 'effective weights' for water table (24.0%), impact of vadose zone (25.3%) and topography (6.89%) has exceeded the 'theoretical weight' assigned to them in DRASTIC. These results highlight that such parameters are important that need to be accurately obtained as they may dictate the accuracy of the map (Table 4.2).

Meanwhile the simplified overlay version produced a groundwater vulnerability map classified as extreme, high, medium and low. The extreme vulnerability area covers 2.4% of the surface, the high vulnerability area covers 55% of the surface, the medium vulnerability covers 42% of the area and the low vulnerability covers 0.6% of the area (Figure 4.2).

There were too many patches in the DRASTIC map and the vulnerability predictions were contradicted with the known geological characteristics. For example, the high vulnerability area in DRASTIC map is mainly located on the North, a rather contradictory result to the geological characteristics. This area has a deep water table and in low permeability granite – thought in theory known to provide low vulnerability.

One of the reasons is possibly due to the weighting and scoring system used in DRASTIC (Worrall *et al.*, 2002). The sensitivity analysis showed DRASTIC was highly influenced by two parameters i.e. the depth to water table and impact of vadose zone that have high weights (Aller *et al.*, 1987; Worrall *et al.*, 2002). The subjective scoring and weighting

system applied in DRASTIC is based on the expert judgment also can be fallible (Worrall *et al.*, 2002), as the judgement of only one expert is been used. It is much better to have many values from many Geologist in the study.

The spatial data for hydraulic conductivity and the impact of vadose zone in this study were generated using the similar rating map score of soil and depth to water table. This has consequently transferred the errors initiated in one parameter being transferred to another parameter if a value of one parameter (i.e. soil) is used to classify another parameter (i.e. hydraulic conductivity) (Rosen, 1994). This cannot be avoided, due to the limited available data in this study.

On the other hand, parameter used in DRASTIC are also redundant. For instance, the hydraulic conductivity is not alone measuring the ground water velocity in the saturated zone, but the interrelation between hydraulic conductivity, aquifer media and net recharge. These made the DRASTIC output difficult to be interpreted and understand; the similar problem noticed by Maas *et al.*, (1995).

The simplified overlay map had fewer fragmented patches as compared to DRASTIC. The result was clearer and more intuitive interpretation to the geological characteristic of the area; since only two layers of maps were involved. The simple overlay map is produced based on the genuine interaction of clay thickness and geology, which determines the infiltration rate of contaminant in the interlayer region between the ground surface and the water table – and not based on the scoring and weighting system. The vulnerability interpretation in the simple overlay method is not involved by the index number, as in DRASTIC.

4.2 Which of the map appropriate to represent the study area?

In the context of this study, the simple overlay approach was chosen as the most appropriate approach to represent the groundwater vulnerability of the state. In the absence of data to validate the maps, the basis of the selection of one model to represent the state was on the consistency shown in simple overlay i.e. fewer patches, not contradictory to known geology setting, and easily understand. The genuine interaction between clay thickness and geology – not depending on scoring system was also a consideration. Another reason was the map closely simulated to the risk to the groundwater potential zones produce by the Mineral and Geoscience Department (2007).

On the other hand, with too many patches in DRASTIC map, and some of the risk interpretation did not correspond to the known geological characteristic of the site has subsequently caused the map's reliability to be questioned—especially within the high risk area (i.e. North).

4.3 Remaining research issue and future challenge

Although simplified overlay output produced a consistent pattern, the reliability of the output is highly dependent on the precision of the source map – clay thickness and geology map. Inaccuracy may also arise from the digitising of the geology map that might create high uncertainties and influenced the reliability of simple overlay output. However, the vulnerability interpretation can be done in a cautious manner as the clay thickness map was supported by a standard error map in this study, providing an insight into data uncertainties. Uncertainty maybe arise from the interpolation methods used; for instance the 'bulls eye' effect with IDW due to the strong influence of individual spot values on the interpolated surfaces (Zare-Mehrjardi *et al.*, 2010) whereas with kriging – if the spatial correlation structure is not prominent or the data are not adequate to support kriging, the results may provide less accurate predictions than other method (Lu and Wong, 2008).

In addition, neither of the two models was validated in this study due to the absence of empirical knowledge on the level of groundwater contamination. However, the information on groundwater contamination from the Department of Environment Malaysia and Mineral and Geo-Science Department could be incorporated in future research to help in validation and justification of the choice of model. This was unable to be done in this study because of the cost involved, time constraints and the expertise required.

Many studies have indicated the application of GIS as an ideal in deriving regional groundwater maps, and extends to evaluating potential threats to groundwater from a specific hazardous activity, in which multiple layers of information can be integrated in different combinations. However, they have been many critiques and debates regarding the use of GIS technology in science research. Some of the arguments have had considerable impact on the GIS discipline, especially about the implications of GIS and the relationship between society and the technology (e.g. Heim, 1992; Pickles, 1995; Schuurman, 2000; Burrough and McDonnell, 1998; Zhang and Goodchild, 2002). For example, Pickles, (1995) highlighted that as a system for information processing and for the creation and manipulation of spatial images, and as a technology which is diffusing rapidly through the apparatuses of the state and the organs of business - GIS requires a critical theory reflecting sustained interrogation of the ways in which the use of technology and its products reconfigure broader patterns of cultural, economic, or political relations, and how, in so doing, they contribute to the emergence of new geographies. Pickles also indicated the need to think more seriously about the transformative possibilities that GIS offers. Data for GIS have been a perennial problem limiting GIS adoption and use (Burrough and McDonnell, 1998).

As a consequence of this, uncertainty and error seem to have been used almost interchangeably in GIS. It is easy to arrive at the conclusion that errors are computable if truth is obtainable or truth is recoverable if errors become known. In many situations, it would be extremely difficult to recover the truth fully and in many situations it is difficult to believe that a true value actually exist (Zhang and Goodchild, 2002).

5.0 Conclusions

A simpler overlay method was found to be appropriate representation of groundwater vulnerability in Selangor. In order for the simple overlay method to be applied widely in the state and turn to be the actual groundwater management policy making in Malaysia, there needs to be more validation work. Despite the fact that the simple overlay approach is well suited method to represent the study area—there are limitations of this approach, such as they provide a regional picture of groundwater vulnerability that is insufficiently detailed to demonstrate the actual threat to the groundwater resource at a local scale (Hiscock *et al*., 1995; Holman and Palmer, 1999). In essence, accurate groundwater vulnerability can be established with confidence only through site-specific ground investigation and laboratory work.

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Appendix

Tables
Table 3.1: The DRASTIC parameters.

Data type	Relative weights	Description
Depth of water table (D)	5	Represent the depth from ground surface to the water table, deeper water table lesser chance for contamination to occur
Net Recharge (R)	4	It is the amount of water/unit area of land that penetrates the ground surface and reaches the water table
Aquifer media (A)	3	It is the potential area for water storage, the contaminant attenuation of aquifer depends on the amount and sorting of fine grains, lower the grain size higher the attenuation capacity
Soil (S)	2	The uppermost and weathered part of the ground, soil cover characteristic influence the surface and downward movement of contaminants
Topography (T)	1	It refers to slope and steepness, areas with low slop tend to retain water for longer, this allow a greater infiltration of recharge water and greater for contaminant migration
Impact of vadose Zone (I)	5	It is the ground portion found between the aquifer and the soil cover which pores or joints are unsaturated, its influence on aquifer potential similar to that soil cover
Hydraulic conductivity (C)	3	It refers to the ability of the aquifer formation to transmit water an aquifer with high conductivity is vulnerable to substantial contamination as a plume of contamination can move easily through the aquifer

(Source: Rahman, 2008)

Table 3.2: The rating score assigned to soil and depth to water table to calculate vadose zone

Soil type	Rating	Depth to water table (m)	Rating
Sand	5	0 to 5	5
Coarse sandy clay	5	5 to 10	5
Sandy loam-sandy clay	5	10 to 15	2
Coarse sandy clay-clay	3	15 to 20	1
Fine sandy clay loam-fine to sandy clay-clay	3	>20	1
Fine sandy clay loam	3		
Sandy clay	3		
Fine sandy clay	3		

