

Fort Hare Papers

Volume 17, 2011

Fort Hare Papers, Volume 17

ISSN no 0015-8054

First published in 1945

This volume published in April 2011

Publisher

Govan Mbeki Research and Development Centre

University of Fort Hare

Private Bag X1314

Alice 5700.

Subscriptions

Subscriptions, orders and enquiries should be sent to:

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Understanding aphid–plant physiological interactions

Omodele Ibraheem, Runyararo M. Hove¹, and Graeme Bradley²

Abstract

The co-existence of phloem-feeding insects and plants offers an exciting example of a highly specialised biotic interaction. Aphids, the largest group of phloem feeders, cause extensive crop damage, leading to low crop productivity. Plants have developed complex but poorly understood defence mechanisms to defy the effects of aphid infestation. These defence strategies are essential for plant survival, as the sedentary nature of plants precludes movement away from the source of stress. On the other hand, aphids have developed several strategies that overcome plant defence, allowing them to feed, grow and reproduce on their host plants. This review discusses aphid physiological interactions with plants and the interaction of other ecological organisms in the aphid-plant co-existence.

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Keywords: Phloem-feeding, Parthenogenetic
Reproduction, Honey Dew, Resistant Genes,
Phytohormones, Protease Inhibitors

Introduction

Plants and insects are continuously interacting in the ecosystem in several advantageous ways, which include: shelter, oviposition sites, food supply for insects by plants and, on the other hand, insects help plants in pollination. Nevertheless, depending on the amount of insect attacks, insects might be tremendously harmful to plants, resulting in death.

There are two main groups of plant insect pests: the chewing insects and the piercing/sucking insects. The latter pierce cells/tissues with their stylets and subsequently feed on the plant sap. Some piercing and sucking insects feed on mesophyll cells, epidermal or parenchyma cells; others are phloem feeders (Walling, 2000). The phloem-feeding insects are highly specialised in their mode of feeding and they present a unique stress on plant fitness.

Aphids (*Hemiptera, Aphidoidea*) are a major group of phloem feeding insects; they are mostly temperate zone insects with about 4000 species worldwide (Dixon, 1998); of which 250 species are considered pests (Blackman & Eastop, 2000). Aphids feed by sucking plant sap from conductive tissue using their specialised slender stylet-like mouth parts to probe intercellularly through the epidermal and mesophyll cell layer, feeding on the photoassimilates contained in the plant's phloem sieve elements, weakening the plant (Walling, 2000). Aphids are averagely from about 1/16-inch (nymph,

newly born aphids) to ¼-inch (adult, giant winged aphid). They are pear-shaped and can easily be distinguished from other insects by a pair of tubular appendages of variable length called cornicles that protrude from the posterior ends. Detailed aphid description and life cycles are concisely reviewed in Dixon (1987; 1998) and Blackman and Eastop (2000). Using electrical penetration and radiolabelling studies, aphid behavior and the role played by their saliva during feeding have been extensively studied (Tjallingii, 1988 and 2005; Miles, 1999; Cherqui and Tjallingii, 2000; Will *et al.*, 2007).

The co-habitation of aphids and plants is very intriguing. Plants have developed efficient mechanisms to protect themselves against aphids, while aphids have found diverse ways of avoiding the negative effects of these defense mechanisms. Plant responses to aphid feeding usually vary from no visible effect to localized discolouring of leaf or stem tissues (chlorosis), to stem reduction of plant vigour, leading to plant death (Walling, 2000). This review seeks to address aphid physiological interactions with plants and the effect of other ecological organisms on aphid-plant co-habitation.

Plant wounding

Aphid infestations on plants are generally non-injurious at low levels; however, large numbers of aphids cause a lot of physiological changes, resulting in a number of

physically obvious symptoms. Plant cell damage can be moderate to extensive depending on the mechanics and vigour of aphid stylet probing and the effectors introduced by the saliva. Aphids have been investigated and are found to cause significant damage to economic crops such as wheat, barley, rice and oats.

Aphids cause localised discolouration of leaf or stem tissue, leaf curling, and reduction in plant height and weight, consequently leading to reduction of plant vigour (Messina and Sorenson, 2000; Botha and Matsiliza, 2004). They are also vectors of numerous pathogens that gain entrance into the plant cells/tissues through aphid infestation on the plants or through materials deposited in plant cells from saliva (Matthews, 1991).

The stunted and prostrate growth that results from aphids feeding on plants has been attributed to a drastic reduction in effective leaf area, subsequently interfering with photosynthesis (Burd and Burton, 1992; Botha and Matsiliza, 2004). Through their stylets, aphids inject phytotoxins into plant leaves, causing the breakdown of chloroplast and other cellular organelles and membrane (Burd and Elliot, 1996). In the chloroplast, the light harvesting complex II in the thylakoid membranes is mainly affected (Heng-Moss *et al.*, 2003).

Aphid infestation causes changes in resource allocation in host plants by diverting nutrients to their feeding sites. For example, pea aphids divert nitrogen from the

apical growth zones of alfalfa to their feeding sites (Girousse *et al.*, 2005), while spruce gall aphids feed all summer from inside the gall by sucking nutrients from the tree (Wool, 2004). Flow of nutrients to aphid-infested tissue is increased due to the creation of a strong sink in the infested organ (Girousse *et al.*, 2005). Contrarily, flow of nutrients to the natural resource-demanding sinks (i.e. the primary growth zones such as shoot tips, flowers, fruits and roots) is reduced. Sometimes this forces uninfested natural sink tissue into source tissues (Girousse *et al.*, 2005).