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Clay	1		

Table 3.3: The ratings assigned for all parameters involved in the study

DRASTIC parameters	Range	Rating (r)	Weight (w)
Depth to water table (m)	0 to 5	9	5
	5 to 10	6	
	10 to 15	3	
	15 to 20	2	
	>20	1	
Recharge (mm/year)	190 – 210	9	4
	170 – 190	8	
	150 – 170	6	
	130 – 150	2	
	110 – 130	1	
Aquifer medium	Alluvium	9	3
	Carboniferous	3	
	Silurian	3	
	Devonian	3	
	Granite	2	
	Tertiary	2	
	Major quartz veins	2	
Soil type	Sand	9	2
	Coarse sandy clay	8	
	Sandy loam – sandy clay	8	
	Coarse sandy clay – clay	6	
	Fine sandy clay loam-sandy clay – clay	6	
	Fine sandy clay loam	6	
	Sandy clay	2	
	Fine sandy clay	2	
	Clay	1	
Topography (slope %)	0 to 7	9	1
	8 to 20	8	
	21 to 55	6	
	56 to 140	2	
	>140	1	
Impact of vadose zone	Based on calculation Depth (Dr) + soil (Sr)		5
Hydraulic conductivity (m/day)	Sand	9	3
	Coarse sandy clay	8	
	Sandy loam – sandy clay	8	
	Coarse sandy clay – clay	6	
	Fine sandy clay loam-sandy clay – clay	6	
	Fine sandy clay loam	6	
	Sandy clay	2	
	Fine sandy clay	2	
	Clay	1	

Note: The rating scores were defined as; (i) 9 and 8 are defined as highly vulnerable, (ii) 6 is defined as medium vulnerable, and (iii) 1–3 are defined as very low to low vulnerability

Table 4.1: Statistic for the sensitivity of removing of one parameter

Parameters removed	Variation index (%)						
	D	R	A	S	T	I	C
Min	-1.69	-1.83	-1.81	-2.17	-2.11	-0.44	-2.07
Max	4.76	4.36	2.36	0.29	-0.4	4.29	1.62
Range	6.45	6.19	4.17	2.46	1.71	4.73	3.69
Mean	1.62	0.37	-0.24	-1.42	-1.23	1.83	0.93
SD	1.74	1.42	1.30	0.76	0.19	0.51	1.15

Note: SD is standard deviation

Table 4.2: The variation index of the single parameter sensitivity analysis

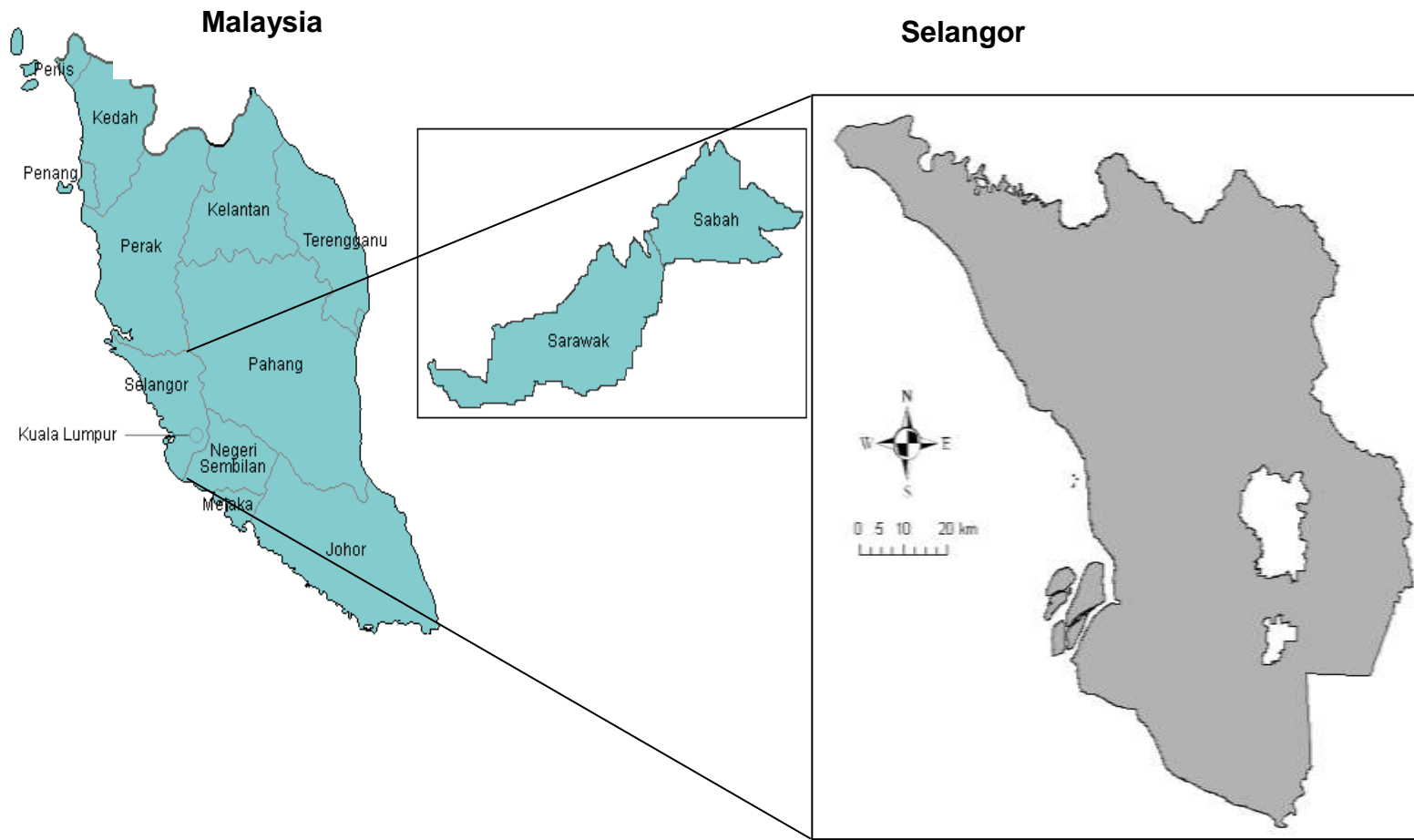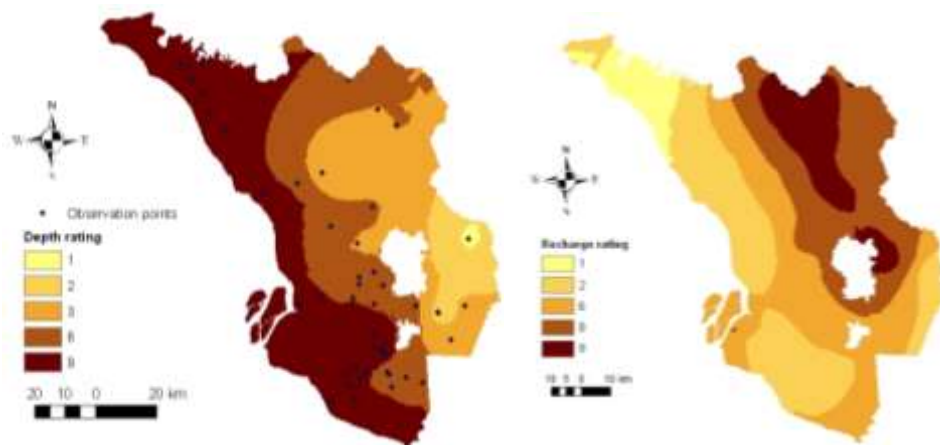| Parameter	Theoretical weight	Theoretical weight (%)	Effective weight (%)			
			Mean	Min	Max	SD
D	5	21.74	**24.0**	4.09	42.9	10.5
R	4	17.39	16.5	3.33	40.5	8.51
A	3	13.04	12.9	3.41	28.4	7.83
S	2	8.70	5.79	1.25	16.0	4.60
T	1	4.35	**6.89**	1.60	11.8	1.19
I	5	21.74	**25.3**	11.6	40.0	3.06
C	3	13.04	8.69	1.88	24.0	6.9

Figures:

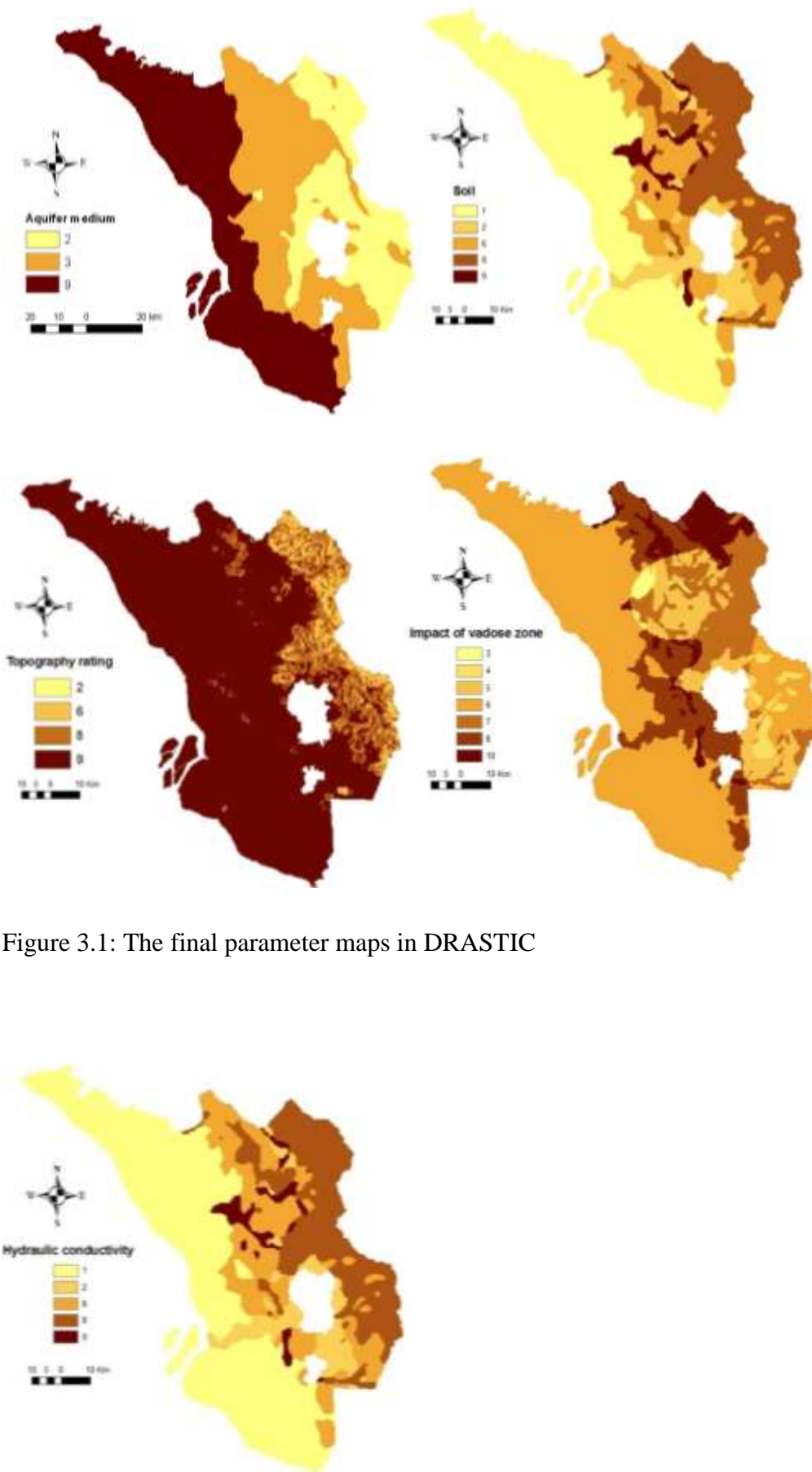Figure 2.1: The location of Selangor in Peninsular Malaysia

Figure 3.1: The final parameter maps in DRASTIC

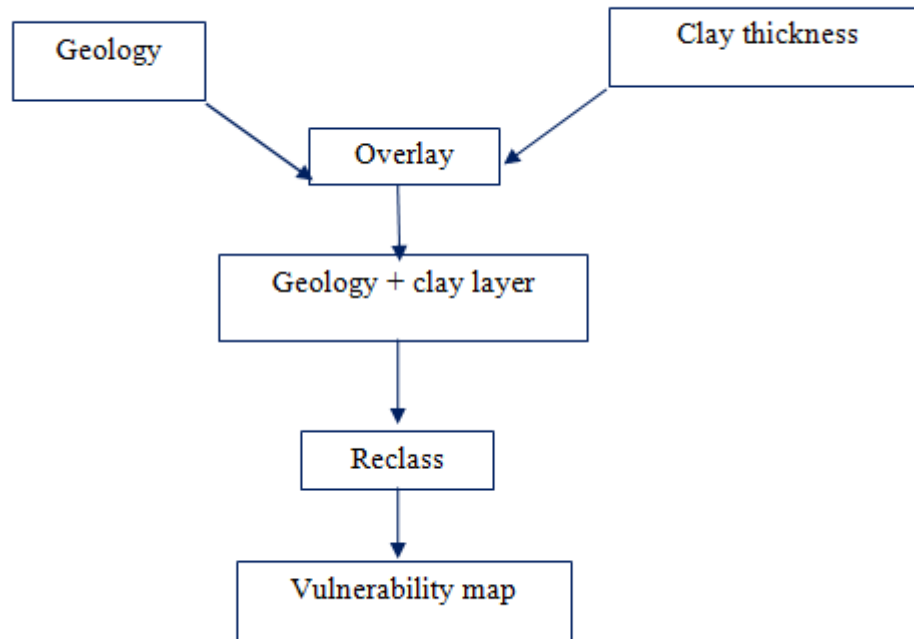Figure 3.1: The final parameter maps in DRASTIC

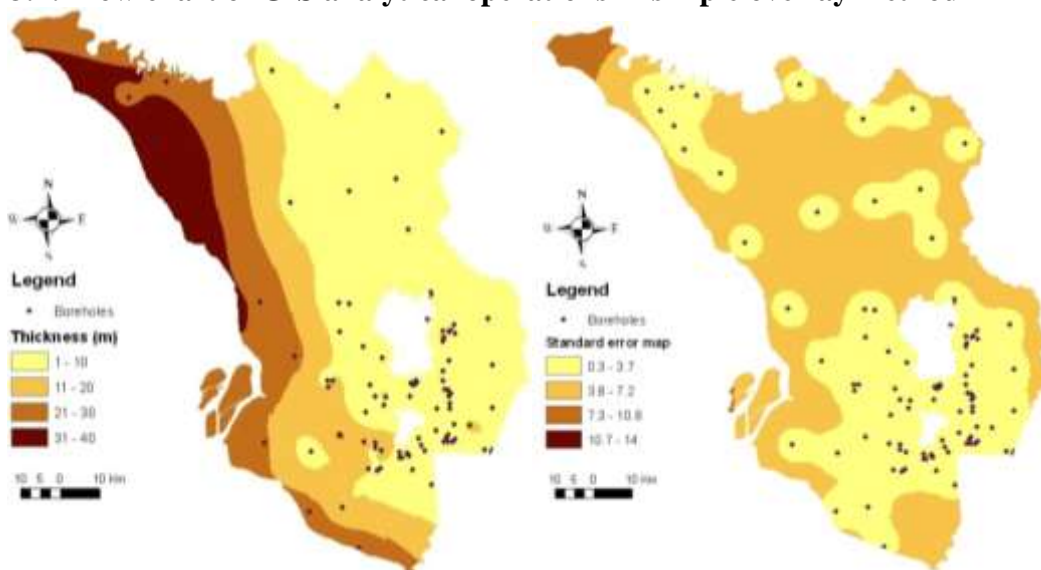**Figure 3.2: Flow chart of GIS analytical operations in simple overlay method**