All stages of plant development and leaf maturity are susceptible to aphid attack to some degree, but aphid feeding on new growth results in the most visible plant responses. Botha and Matsiliza (2004) found that the difference in metabolites produced in resistant and susceptible wheat cultivars in response to aphid feeding results from the fact that aphids tend to probe more, but feed less when placed on resistant cultivars. This results in the formation of a greater number of lesions on resistant plants as opposed to susceptible plants. Therefore, the damage caused by cell punctures and the nature of salivary effectors will determine the defense-signalling pathways that are activated, and the metabolites and proteins that accumulate in the infested plant.

Aphids are known to modify plant morphology by forming galls (Wool, 2004). Gall formation and leaf

curling provide aphids with a sheltered environment, disrupting the normal plant growth and development. Although unattractive, galls caused by aphids do not cause particular damage, nevertheless, leaves with aphid-induced galls may fall from the plant earlier than non-infested leaves. Twig and stem galls usually persist for more than a year and can weaken stems and twigs, causing them to drop during storms. Galls commonly occur on leaves and stems, but also may occur on flowers, fruits, twigs, branches, trunks and roots.

Callose, a β -1,3-glucan, is the major substance produced by plants in response to wounds, and is largely produced in the sieve elements of phloem (Botha and Matsiliza, 2004). Its production has been attributed to elevated calcium ion levels utilising a mechanism involving calmodulin (Botha and Cross, 2001). Plant wounding results in the formation and deposition of callose in the neck region of plasmodesmata, regulating the pore size and possibly eventually blocking them completely (Botha and Matsiliza, 2004). Callose alters the size and exclusion limits of plasmodesmata, thereby primarily reducing the sap loss from the phloem.

Plant defence response

Plant defence response to aphid feeding has been an evolutionary struggle. At its simplest, the co-habitation between plants and aphids is a three-step process: firstly, aphids attack and exploit the plant; secondly,

aphids' exploitation reduce plant fitness, resulting in a selection for defence that spreads through the plant, and lastly, the effective defense decreases aphid exploitation by selecting for a defence strategy that can overcome aphid exploitation. Plants affect aphid feeding behaviour by changes in their chemical and physical properties, most often induced by aphid saliva, resulting in changes in plant metabolism and genes/proteins expressions. Therefore, the ability to detect and mount a defence response to potential pests or pathogens has been a vital characteristic of the evolution and developmental success of plants.

Plant defence against herbivory attack is grouped into constitutive and induced defenses (Kessler and Baldwin, 2002). An induced mechanism involves a systemic induction and synthesis of defense proteins that could act as toxins or have the potential to disrupt pest metabolism (Walling, 2000; Kessler and Baldwin, 2002). Constitutive defences are physical barriers such as lignification or resin production, an allelochemical that reduces growth and development, or a biochemical signal perceived by the herbivore, which act as deterrents of feeding or egg deposition (Bennett and Wallsgrave, 1994).

The resistance response of plants to aphid feeding is thought to be elicited mainly in the apoplast, where several defence-related products accumulate (Bowles, 1990). Interestingly, aphid phloem feeding on plants

has led to the induction of plant defense response pathways traditionally associated with pathogen resistance and wounding rather than insect resistance (Moran and Thompson, 2001). Recent physiological evidence indicates that signalling responses and resistance to pathogens and insects can overlap (Moran and Thompson, 2001). Thus plant response to aphids' infestation bridges the gap between these two sources of stress.

Activation of resistant genes

Resistant (R) gene mediated resistance allows certain genotypes of plants to identify and prevent pests that can surmount non-host resistance. Many induced genes appear to tackle the changes in physiological status imposed by aphid feeding, and defence-response genes are activated or suppressed (Thompson and Goggin, 2006). Several R-genes characterised by nucleotide-binding (NB) and leucine-rich repeat (LRR) motifs confer disease resistance by mediating recognition of specific effector proteins from pathogens (Chisholm *et al.*, 2006). This identification process triggers signalling cascades that rapidly activate plant defences, many of which are common to the slower basal defense response found in susceptible genotypes. Table 1 illustrates resistant genes that were activated in plants by aphid feeding based on early studies.

Figure 1: Activated resistant genes in plants by aphid feeding

Gene	Plant	Resistance To	Function	Reference
Mi1	Potato	Potato aphid; <i>Macrosiphum euphorbiae</i>	Gene-for-gene resistance	Vos <i>et al.</i> , 1998
Vat	Melon	Cotton-melon aphid; <i>Aphis gossypii</i>	Reduces aphid feeding and virus transmission	Dogimont <i>et al.</i> , 2003
Sdi	Apple	Rosy leaf-curling aphid; <i>Dysaphis devecta</i>	Reduces aphid attack	Roche <i>et al.</i> , 1997
Nr	Lettuce	Lettuce aphid; <i>Nasonovia ribisnigri</i>	Increases aphid mortality	Van Helden <i>et al.</i> , 1993

Research into the identification of the cascades activated by aphid resistance genes shows a high level of overlap with the network of chaperonins, phytohormones, kinases and reactive oxygen species (Lamb and Dixon, 1997; Moloji and Van der Westhuizen, 2006; Li *et al.*, 2006).

Activation of phytohormones

Aphids also induce transcripts associated with plant hormones known to modulate disease resistance, which are ethylene (ET), jasmonic acid (JA) and salicylic acid (SA) (Thompson and Goggin, 2006). They are known to control many biochemical signalling pathways, which may act antagonistically or synergistically in response to pathogens and pests (Koornneef and Pieterse, 2008). The ET, JA and SA networks also mediate with other phytohormones such as: abscisic

acid (ABA), gibberellic acid (GA), and auxin, and also with defense-signalling networks to provide the innate immunity to pathogens and pests (Koornneef and Pieterse, 2008).

Ethylene acts in concert with JA as a systemic signal of wound-induced gene activation, and accumulates upon plant wounding (O'Donnell *et al.*, 1996). It is known to induce the accumulation and synthesis of PR proteins such as: PR-1, β -1,3-glucanase, chitinase, phenylalanine ammonia lyase (PAL1), Hyp-rich glycoproteins, osmotin and other defence-related proteins (Boller, 1991; Deikman, 1997). Interestingly, ethylene has been implicated as a causative agent in increasing the severity of disease symptoms in plants. Correlations have been detected in levels of ethylene production and the development of chlorotic and necrotic symptoms (Boller, 1991).

In *Arabidopsis*, leaf wounding causes up-regulation of JA, which is produced by lipoxygenases (Bell and Mullet, 1993). Aphid feeding increases lipoxygenase mRNA levels in tomato; *lycopersicon esculentum*, suggesting that phloem feeding could involve jasmonate synthesis and signalling activity (Fidantsef *et al.*, 1999). Moreover, high mRNA levels of PDF1.2 (the gene encoding defensin, which have been shown to be involved in the JA signalling pathway) is induced upon aphid wounding (Walling, 2000). In plants, the JA pathway is implicated in a variety of stress conditions such as wounding, pathogen and fungal attack,

desiccation, osmotic stress, salt stress and nitrogen deficiency in plants.

SA is a key-signalling component in systemic acquired resistance (SAR); a defence mechanism that confers resistance to pathogens (Durner *et al.*, 1997). SAR confers resistance to plants by interfering with replication of pathogens and/or inhibiting their systemic movement in the plant (Durner *et al.*, 1997). The impact of SA and JA defence mutants on aphid population growth varies; JA-regulated defenses appear to be important in deterring aphid population expansion in *Arabidopsis* (Ellis *et al.*, 2002b). In addition, methyl jasmonate (MeJA) treatment of *Arabidopsis*, sorghum and medicago plants retards aphid population expansion (Ellis *et al.*, 2002b; Gao *et al.*, 2007), whereas SA induction has no effects on aphid population.

Aphids feeding on rosette leaves highly induce transcription of PR-1 (a pathogen related (PR) gene) and BGL2 (an acidic apoplastic form of β -1,3-glucanase) that are associated with salicylic acid (SA) dependent responses to pathogens. These two genes are good PR gene markers of SA-dependent induction in *Arabidopsis* (Rogers and Ausybel, 1997) and expression is correlated to SAR linked to pathogen infection. Aphid feeding induces PR proteins to higher levels in resistant than in susceptible cultivars (Van der Westhuizen *et al.*, 1998a). The plant response to aphids was found to be a typical hypersensitivity response

(HR) that includes the induction of intercellular β -1,3-glucanase, peroxidases and chitinases, closely resembling typical plant response to pathogen attack (Van der Westhuizen *et al.*, 1998b).

Green peach (GPA; *M. Persicae*) and cabbage (*B. brassicae*) aphids attack on *Arabidopsis* up-regulates pathogenesis related proteins and tryptophan biosynthesis, but genes involved in oxidative stress pathway like superoxide dismutase and peroxide genes and signalling pathway genes like alpha-dioxygenase and endo-transglycosylase were down-regulated (Moran and Thompson, 2001). In sorghum, green bug (*S. graminum*) aphid elicited an induction of salicylic acid – regulated pathogenesis related genes and jasmonic acid pathway genes (Zhu-Salzman *et al.*, 2004). In addition, expression of the enhanced disease susceptibility 5 (EDs5; Christiane *et al.*, 2002) gene and the phytoalexin deficient 4 (PAD4; Pegadaraju *et al.*, 2005) gene, which are both involved in SA biosynthesis and signalling respectively, are induced in response to aphid feeding. The PAD4 gene also alters the aphid feeding-induced senescence (Pegadaraju *et al.*, 2005).

In another study, GPA feeding on *Arabidopsis* wild type induces premature expression of senescence associated genes (SAGs; Pegadaraju *et al.*, 2005). However in PAD4 mutants, GPA feeding induced chlorophyll loss and cell death, but SAGs expression was delayed. Pegadaraju *et al.* (2005) therefore

proposed that the senescence-like symptoms observed in *Arabidopsis* wild-type plant in response to GPA limit aphid population growth and reduce their impact on seed production. Aphids induced premature senescence so as to redirect the flow of senescence products to aphid-infested leaves. However, the involvement of PAD4 in plant response to aphid feeding delays the activation of senescence in infested plants, which contributes to basal resistance to aphids.