Figure 3.3: The clay thickness interpolation with kriging method and the standard error map of the interpolation
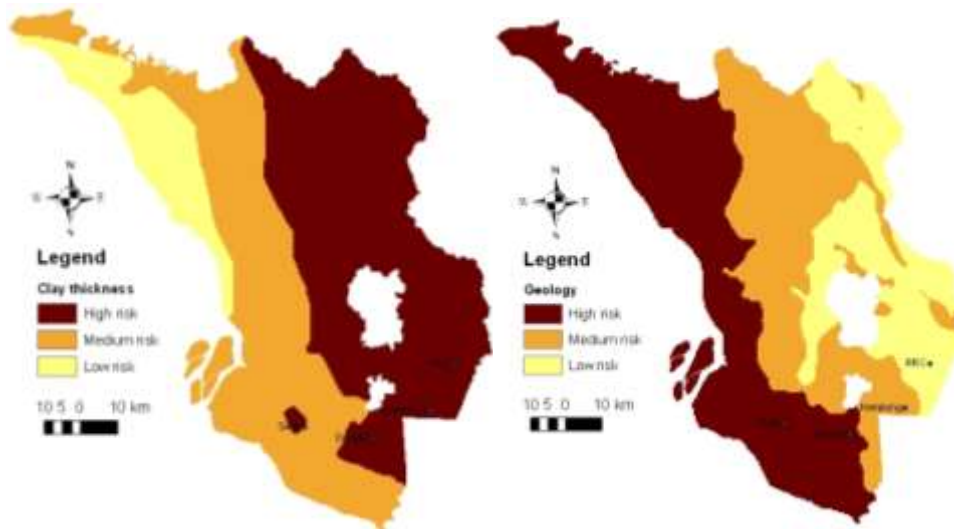
Figure 3.4: The clay thickness and geology map were reclassified as high risk, medium risk and low risk
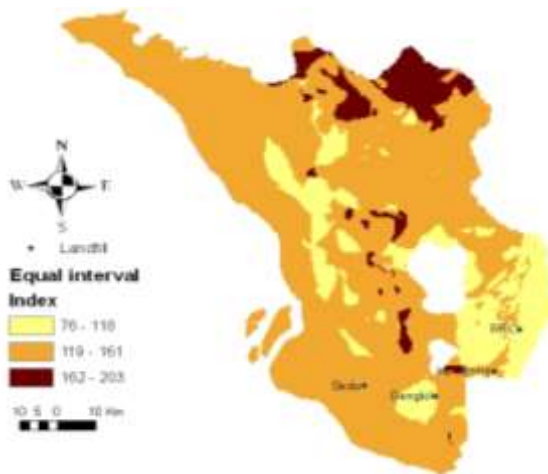

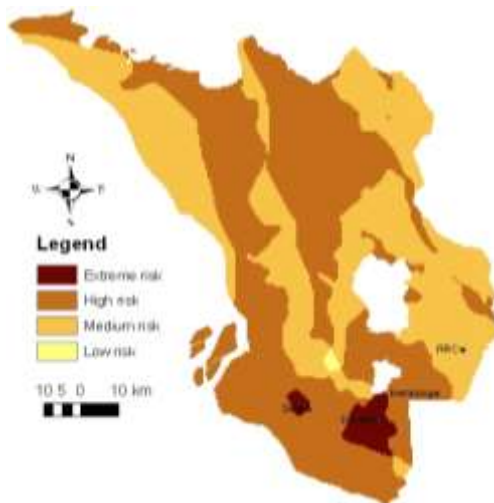**Figure 4.1: Groundwater vulnerability map with DRASTIC**

Figure 4.2: The groundwater vulnerability maps with simplified overlay version

The Yemeni uprising in Malaysian English Newspapers: War and Peace Journalism Perspectives

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Abstract

Bilateral relations between Malaysia and Yemen are developing in various fields. This study attempts to investigate how the Malaysian media, precisely the English newspapers, *New Straits Times* (*NST)* and *The Star* reported the Yemeni uprising in 2011. Three months were selected from September to November 2011 as the time frame of the study as the researchers believe that the events in this period of time reached the peak in Yemen. The analysis of the news items showed that there are no significant differences between *NST* and *The Star* in the extent of coverage on Yemeni uprisings in terms of number of the articles devoted to the Yemeni uprising, the type of the news stories, location of the news item and the size of the articles by words. Overall, the war journalism frame was more dominant than peace journalism in the coverage. The two Malaysian English newspapers used the foreign wire service in their coverage of the Yemeni uprising. The researchers recommend exchanging correspondents and media programs between the national news agencies of the two countries in order to enrich and provide the newspapers with a wide variety of news for more communication and better understanding for each other.

Keywords: Framing Theory, Malaysian media coverage, peace/war journalism, Yemen uprising

I.   Introduction

A number of civil unrests have taken place in the Arab World since January 2011. Media have circulated what later became known as the "Arab Spring" or "the Arab Awakening" and sometimes the "Arab Uprisings". These events urged reforms to economic injustices and exploitation and getting rid of long term authoritative and dictators. Nations have demanded reforms after years of control by the various regimes in the Arab world. They took to the streets protesting and demonstrating their rights to better lives, but the governments retaliated with such force which resulted in people's demand for these regimes to step down. Tunisians initiated the revolution process where riots over critical economic situations and the way the government retaliated led to the removal of president Zine al-Abidine Ben Ali on 14 January after 23 years ruling.

The massive demonstrations in Egypt which took about three weeks resulted also in the removal of president Hosni Mubarak after 30 years in the office, and after the trail he was sentenced to jail for life. The Egyptians moved toward the democratic transition by running the presidential elections. The same situation was formed in several countries in the region, including Yemen, Oman, Bahrain and most importantly, Libya, as the situation there was described as bloody clashes between the government and opposition forces which had left hundreds of people dead, as well as the death of Muammar Qaddafi on October 20, 2011 after 33 years in power.

It can be argued that this historical momentum had sped the succession of new leaders or governments across so many countries. The arguments would point at the different ways in which media and communications operate during these events and how the stories about the Arab Spring were told. The new social media have played the major role in disseminating these actions with no limitation to the degree that these events have been labeled as the 'Twitter Revolutions' or 'Facebook Revolutions.' But does that mean to underestimate the role the tradition media might have during these events and how they frame what was happening in the Middle East. There are factors play role in urging media to cover the wars or conflicts beside the news values. Among these factors the political and economic relations between the countries which might affect the way the conflict is presented. In this study the mutual relations between Malaysia and Yemen sparked the researchers to study how Malaysian newspapers report the uprisings in Yemen.

II.   Background of the Study

According to the United Nations Development Program report (UNDP) in 2010 Yemen has the fourth lowest Human Development Index ratings in the Arab world after Sudan, Djibouti and Mauritania. The country is rampant with various conflicts, rebellion in the North Part *Shia-Houthi* based-religion conflict, secessionists in the South Part want to restore the old South Yemen as well as al-Qaeda in the Arabian Peninsula. Saleh was the Yemen's president for more than 30 years, and many believe that his son Ahmed was being groomed to replace him. Yemen according to international measurements is the poorest country in the Arab World with high rate of unemployment, inflation and poverty. Almost half of the populations of Yemen live on two U.S dollars or less a day; and one-third suffers from food shortage. According to the Transparency International 2010 Corruption Perceptions Index, Yemen ranks 146th and in the 2011 Failed States Index it was ranked 13th. Furthermore, the Yemeni legislative assemblies are weak, military interference in politics is common and there are areas where the tribes and non-state actors hold power more than the official authorities (Hill, 2008). Therefore, the uprisings in 2011 were just public demonstration, anger and rejection of current situations. There was a derive to overthrow the regime which was inspired by the other Arab

uprisings and ended with the implementation of the Gulf Cooperation Council (GCC) initiative in attempting to help the country to go through its political chaos.

III.   Statement of the Study

The 2011 Yemen uprising followed the initial stages of the Tunisian Revolution and occurred in consistence with the Egyptian Revolution and other mass protests in the Middle East in early 2011. In its early phase, protests in Yemen were basically against deteriorating situations; unemployment, economic conditions and corruption, as well as against the government's proposals to modify Yemen's constitution based on separation of powers and the possibility of allowing the Yemeni president "in theory" to rule for life. The government responded by a crackdown of the protests, consequently the protestors' demands escalated to call for former Yemeni President Saleh to resign. Later, mass defections from the military and the government effectively split much of the country out of the government's control and the protesters vowed to defy its authority.