Activation of basal defenses

In addition to strategic senescence or cell death, plants display other adaptations that limit aphid infestation, such as traits that prevent herbivory (antixenosis) or reduce herbivore survival and reproduction (antibiosis). Plant traits that have been implicated in basal defenses include cell wall modification, proteins or secondary metabolites that have antixenotic or antibiotic properties, and plant volatiles that repel aphids or attract their natural enemies.

Cell wall modification in response to aphid infestation may suggest a superior mechanical barrier to stylet penetration, or potentially augment the signalling pathways that activate plant defences. Up-regulation of gene transcripts of cellulose synthase, pectin esterase, expansin and xyloglucan endotransglycosylase/hydrolase (XTH) during aphid infestation in several plant species further supports this fact (Thompson and Goggin, 2006). Mutation of the XTH gene in

Arabidopsis (XTH33) renders the plant more vulnerable to GPA, thus indicating that XTH participates in plant defence against aphids (Divol *et al.*, 2007). Targeting the cellulose synthase gene in *Arabidopsis* by *cevl* mutation constitutively activates jasmonate-dependent and ethylene-dependent defenses (Ellis *et al.*, 2002a) and also reduces susceptibility to GPA, powdery mildew and bacterial speck (Ellis *et al.*, 2002b).

Phloem proteins (P-proteins) contribute to antixenosis by occluding (plugging) phloem sieve elements at aphid feeding sites (Caillaud and Niemeyer, 1996). In response to injury in sieve elements (SEs), P-proteins aggregate at a SE lesion to occlude the wound in response to wound-induced Ca^{2+} or change in the Redox condition of the plant cell (Will and Van Bel, 2006). In broad bean plants, spindle-like P-protein bodies (forisome) disperse, and parietal proteins detach from the plasma membrane and SE reticulum, plugging the sieve plates. P-proteins: PP1 (96 KDa) and PP2 (48KDa) have 16 and 6 cysteine residues respectively, and the oxidation of cysteine residues leads to the formation of intermolecular disulphide bonds, subsequently making droplets of phloem exudates turn to gel (Knoblauch and Van Bel 1998).

The plant gene system affects callose production and deposition in some way, either through signals that elicit callose response, or the expression of genes that produce the enzyme systems responsible for the

production of callose itself (Radford *et al.*, 1998; Botha and Matsilizia, 2004; Saheed *et al.*, 2007). Deposition of callose in plasmodesmata is regarded as a regulatory response to wounding, thereby slowing down the transport between phloem cells and thus curbing the possible detrimental effects of wounding on plant health (Radford *et al.*, 1998). It is assumed that in resistant plants, callose is modestly produced as a wounding response, resulting in the continued flow of the phloem sap and the maintenance of aphid population, but more importantly the survival of the plant, which does not die as a consequence of aphid feeding (Van der Westhuizen *et al.*, 2002; De Wet and Botha, 2007). In contrast, callose production in a susceptible plant leads to the death of the plant as the flow of the sap in the phloem ceases. Aphid infestation on plants triggers signals for plant response through their saliva, resulting in the production of pathogen-resistance protein; β -1,3-glucanase (Moran and Thompson, 2001). β -1,3-glucanase levels increased in resistant wheat plants infested by Russian wheat aphids, but was not produced in susceptible wheat cultivars (Van der Westhuizen *et al.*, 2002). Glucanases are also produced in plants in response to fungal infestation (Krishnaveni *et al.*, 1999). Thus, glucanases are assumed to serve no function in combating aphid infestation, but are rather a defence against pathogens that may be introduced into the plant by aphid saliva (Van der Westhuizen *et al.*, 2002; Krishnaveni *et al.*, 1999).

Aphids on the host leaf surface are exposed to chemicals that are imbedded in the hydrophobic cuticular waxes (Muller and Riederer, 2005), including non-volatile secondary metabolites such as: glucosinolates (Kim and Jander, 2007), hydroxamic acids (Hansen, 2006) and alkaloids (Cai *et al.*, 2004), as well as volatile and semi-volatile compounds such as indole (Frey *et al.*, 2000), and C₁₀ and C₁₅ terpenes (Aharoni *et al.*, 2003). Volatile organic compounds are particularly important in plant-aphid interaction as they can function as both direct and indirect defences by repelling aphids or attracting predators and parasitoids to aphids. An example is (E)- β -farnesene; a sesquiterpene that has been reported to repel aphids in transgenic *Arabidopsis* plants and attract parasitoids that prey on aphids (Beale *et al.*, 2006). Indolic glucosinolate (4M13M) was found to be synthesized at high levels after GPA infestation on *Arabidopsis*, where it acts as a potent deterrent to aphid feeding (Kim and Jander, 2007), thus indicating that effective constitutive defence can be up-regulated in response to aphid feeding.

Other volatiles induced by herbivory and also reported to attract natural enemies include C₆ aldehydes, alcohols and esters, which are regarded as green leaf volatiles (Arimura *et al.*, 2000). So are cis-jasmone, methyl jasmonate (Birkett *et al.*, 2003), and methyl salicylate (Zhu and Park, 2005). Thus insect-induced plant volatiles are used by chewing and phloem feeding

insects as well as their natural enemies to identify and differentiate between an uninfested and infested host plant. Furthermore, released volatiles help to decrease oviposition rates of adult insects, since they are likely to avoid plants on which predators are likely to be present, therefore decreasing oviposition load on the plants.

Plant volatiles may also act as signals between plants, where volatiles from a damaged plant tissue induce defence response in neighboring undamaged tissues and also induce defence responses in neighbouring undamaged plants (Pare and Tumlinson, 1999). This is related to the fact that plants produce a herbivore-specific blend of volatile components in response to a specific elicitor from a particular herbivore species feeding on the leaves. Manipulation of volatile organic compounds has been shown to affect plant resistance to herbivory. In transgenic potatoes in which production of hydroperoxide lyase (an enzyme involved in green leaf volatile compound biosynthesis) was reduced, the plants were found to support an improved GPA performance and productiveness, suggesting the toxicity of these volatiles (Vancanneyt *et al.*, 2001).

Production of defensive proteins

Wounds caused by insect herbivory on plants result in the expression of protease inhibitors that interfere with insect digestion and discourage further feeding. The presence of trypsin inhibitor (Murray and Christeller, 1995) and an aspartic acid protease inhibitor

(Christeller *et al.*, 1998) in the phloem of the *curcurbita* plant are assumed to play a role in the defence against insect herbivores. Protease inhibitors and plant lectins have been shown to have antibiotic effects on aphids (Rahbe *et al.*, 2003; Dutta *et al.*, 2005; Wu *et al.*, 2006). Protease inhibitors (PIs) levels in plant are normally low; however, when plants are attacked by insects or suffer mechanical damage they are actively induced to high levels (Rakwal *et al.*, 2001). It was demonstrated that specific signals from damaged tissues are transported via phloem and this stimulates the synthesis of protease inhibitors throughout the plant.

Protease inhibitors act by causing an amino acid deficiency influencing the insect growth, development and eventually leading to their death. This is accomplished either by inhibition of insect gut proteinases or activation of digestive enzymes in the insect gut, leading to reduction of essential amino acids for the production of other proteins (Jongsma and Bolter, 1997; Pompermayer *et al.*, 2001).

Surmounting of plant defence by aphids

Aphids are confronted with a number of constraints that determine the degree of access to their food supplies. A number of factors are responsible for the specificity of interaction. The first is the length and diameter of the aphid stylet (Will and Van Bel, 2006). The aphid stylet must be able to reach the sieve elements, thus the distance between the outer surface of the plant and

phloem is very important. The deposit of rapidly gelling saliva beads, which form a flange at the leaf surface, helps to limit aphids' stylet slippage, and the formation of a sheath around the stylet insulates the stylet from apoplastic defences. Furthermore, the sheath provides a track along which the stylet moves. This limits cellular damage to plant cells and consequently reduces the extent of plant defence response (Freeman *et al.*, 2001; Walling, 2008).

Averting sieve tube occlusion

Aphids are able to successfully puncture sieve tubes with their piercing stylets and ingest phloem sap without eliciting the sieve tubes' normal occlusion (plugging) response to injury. Aphids have to prevent wound-induced occlusion of sieve tubes, so that their nutrient supply is uninterrupted. Plugging of sieve tubes is a plant response to injury to minimise the loss of sieve sap, since damage to a single SE would result in far more sap loss than simply the contents of a single cell (Van Bel, 2006).

Plugging of sieve plates by phloem proteins and constriction of the pores in sieve plates by callose are related to calcium influx into the sieve tube lumen (Will and Van Bel, 2006). Aphids antagonise the cytosolic wound-healing procedures in plants by sealing the SE lesion with sheath saliva, cause reduction of apoplastic Ca^{2+} influx into sieve elements, confisticate Ca^{2+} inside SE, and prevent the coagulation of P-proteins (Van Bel,

2006). There is no doubt that impaling SE with a fluid-filled glass microcapillary tube with a tip diameter of 1 μm immediately causes plugging of sieve plates of *V. Faba* (Knoblauch and Van Bel, 1998). In contrast, wounds caused by aphids' stylet penetration are immediately sealed by sheath saliva, so that influx of extracellular Ca^{2+} is prevented (Tjallingii, 1995). The sheath saliva sealing the wounded site also reduces loss of phloem sap through the wound and in this way decreases loss of turgor pressure as well (Will and Van Bel, 2006).

Chemical defence

In spite of the effects of aphid stylet size and sheath saliva minimising the influx of calcium into sieve element lumen, aphids also possess chemical devices that assist in averting the injury-triggered reactions of sieve element. Aphid watery saliva contains several potential signal-generating enzymes (Miles, 1999). The secreted salivary enzymes fall into two categories: hydrolases and oxidation/reduction enzymes. The watery saliva is believed to assist in the digestion of phloem sap by the action of pectinases, cellulases, β -glucosidase and polysaccharases; detoxification of phenolic glycosides ingested during feeding by the action of polyphenol oxidases or peroxidases; and suppression of host defenses or elicitation of host responses (Miles, 1999). Aphids also inhibit production of hydroxamic acid and indoleacetic acid; the abnormal growth of plants witnessed in response to aphid feeding

has been linked to the low levels of indoleacetic acid (Forrest, 1987). Similarly, during stylet impalement, oxygen invasion can trigger cross-linking reactions that could result in protein coagulation, as seen in *Cucurbita* phloem sap (Alosi *et al.*, 1988). Therefore, the binding of reactive oxygen species can also be among the functions of aphid salivary proteins.