Ironically, the Yemeni streets until the present moment are divided between pro-former regime and anti-new government and vice versa. The former government responded to the protests by sending large number of security forces with very strict measure and anti-riot forces. The turmoil escalated in all Yemen after Saleh refused to accept the opposition groups' proposal which called Saleh to leave the office peacefully. Since the upraising took place on 11 February 2011, March 18 represented the crossroad when according to some media sources there were 52 shot dead in Sana'a while others said 45 people. This incident resulted in raising the ire of the public and some of the government officials responded in the form of mass resignation and the declaration of the state emergency as well international condemnations. Accordingly, six of Yemen states were out of the government control.

In early March 2011 protests and violence across the country intensified in the wake of the second refusal of Saleh when he said that the Gulf Cooperation Council's (GCC) deal did not require his signature and then was accused by the opposition that he was negotiating in bad faith. After that the tribesmen joined the demonstrations and declared their support including Sheikh Al-Ahmar who worsens the situation with his allies by dividing the capital Sana'a into two parts, one under his orders and the other one under the security forces or *humat al Shariyah (the protectors of the legacy)*. On Friday 3 June 2011 an assassination attempt targeted at the presidential palace left Saleh severely injured and some of the top government officials wounded, one of whom died later (the chairman of the *Shura'a* Council Abdul Aziz Abdualgani).

They were attacked when they were praying at the mosque inside the palace compound. Saleh and the other victims flew to Saudi for treatment from the attack. During the time Saleh was receiving treatment the situation remained the same, shelling in the capital, killing between Al-Ahmar with his allies, the strong man in the country Ali Mohsen Al- Ahmar a former ally of the president and his half-brother, and the security forces and Republican Guards. The situation escalated and worsened with the return of Saleh on 23 September 2011 after 3 months in Saudi. Minutes after the Yemeni national TV announced the returning, a state of turmoil increased and gun battles took place in the streets of Sana'a causing more than 100 deaths within a week. On 7 October 2011, one of protests' leaders *Tawakul Karman* shared the Nobel Peace Prize with Liberian president *Ellen Johnson Sirleaf* and Liberian activist *Leymah Gbowee.* She was the first Yemeni citizen and the first Arab woman to win a Noble Prize.

To end this tragedy on 23 November 2011, Saleh flew to Riyadh in Saudi Arabia in Saudi to sign the Gulf Cooperation Council plan for political transition, which he had previously refused three times. The deal was to transfer the office and powers of the

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presidency to his deputy, Vice president *Abdu Rabbo Mansour Hadi* within 30 days according to the Yemeni constitution. Saleh said he would fly to New York for further treatment but he did not do so.

From the aforementioned presentations the researchers have noticed that the Yemeni uprisings escalated on certain dates and might have attracted the attention of Western media as the rest of the uprisings in the Arab world with different level of news coverage based on various interests. The researchers argue that Yemen is not like other Arab countries which had the same uprisings and ended after certain period. Even the Libyan civil war which had attracted the most media attention was predictable. It has been assumed fairly certain by some analysts that Tunisia and Libya will be democracies like India or Indonesia, Italy or Ireland. That was proven by the impressive way the ordinary Tunisians did in practicing and holding on to democracy. Tunisians understand that as it is not just about elections but it is about respect for the law, for the freedom of expression, and for minorities. In Libya too, there is a determination to be democratic. In Yemen until the day of writing this paper no one can predict the outcome of the uprisings as well as the new political scenario, even though Saleh stepped down and all the opposing sides signed the GCC deal. Therefore, the events in Yemen might gain media attention as well as the International Community concern because of al-Qaeda activities in the Arabian Peninsula mainly operates in Yemen. Thus the political instability and insecurity in Yemen provide Al-Qaeda with space to extend its activities in the southern part and establish what they called Islamic rule (Day, 2010; Boucek, 2011).

Reporting the uprisings may reflect the concern and growing relations between Yemen and other countries politically, economically, and so forth. Therefore, the researchers are interested to know how the Malaysian media reports on the 2011 events in Yemen as the two countries have good relations dating centuries until now. There are 849 Malaysian students in Yemen and around 5000 Yemeni students in Malaysia. The Malaysian Ambassador *Abdul Samad Othman* to Yemen said in an interview with the (*Yemen Times,* 2009, August 31)

"Malaysia enjoys truly very close, constructive, dynamic and active bilateral relations with the Republic of Yemen for a long time. Our relations have started hundreds of years ago when many *Hadramis* made the voyages to the East not only for trading but also spread the faith of Islam to Southeast of Asia. Therefore you can find so many Southeast Asians of *Hadramout* origin live in Malaysia, Indonesia, Singapore and in other countries in the region. For that, we must thank our great-great grandparents from Yemen who brought the light of Islam and introduced it to all of us in Southeast Asia," (*Yemen Times,* 2009, August 31).

The researchers chose to study this issue because the uprisings in the Arab World have dominated the political media for a long period of time and we have seen how these revolutions have been reported from various media sources. The concern of conducting this research has been motivated by the cooperation between the two countries in various areas such as economic and educational relations and the will of the two countries to extend their cooperation in other areas (Oudah, 2010). Media in this situation play very crucial role in presenting societies and realities particularly during the time of conflict or war. Therefore knowing how the Malaysian media have reported the conflict in Yemen which started in January 27, 2011 shortly after the Tunisian revolution will shed the light on the implementation of the decisions that have been made during the Yemeni Malaysian festival in 2010 in promoting and affirming the importance of the communication between the two countries, so people would have better understandings of each other as was stated by Ali Alattas the president of the Chamber of Commerce and Industry of Malaysia (Oudah, 2010).

IV.   Objectives of the Study

The study aims to investigate:

1- The extent of reporting on the 2011 Yemeni uprising by the Malaysian newspapers *New Straits Times (NST)* and *The Star*.
2- The news sources used by the newspapers.
3- The use of peace journalism framing compared with war journalism framing in the coverage of the Yemeni uprising by *NST* and *The Star*.

V.   Research Questions

For the purpose of this study the following questions are raised

RQ1- What is the extent of reporting on the 2011 Yemeni uprising by *NST* and *The Star*?

RQ2- Who are the news sources that the *NST* and *The Star* used in its reporting on the Yemeni uprisings?

RQ3- How does peace journalism framing compare with war journalism framing in the coverage of the Yemeni uprising by *NST* and *The Star*?

VI.   Significance of the Stduy

History is one of the ways to indicate the deep relationship between Yemen and Malaysia which dated back to the late 17th Century when Islam established its roots in the Malay society by *Hadrami* migrants. The Yemeni *Hadrami*is were majority traders and Islamic scholars settled in Malacca during the first Malay sultanate (Tang Abdullah, 2009). A number of well known *Ulama*, philosophers, novelists, politicians and businessmen who have descended from Yemen specifically *Hadramut* faded in the Malay society and proudly call themselves as Arab-Malaysian due to the intermarriage relations (Tang Abdullah, 2009, p. 56). Historians of the Malay culture and civilization have always acknowledged the crucial role played by Yemeni merchants, *Ulama* and *Muftis* in the Islamisation process which started among the Raja and the high strata of the Malays, converting the Malays into Islam (Tang Abdullah, 2009, p. 56)

In the present time meetings, seminars and other activities have gathered Malaysian and Yemeni visions and shed the light on the growth and prospects of Malaysian and Yemeni economic, media, and education relations. The Malaysia officials emphasized on the convergence between Yemeni and Malaysian folklore, stating that about 300 thousands Malaysian families have Yemeni roots (Oudah, 2010). This depth of the Malaysian Yemeni historical ties are reflected in the continuous exchange programs and relations between the two countries in various fields. Therefore the Chairman of Malaysian Chamber of Commerce *Ali-Alattas* stressed in a meeting with the Yemeni officials the necessity of enhancing the communication between the two countries for future investment projects. In his part the Yemeni Foreign Minister described the intention of the Yemenis to benefit from Malaysian experiences. Hence the two countries followed their decisions to promote their respective official news agencies, SABA and BERNAMA by exchanging news between the two agencies. In this regard the officials stated that through bilateral relations the people of Malaysia and Yemen would have a better understanding of each other, as well as enabling them to know more about each other's country. The researchers assume that the findings of this study will provide useful information about the extent of media cooperation between the two countries.