Monitoring aphid feeding behaviour by use of the electrical penetration graph (EPG) technique in broad bean (*V. Faba*), shows that burning-induced forisome plugging of sieve plates affects aphid feeding behaviour (Will *et al.*, 2007). It was found that aphid behavior changed from the phloem sap ingestion to SE salivation, which suggests that aphids react by secreting watery saliva into the SE lumen to unplug the SEs. After approximately 8.3 minutes ingestion activity resumed, which indicates the restoration of mass flow inside the SE. It thus indicates that aphid watery saliva has a mechanism that detects SE plugging and another that unplugs the SEs and this is likely to depend on release of calcium into the SE lumen (Will *et al.*, 2007). It is assumed that aphid watery saliva binds calcium in the SEs and thus prevents calcium from exceeding the threshold level that elicits SE plugging. Therefore it was postulated that aphid saliva contains a calcium binding protein or calcium chelator that can reverse the calcium-dependent forisome plugging SE (Will *et al.*, 2007). The presence of β -1,3-glucanase in watery saliva has been linked to an aphid defence strategy to combat

SE sealing by callose (Cherqui and Tjallingii, 2000). Therefore, prevention of sieve-plate plugging has been regarded as the principal function of watery saliva.

Aphid-plant co-habitation in the ecological phase

Complex interactive networks in the environment influence aphid population. The understanding of these interactions is essential in order to study how other trophic levels such as parasitoids, predators, ants, and plant pathogens affect these interactions.

Aphid population is often reduced moderately by parasitic behavior of parasitoids and predators. Parasitoids and predators elicit a control that causes reduction in aphid feeding and reproduction resulting in high aphid mortality. Examples include: wasps, ground beetles, lady beetles, lace wings, flower bugs, damsel bugs, earwigs, bush crickets, katydids, harvestmen and spiders (Snyder, 2006). The degree to which parasitoids and predators confine aphid population is strongly influenced by the aphid's host plant, because volatiles released by the plant in response to aphid feeding attracts these parasitoids and predators to the plants. Furthermore, pollen and floral nectar have been reported to attract parasitoids and predators to aphids' host plant, thus enhancing predation. When parasitoids and predators prefer pollen and floral nectar to aphids, they increase the mortality of aphids so as to have abundance of these alternative foods, potentially

contributing to the biological control of aphid (Spellman *et al.*, 2006).

Ants influence aphid population in a mutualistic association. Two examples are Meadow ant (*Lasius flavus*) and root aphids. The aphid-nursing ants defend aphids against parasitoids and predators. However, when aphid honey dew is less nutritious and attractive to other available food source, they likewise prey on aphids, feeding them to their larvae (Stadler and Dixon, 2005). Honey dew is the main motive for ants' association with aphids. Many ant species are so obsessed with this sugary drink that they defend the aphids from various predators and often move them to new plants if the one they are on starts to wither. Meadow ants collect the eggs of root aphids in autumn and early winter and store them in their nests, and in spring the eggs are moved to a suitable chamber so that plant roots are available for them as soon as they hatch (Stadler and Dixon, 2005).

Wounds created by aphids on the host plant can be opportunistically used as points of invasion by microorganisms, which represent an increased risk of future pathogen attack. Aphids are the most common vectors of viral diseases in plants, and about 200 aphid species are known to transmit phytopathogenic viruses (Ng and Perry, 2004). Some aphid species such as the Bird cherry-oat aphid, *Rhopalosiphum padi*, transmit the yellow dwarf plant virus, causing mosaic diseases in

plants such as: cauliflower, cucumber, lettuce, potato and a number of cereal crops (Chapin *et al.*, 2001). The indirect damage aphid cause through virus transmission far exceeds their direct impact on plants. It is therefore assumed that the aphid-vectored viruses could be a force influencing plant responses to aphids.

Also, fungal endophytes which synthesize toxic alkaloids influence the general performance of aphids on host plants infected by fungus. The mycotoxins produced by these fungi restrain aphid population and often have a toxic effect on the aphid host plant and natural enemies such as ants, beetles, bugs, wasps and spiders (De Sassi *et al.*, 2006).

Control and future prospects

Initially, farmers attempted to control aphids by spraying vulnerable crops with insecticides (Du Toit, 1989a). This approach was met with limited success due to increased aphid resistance to insecticides, as well as the fact that aphids shelter themselves in unusually curled leaves and often manage to get away with the effects of these insecticides (Van der Westhuizen *et al.*, 1998a). The practical challenges mean that aphid chemical control is largely ineffective, thus the development of resistant cultivars is viewed as the most feasible approach to crop protection in terms of efficacy, cost effectiveness and environmental sustainability. Research on wheat resistance to Russian wheat aphid (RWA) infestation was focused mainly on

the identification of resistance sources in plants that display tolerance to aphid infestation (Budak *et al.*, 1999). It has been established that wheat resistance to RWA feeding employs a combination of antibiosis and antixenosis (Du Toit, 1989a; Du Toit, 1989b).

Furthermore, aphid susceptibility in several plant species has been shown to be reduced by exogenous application of known elicitors of disease resistance such as: bacterial hairpins (Dong *et al.*, 2004), methyl jasmonates (Cooper and Goggin, 2005), β -aminobutyric acid (BABA; Hodge *et al.*, 2006) and thiadiazole-7-carbothionic acid (salicylic analog) (Boughton *et al.*, 2006).