This study is able also to provide the insight of the orientation of the mainstream Malay newspapers toward issues in Yemen. The result of this study would provide better understanding of how events, conflicts or issues in the two countries should be reported based on the historical background and culture, and what are the future plans for more media cooperation in general and during conflicts in particular. The researchers also suggest further research to know how the Yemeni media present the Malaysian issues, problems or conflicts within the cooperation framework between the two countries.

VII.   Theoretical Framework

This paper relies on two theories to construct its theoretical framework: Framing Theory and Peace / war journalism approach.

Peace/War Journalism

In the social reality, media on one hand contribute in introducing specific topics into the public discourse based on the assumption of agenda setting, and on the other hand, by presenting these topics as is suggested by framing theory, media is supposed to promote a particular problem definition, casual interpretation, moral evaluation, and /or treatment recommendation for the item described (Entman, 1993). Similarly, Johan Galtung the political scholar is the first who proposed the concept of peace journalism when he criticized the 1970s media coverage that glorified war (Lynch & McGoldrick, 2006; Shinar, 2009). For Galtung, peace journalism and war journalism are two competing frames in reporting a war or conflict. He has given the example from health journalism when a condition of a patient of cancer which would describe the possible causes such as lifestyle, environment, genetic makeup as well as the possible treatment and future preventive measures (Yang, 2009). Since then peace journalism has developed into philosophical framework and collection of framing techniques by Jake Lynch and Annabel McGoldrick and others. According to Shinar (2009) this approach has been criticized due to its conceptual and practical weakness and the need to strengthen its methodology and empirical validation.

The proponents of peace journalism approach by Lynch & McGoldrick (2006) define peace journalism by saying "it is when editors and reporters make choices of what stories to report, and how to report them - which create opportunities for society at large to consider and to value non-violent responses to conflict". Another advocate to this approach modified Lynch & McGoldrick's definition by saying "peace journalism is when editors and reporters are aware of the contribution to the construction of reality and their responsibility to give peace a chance" (Kempf, 2011). According to Lee & Maslog (2005); Pamplona, (2010) although it is the three decades since peace journalism had emerged, but it has not attracted neither the attention of the researchers nor the journalists in a world racked with crises and conflicts on one hand and on the other hand they also stated that peace journalism made a jump from theory to practice without the benefit of research.

The founder of the peace journalism approach, Johan Galtung classifies war journalism and peace journalism based on four practice and language orientations; peace / conflict, truth, people, and solution orientation. In comparison with war journalism approach which is oriented in war /violence, propaganda, elites, and victory. It was stated that in practicing the approach of peace journalism, the journalists are required to focus on the possibilities for peace when the conflicting parties might have an interest in hiding. Most importantly is focusing on people/ victims /civilians, and giving them voices besides revealing the unseen and presenting all sides (Ottosen, 2008; Onduru, 2008).

Pamplona (2010) mentioned that Galtung also stressed on a very important point in reporting the conflict which is taking a preventive advocacy stance. That means that the journalist should urge reconciliation in their reports and focus on common ground rather than vengeances, retaliation and trying to reveal the hidden effects of the violence e.g. damage to the social structure and culture as well as promoting conflict solutions, tone down differences, creates empathy and understanding as well as reporting as he/she sees (Lynch & McGoldrick, 2000; Yang, 2009). In contrast, war journalism approach is oriented in war/violence, propaganda, elites, and victory. Galtung believes that the great deal of war journalism is based on the same assumption as sport journalism. It plays up conflict as an arena where participants are grouped starkly into two opposing sides ('them vs. Us') in a zero-sum game and focuses on the visible effects of war (casualties and damage to property) or just reporting the facts as the way it is   (Lynch & McGoldrick, 2000).

Yang (2009) argues that peace journalism is a moral and ethical way of framing the conflict stories. He stressed on the commitment to the idea of civic participation, the understanding of social justice as a moral imperative and the view that the value and sacredness of the individual are realized in and through communities. Therefore, peace journalists should be consistent and conscious in practicing peace journalism and create a setting in which the causes of and the possible solution to the conflict become transparent.

Framing theory

To know how others are presented by other's media, framing theory is very important in this regard. The concept of framing like other concepts in communication research has become visible in the public discourse, especially that of media critics, politicians and campaign insiders (Tankard, 2001). The origin of framing concept has been borrowed from the field of cognitive psychology and social psychology (Galander, 2008). According to Lee & Maslog (2005) peace/ war journalism approach is theoretically supported by the framing theory. Gitlin in 1980 defines media frames as "persistent patterns of cognition, interpretation, and presentation of selection, emphasize, and exclusion by which symbol-handlers routinely organize discourse whether verbal or visual (cited in Saleem, 2007). Hence, focusing on some selected aspects of an issue, particular trains of thought of viewers and readers can be switched to be in the front of their consciousness, by that affecting their cognition towards certain issues (Price *et al*. 1997). In the same manner Entman (1993) went on saying framing is all about selection and salience and for him to frame is "to select some aspects of a perceived reality and make them more salient in a communication text, in such a way as to prompt a particular problem definition, causal interpretation, moral evaluation, and or treatment recommendation for the item described" (p. 52).

VIII.   Literature Review

The year 2011 was the year that witnessed political changes in the Arab world and it became a major media event. Many papers have been investigating the media narratives on the Arab Spring, more specifically the social media such as Facebook and Twitter. These new media are the tools that disseminated the daily events despite being banned in some of the Arab countries such as Egypt. It was also the interest of some papers to examine the foreign policies of the west towards the Arab world using their media coverage. For instance, a study by Salaita (2012) examined the coverage of the Arab revolutions by the corporate American media *The New York Times* online and *The Washington Post*. He has found that between September 20, 2011 and December 20, 2011 *The New York Times* reported 67 articles on Saudi unrest, 169 articles on the Syrian unrest, and 39 articles on Bahrain unrest while *The Washington Post* devoted 14 on Syria unrest, 11 on Bahrain and 6 on Saudi. Salaita stated that the corporate

American media covered the Arab uprisings from the point view of the American state interests or in other words, from the point of view of the western corporate interests. He added that the American media have consistently offered special story telling about the Arab World and the revolutions which would impact in some ways towards the well-being of Israel.

The political changes in the Middle East have evoked controversy over the interaction between the traditional and social media as news sources. According to Hermida et. al (2012) the news sources are a critical element in the practice of journalism as it shapes from whom journalists get their information and what type of information they obtain. To understand the influence of news sources better, a study was also conducted on the use of news sources by the National Public Radio's Andy Carvin on Twitter during the key period of the 2011 Tunisian and Egyptian uprisings (Hernida et. al, 2012). They found that the interaction between journalists and news sources is a significant factor in affecting what and who makes the news and the sources help to shape how events and issues are reported, influencing the public's understanding of the world. In their turn Thurman and Walters (2012) studied the use of the live-blog format at *The Guardian* newspaper. They found that journalists relied on known sources with which they had developed a relationship.

The mass media play a crucial role in constructing the image of various societies and their people, in other words public make up their minds based on what is presented by the journalists (Saleem, 2007). Somehow peace / war journalism approach has made a leap from theory to practice although it did not attract the attention of researchers or journalists. There are a few studies in which they attempt to contribute to this approach by identifying to what extent this approach is applied in news media coverage on wars or conflicts. For example, Lee & Maslog (2005) examined four Asian regional conflicts including India, Pakistan over Kashmir, Sri Lanka with the issue of Tamil Tiger Movement, Aceh and Maluku civil wars in Indonesia and the Mindanao Separatist movement in the Philippines. They investigated whether these conflicts were framed as war journalism or peace journalism based on Johan Galtung's classification. Their findings were that the coverage of the four Asian conflicts was dominated by the war journalism framing in general by the Indian and Pakistani newspapers whereas the coverage of Tamil Tiger movement in Sri Lanka and Mindanao Separatist movement in Filipino newspapers revealed that they were encouraged by peace journalism framing. In a way the dominance of the war framing can be explained due to the nature of the news coverage of conflict or war as it is always about violence and winners and losers etc. The three most salient indicators of peace journalism were the avoidance of demonizing language, a non-partisan approach, and a multi-party orientation. The war journalism frame was supported by a focus on the here and now, an elite orientation, and a dichotomy of good and bad.

Lee and Maslog (2005) also found that although there were promising signs in the use of peace journalism frames in countries such as Sri Lanka and the Philippines, but the pattern of war/peace journalism indicators revealed that the peace journalism framing was highly dependent on the criteria of a less interventionist nature and were mere extensions of the objectivity credo. The researchers stressed that these indicators did not truly exemplify a strong contributory, pro-active role of journalists to seek and offer creative solutions and to pave a way for peace and conflict resolution. In addition to that they demonstrated that not many peace journalism stories were supported by a people orientation.

Kaewtipayanate (2008) investigates the media practices of two Thai popular English newspapers: *The Bangkok Post* and *The Nation* in covering the Tak Bai conflict incident. The study has applied the Critical Discourse Analysis to analyze the representation of the conflict, and the Peace Journalism model in the media text, practices and socio-cultural practice. The

study found that the journalists of two newspapers faced a limit of freedom of expression and access to the local sources. In the text level of the two papers, it has been found to have discursive features including passive voice without an agent, words in passive form and lexical choices that convey dominant meaning. The researcher found in the CDA and interview analysis that the two papers have their selective way of presenting the voices which include truth-oriented and people-oriented aspects. The study also discovered that the two papers used authority voices as their sources as well as the voices of the local victims and human right activities in presenting the news.

Similarly, by using the same approach Pamplona (2010) studied the Filipino newspapers' coverage on conflict reporting. He pointed that in general to the ethnic conflict in the Philippines and precisely noted that the Mindanao conflicts do not stand a chance of being covered effectively, sensitively and fairly by the mainstream media. This is due to the fact that mainstream media was a participant in the ethnic denial by not lending them a voice and setting them up for persecution and dispossession. The findings of Pamplona's study found that the *Mindanao Times and Philippines Daily Inquirer* reported more in social conflict than religious or political conflicts. It also found that the two Filipino newspapers extensively report the conflict in general news feature rather than opinion pieces. In the indicators of the peace/war journalism, it was found that the prominent indicator of peace journalism was solution oriented whereas war journalism was violence oriented.

A study conducted in 2004 by the University of Tadulako's Research Center on Peace and Conflict in Indonesia analyzed the role of media in the conflicts. The study came out with three classifications for media role in conflicts as: 1) media as conflict trigger; 2) media as conflict concealer; 3) and media as conflict resolver. This study stated that the mainstream including both newspapers and radio stations present significant potential to become a conflict trigger due to their commercial orientation and poor professionalism. During the conflict in Poso, the study found that the media unintentionally contributed to violence. The printed news was used as references by many of the parties to the conflict. For instance, the media unconditionally quoted interview from only one side and included religious sentiments which colored the news coverage. As a result of the huge space of media freedom given by Wahid, the media reporting of the Poso conflict were imbalanced and did not have the principles of journalism.

In conclusion and as we can see from this short modest view of literature in regard to this new approach in practicing journalism, these two different peace/war frames of journalism need not be recognized by only the journalists as they are who design the news story but also media people as a whole need to be aware of the consequences of using media in promoting meanings, tone or language which might be hidden behind words and trigger violence because the public are not passive but they respond to the media and become involve in various ways accordingly.
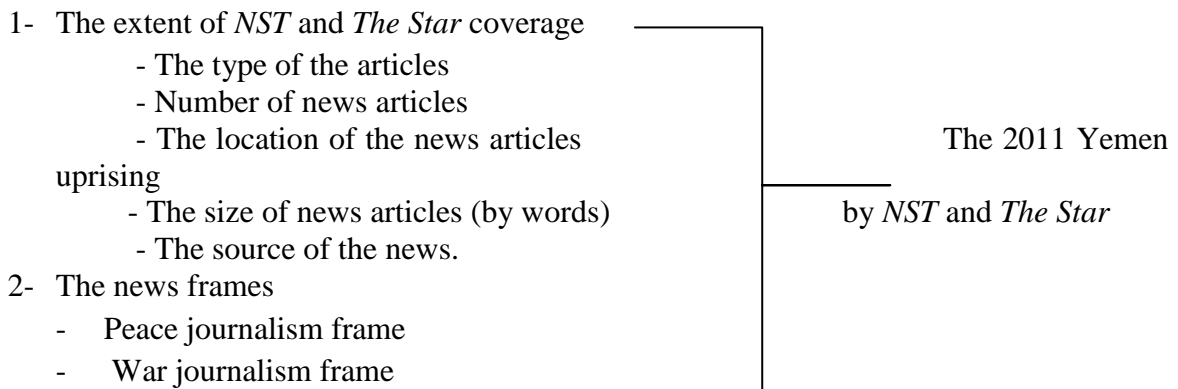
IX. Methodology of the Study

This study is based on a content analysis of the two major Malaysian newspapers *New Straits Times* and *The Star*. According to Audit Bureau of Circulations, Malaysia 2009-2010 and Nielsen Media Index 2011 *NST* is one of the daily English language newspapers with a readership of 214,000 and circulation of 109,341 while *The Star* has the largest circulation in Malaysia, its daily circulation between 290,000 to 300,000 and its readership is 1,024,000. The researchers had selected these newspapers for the above reason. The researchers chose to study the period determined for three months beginning September, October and November 2011 which assumed that the uprising in Yemen had reached the peak, more specifically after the

former president Saleh returned home. Therefore the articles that are related to the Yemeni uprising will be analyzed. The unit of analysis that is usually used for analyzing newspaper's content is the news articles either in terms of single article or news items; editorial, straight news, and opinion piece and letters from the readers to test particular hypotheses. Since the sample is small, the researchers suggest conducting interviews with some journalists from the two newspapers to enrich the research.

This paper investigates the coverage of the *NST* and *The Star* on the 2011 uprising in Yemen. The sample of the news article is taken from September to November because the researchers assume that this period witnessed the peak of the revolutions across the country, more specifically after the former president Saleh returned home and his rejection in stepping down and signing the GCC proposal for several times . The independent variables and dependent variable will be measured as follows:

The independent variable   **Dependent variable**

1- The extent of *NST* and *The Star* coverage
      - The type of the articles
      - Number of news articles
      - The location of the news articles   The 2011 Yemen
uprising
      - The size of news articles (by words)   by *NST* and *The Star*
      - The source of the news.
2- The news frames
  -   Peace journalism frame
  -   War journalism frame

By operationalizing Galtung's (1986, 1998) classification of war and peace journalism, this study measures the framing of the 2011 Yemeni uprisings by Malaysian newspapers *The Star* and *NST*. The coding categories for frames involved seven indicators of peace journalism and seven indicators of war journalism.

X.   Findings and Discussion

The study discussed the coverage of two Malaysian newspapers *NST* and *The Star* on the Yemeni uprising from September to November in 2011 (the time the uprisings reached the peak) by using the Johan Galtung's theoretical model and his classification of war journalism and peace journalism.

Based on the time frame of the study and to number the articles that were produced during the selected period of the study (90 days), it was found that the total number of the articles in the 90 days reported on Yemeni uprising was 53 articles, 28 stories were reported by *NST* and 25 stories by *The Star*. The content of the articles also varied between reporting the uprisings and other events such as al-Qaeda militants in Yemen and the cooperation between the Yemeni government and the US to overcome their threats. The articles from the two papers were located in the world news section where all news from outside Malaysia is reported, for instance in regard to the news on the Arab uprisings news. The civil war in Libya occupied most of the news space in the two newspapers followed by Syria.

Almost all the articles were straight news stories. No other type of news stories such as columns, opinions, etc was found because these types are only found in national affairs. As the Yemeni uprising was one of the revolutions based- Arab Spring which rocked the Arab world the early of 2011, it was found that *NST* covered (28 articles) more than *The Star* (25 articles). The articles in the two newspapers are located in the world section. We can say that it is normal in the way newspapers divide or design their sections where the national affairs occupied the front pages as their most salient news. By examining a newspaper it can be seen that every section can stand-alone or physically separated of the paper and by looking at the front page of each section that could tell the readers which of the news is more prominent. That can be applied in the world section of the two newspapers if we examine the front page and indicate what international news is important to be covered or not, which is not our concern in this study.