Then there are aphid symbionts: *Buchnera aphidicola* have been described as offering novel aphid and virus management strategies. Banerjee *et al.* (2004) have identified a plant lectin that can bind to the symbiont-derived chaperonins in the aphid gut. Ectopic expression of this lectin in Indian mustard (*Brassica juncea*) reduces survival of the mustard aphid (*Lipaphis erysimi*) and also potentially inhibits virus acquisition (Dutta *et al.*, 2005).

The use of RNA interference technologies that allow down-regulation of insect genes (Ghanim *et al.*, 2007) will enable the identification of the effectors that enhance aphid growth success. These integrative approaches are also likely to allow the identification of

the component of aphid saliva that will stimulate developmental disorder and infestation symptoms and elicit incompatible plant-insect interactions.

The great challenge is detecting novel genes/proteins that will generate insecticidal products with suitable properties for use in transgenic crops. Despite the abilities of some insects to adapt to protease inhibitors (PIs), attempts to produce transgenic plants resistant to insect pests via expression of these proteins are continuing. For example, Rahbe *et al.* (2003) and De Leo *et al.* (2001) show that the effectiveness of a protease inhibitor against a given insect pest is related to its expressional level in plants and also to its action on the targeted insect. Therefore, a comprehensive knowledge of enzyme-inhibitor interactions and the response of insects to protease inhibitor exposure are important if this approach for crop protection is to succeed.

Furthermore, research should be tailored to engineer durable and multi-mechanistic resistance to insect pests in crops. This will help to increase the knowledge of induced defence mechanisms through an understanding of the diversity of plant responses to insect attack. Molecular control will help in realising this aim, although little is still known about the molecular responses in plants to insect attack. The abundance and diversity of these insect pests stand in contrast to the limited amount of information available about

molecular and physiological plant responses and resistance mechanisms against them.

Acknowledgement

Special thanks to Govan Mbeki Research and Development Centre (GMRDC), University of Fort Hare, South Africa, for financial assistance.

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Examination of value conflict limiting conception of multicultural education in minority institutions in the US: Retention and graduation outcry

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Abstract

Studies have shown that in the last three decades of Historical Black Colleges' and Universities' (HBCUs') existence, they have played a vital role in the development of American society. Minority institutions have been successful with limited resources, discriminatory public policies and restrictive labels, unlike the majority of institutions. The purpose of this paper is to examine some concepts of multicultural education in minority institutions such as time, space, competition and other alternatives, and how they affect graduation and retention of African-Americans. Institutions must decide how to function in order to achieve academic excellence and compete in the global market. If minority institutions are to be successful academically, they must be able to function based on white middle-class values and skills. In choosing these

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priorities, the institutions cannot ignore middle-class skills and values unless a community wishes to put themselves at an economic disadvantage. This paper therefore concludes that HBCUs must decide on how to work together and not separately, in order to achieve more academic excellence, promote graduation and retention, and compete in the global market.

Keywords: Multicultural Education, African-Americans, Minority Institutions, Majority Institutions, Historical Black Colleges and Universities, American Society

Introduction

Among colleges and universities in the United States, minority institutions rarely occupy their deserved status within the American cultural contexts. Studies show that in the last three decades, Historical Black Colleges and Universities (HBCUs) played a vital role in the development of the American society through the collective achievement of African Americans. The success story of these colleges makes more sense when considered from the standpoint that they worked with limited resources, discriminatory public policies and restrictive labels; unlike the majority institutions that have full Government backing and support (AASCU Sallie May National Retention Project, 1994).

Presently, changing social and cultural dynamics have called for a re-examination of the 21st century education of HBCUs and minority institutions. The changing dynamics of social, cultural and technological opportunities, including technology, have also necessitated a call for a revitalisation of academic structures of HBCUs. In this paper, “minority students and professionals” are used interchangeably as “people of diverse race and ethnicity”, otherwise known as Hyphenated Americans.

Background

In 2000, minorities comprised approximately 30% of the population of the United States (US Census Bureau, 2000 cited in Nwadike 2007). By 2050, it is projected

that the minority population will represent approximately 50% of the total US population, meaning ethnically and racially diverse people may no longer be a numerical minority (US Census Bureau, 2000, *op. cit.*). Whereas from 1988 to 1998, minority students' enrolment in colleges increased by 62.2% (American Council on Education (ACE), 2001, cited in Nwadike 2007), reports show that in the last three years, graduation and retention of HBCUs have declined drastically. It is imperative also to know that enrolment statistics show a high drop-out rate among minority college students, especially among first-year students (Sleeter, 2001).

Various studies conducted from 1991 to 2001 (cited in Nwadike, 2010) show that low retention and graduation rates among minority students are reported to be the result of the following (although several of these factors would not apply to HBCUs):

1. academic unpreparedness;
2. financial difficulty;
3. absence of mentors and role models on campus;
4. lack of adequate social and academic support;
5. lack of diverse faculty and students;
6. absence of culturally inclusive instruction;
7. a racially hostile campus climate;
8. lack of professional networking and shared governance opportunities among administrators, faculty, staff and students;
9. lack of resources; and

10. lack of qualified instructors.

This paper is therefore an attempt to expose some handicaps contributing to the HBCUs' low graduation rates, thereby making necessary recommendations that could help address the situation.