On one hand the researchers noticed that when the revolution and violence in Yemen escalated, the news occupied the first page of the world section. On the other hand the coverage of the Yemeni activist *Tawakul Karamn* who received the Noble Prize with the two women from Liberia illustrated with picture filled the first page of the world section. That can be interpreted that the publisher of the paper was trying to balance the coverage interchangeably between peace and war frame. Furthermore, the big size of the Arab Yemeni activist's photo comparing with the other winners during the events also states the positive attitude of the papers towards the Arab springs in general and the Yemeni in particular as priority events and as it is said that pictures speak a thousand words.

As the relationship between the two countries is dated centuries back and growing over time, that in a way indicates that Malaysian newspapers should be aware of what the public needs to know about what is going on as Yemen is considered hot spot of conflict, particularly for those who might be affected by the uprising such as students, businessmen, parents etc. It has been noticed that there is no media cooperation between the Ministry of Information, Communication and Culture in Malaysia and the Ministry of Information in Yemen as was recommended by the two governments for better communication and understanding between the two nations (Oudah, 2010).

That can be proved in Table 1, when the two papers depend on the foreign wire services for their news. *The Star* published more articles produced by the Associated France Press (AFP) twelve (48%) while *NST* produced eleven (39.3%). Reuters was used by the two papers *NST* and *The Star*, seven (25%) and five (20%) respectively. Associated Press (AP) six (24%) by *The Star,* two (7.14) by *NST*. Four (14.3) articles were published by the *NST* produced by a combination of agencies. *The Star* published one story (4%) by %), European Press Photo Agency (EPA) and one other story by AP/AFP (4%) and lastly four (14.3) articles with no news sources. Overall in this study articles were produced by the foreign wire services namely Associated France Press (AFP) twenty three (41.5%), Reuters twelve (22.6%), Associated Press (AP) eight (15.1%), Agencies (news from more than one agency or a combination of two or more agencies) four (7.55%), European Press Photo Agency (EPA) only one story (1.89%), AP/AFP one story (1.89%) and four other news stories were without news sources. In Table 2, it shows that the maximum size of news articles by *NST* was 697 words and the minimum was 23 words, while the maximum size by *The Star* was 444 words and the minimum was 39 words. On an average, *NST* published 360 words, SD 476.62 and *The Star* 242 words, SD 286.38. The SDs are bigger than the difference between the means 118 words, which means that the difference is not significant, as such *NST* devoted more space than *The Star* on the account of the mean score.

Table 1. News Source

	NST	*The Star*
AFP	11 (39.3%)	12 (48%)
AP	2 (7.14%)	6 (24%)
Reuters	7 (25%)	5 (20%)
EPA	0.00	1 (4%)
AP/AFP	0.00	1 (4%)
Agencies	4 (14.3%)	0.00
No sources	4 (14.3%)	0.00
Total	28 (100%)	25(100%)

Table 2. Number of words

	NST	*The Star*
Min	23	39
Max	697	444

Table 3. Indicators of War Journalism and Peace Journalism

	Frequency %		
War Journalism Approach	*The Star* N= 25	*NST* N= 28	Total N=53
Reactive	0.00	1 (3.6%)	1 (1.89%)
Visible effects of war	14 (56%)	18 (64.3%)	32 (60.4%)
Elite-oriented	0.00	1 (1.89%)	1 (1.89%)
Differences-oriented	0.00	1 (1.89%)	1 (1.89%)
Focuses on here and now	6 (24%)	3 (10.7%)	9 (16.9%)
Dichotomizes the good and bad	0.00	1 (1.89%)	1 (1.89%)
Zero sum-oriented	0.00	0.00	0.00
Total	20 (80%)	25 (89.3%)	45 (84.91%
Peace Journalism Approach			
Proactive	0.00	0.00	0.00
Invisible effects of war	0.00	0.00	0.00
People-oriented	0.00	2 (7.1%)	2 (3.8%)
Agreement-oriented	3 (12%)	1 (3.6%)	4 (7.55%)
Causes and consequences of war	1 (4%)	0.00	1 (1.89%)
Avoids labeling of good and bad	0.00	0.00	0.00
Win–win orientation	1 (4%)	0.00	1 (1.89%)
Total	5 (20%)	3 (10.7%	8 (15.1%)

Table 4. Distribution of war and peace journalism frames across two Malaysian newspapers

Newspaper	Frame		N
	War Journalism	Peace Journalism	
The Star	20 (80%)	5 (20%)	25 (100%)
New Straits Times	25(89.3%)	3(10.7%)	28 (100%)
Total	45(84.9)	8(15.1%)	53(100%)

Out of 53 stories, forty five stories (84.9%) were framed as war journalism, compared to only eight stories (15.1%) framed as peace journalism. Overall, in this small sample, the war journalism frame was more dominant than peace journalism. Hence, based on the distribution of war and peace journalism frames in the newspapers as described above, we conducted a chi-square analysis to compare the occurrences of the two frames within each newspaper. The result shows that war journalism frame was significantly higher than peace journalism frame in the *NST* x^2(1, n=28) = 0.889, p=3.841. However, no evidence of a significant difference was found between war and peace journalism frames in *The Star* newspaper x^2 (1, n=25) = 1.960, p=. 162.

Based on a frequency count of 45 stories, the two most salient indicators of war journalism were visible frame of violence (60.4%) and focus here and now (16.9%). By the indicator of war journalism visible effects of violence, the stories focused on the results of the violence between the protesters and the security forces of the former regime such as causalities and damage to property. For example, *NST* reported "security forces yesterday killed 20 people, including three dissidents raising the death toll to 46 since Sunday". (*NST,* September 20, 2011). Through focus on here and now perspective war journalism the stories focus on what happened on the battlefield such as clashes, shells and so on by closed space and time.

The two most salient indicators of peace journalism, based on a frequency count of eight stories were agreement-oriented (7.55%) and people-oriented (3.8%). In agreement-oriented indicator, the stories focused on the attempts and agreements that the government, opposition and the mediators (UN and GCC) adopted as a resolution on Yemen's problems. Regarding people-agreement perspective the stories contained information about the sufferings of common people in the conflict and their viewpoints to solve the problem.

On one hand the stories of war journalism frame pointed to the uprising where the anti-government protests were reported, their challenge, demands and the heavy response by the regime were covered. On the other hand stories with peace frame, urged for solving the issue through negotiations and the submission of the former president to sign the deal and step down with conditions suggested by the US and GCC. These stories pointed at the resolutions, shedding light on the sufferings of common people, looking at the issue from a broader and contextual point of view, highlighted the roles of the all stakeholders and suggested ways and means to get the country out of this issue especially when the former president refused to sign the deal several times.

In conclusion, there are regions in the world where conflicts have become part of their daily life and so much need to be done to bring an end to the struggles faced. Journalists and media practitioners have a valuable role to play and can be instruments of change. Peace journalism frame as an opponent to the war journalism frame is not merely a necessity, but is the responsible way to report in the midst of conflict. As we can see from this study the stories were reported on Yemeni uprisings by foreign wire service as conflict spots had attracted the media attention but the matter is how to report this news. It has been said the

structure and the process of print and television news gathering and editing unavoidably affect the presentation and content of news that each country receives about the other. In other words, media help shape the images including the popular images of other nation as well as contribute in determining the nature of the bilateral linkage (Krauss, 1996). For a better or worse, journalists frame issues differently from one to another which means that if there were Malaysian correspondents in the midst of the Yemeni conflict, the coverage of the uprising might be different. They might understand deeply and report about the issue or conflict from different perspectives during the peace and war times. Journalists also shall produce more news items which concern the cooperation proactively in various areas which ensure the prosperity of the two close nations.

Hence, the researchers recommend an exchange of correspondents between the two countries as the relations between the two states in various fields are developing further as well as the media organizations in Malaysia welcome the cooperation and collaboration between the two countries.

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