According to some HBCU presidents, the debate over the role and relevance of Historically Black Institutions (HBIs), is again taking centre stage (*The Washington Post*, Sunday, Feb. 17, 2008). Despite their effectiveness, efforts to enhance (for example) Maryland's black institutions have been slow and exceedingly limited. As a result, HBI campuses continue to have very serious capital needs for renovation and/or replacement of existing old buildings, as well as new facilities and equipment. It is against this background that this paper seeks to examine the concept of multicultural education in minority institutions, as it relates to graduation and retention (Gay, 1995). This paper also examines some areas in which conflict between cultural values in an institution might make it very difficult to compromise and to accommodate strangers within such a cultural context (by 'stranger', the authors mean someone from another culture or ethnic group studying on an HBCU campus).

Each culture is based on different sets of assumptions and values about the world that may contradict others at some point. Dolce (1973:21) reports that the "ambiguity

of the term multiculturalism tends to mask the existence of real conflicts among value systems”. He concludes that “the lack of clear delineation of the consequences of multiculturalism is the reason for the widespread acceptance of principles” that do not completely support multicultural tendencies. All different cultures can and do encompass certain values that are antagonistic and opposing. Dolce suggests that existing differences can be resolved through compromise and acceptance of all differences between cultures.

Literature review

Literature on multicultural education amongst HBCUs suggests that only two studies were found useful in improving recruitment, retention and graduation among HBCUs in minority institutions, during investigation of institutions’ programmes. These documents include “Achieving Quality and Diversity” by Richardson and Fisk Skinner (1991), where case studies of ten universities were conducted. The second successful case study was “The Campus Practices for Student Success” by AASCU, and the Marketing Association (1994), which contains descriptions of programmes for student success in retention at 68 state colleges and universities in the United States. Evidently, these institutions are members of the Sallie May National Retention Project (1994). However, descriptions of these case studies were not structured around goal statements of the institutions, and other variables that could have allowed for a fair evaluation of recruitment,

retention and graduation among HBCUs were missing from the case studies. This invariably made the case studies less than completely reliable.

An institution with an academic goal must have value priorities in order to function effectively and serve the academic population. A university might realize that it has unwittingly been discriminating against a particular group. The question becomes how the university administration would resolve such value conflicts.

Multicultural studies, if adopted holistically, can indeed help to promote transformation, and at the same time, improve retention and graduation of minority students. For the purpose of this paper, the researchers define ‘multicultural education’ as occurring when people from all cultures receive education that is more than learning the basic skills needed to survive; it is a full understanding of all types of areas of study.

In examining multicultural education, the paper explores some areas in which conflict between cultural values in a school setting makes it difficult to reach a compromise. For example, adopting democratic methods to resolve cross-cultural value conflicting issues like differences in time, space, and competition may work against reaching any form of compromise in a multicultural environment and setting (Darder, 1995).

Concept of time

What is our basic orientation in terms of past, present,

and future, and what kinds of time limits are most relevant for the conduct of our daily affairs? The concept of time is eminently suited to a rational view of the world, unlike Africans who originally studied time through their shadows, sunset and sunrise, and as a result, don't take time very seriously. There is some truth in the idea of 'African Time', because some Africans don't keep to time in the way that Westerners tend to (Nwadike, 2010).

Thus, one of the factors that could lead to inter-cultural conflict involves time. Many cultural groups around the globe consider time as a lower priority in their selection of values than the dominant white Americans. Some cultural groups value social interaction and friendship more highly than being punctual, as seen in American culture today. There are some distinct differences between the way in which cultures observe and value time. Some cultures are time-oriented to a high degree. Some people will use phrases like "saving time", "investing time" and "wasting time", while others are preoccupied simply with "time" (as cited in Nwadike, 2007).

For an institution to function effectively in America; it must take a position about the importance of time. "The key is not to be 'on time' but to be 'in' time. For people of Western Europe descent, time is oriented more towards being 'on time' than 'in time'" (Hofstede & Hofstede, 2002). Time factor should be consistently

reinforced as a dominant American attitude by administrators and faculties at HBCU institutions.

Another example is tardiness. Will a school accept the excuse of a student who came late to class? When asked why, the answer could be something like the following: “I was having coffee with my uncle who I have not seen for a long time.” Some American students might say, “I overslept,” or “I forgot that I have to be in class today.” (These examples are exact statements from students who came late to class when the authors taught in minority institutions.) No matter what the reason is; time might conflict with values of certain groups (Goshenour, 1993).

An institution cannot have it both ways: either punctuality is enforced or it isn't. If an institution or a faculty enforces it for one group but not for another group, this may prove disastrous. “You've got to keep up with the times” is an American expression which illustrates this association. The American cultural form of time is usually regarded as lineal, as in planning, progress, preventive measures in health and technology and orientation to the future, according to Goghman (2002).

Concept of space

Another concept that is related to time is space, a second kind of cultural form. The concept of using space shows important cultural differences observed in

institutions. Living and working areas are treated differently by different cultures. For example, some cultures like the Chinese have a strong sense of territorialism, which is less highly developed in America and absent in some nomadic cultures (Kim, 2001). People from different cultures vary in how much space they perceive as needed between themselves and others. People from the Middle Eastern and Mediterranean cultures tend to be more comfortable with less personal space than is generally desired by North Americans and northern Europeans (Hall, 1966). For instance, if a person from a Middle Eastern culture stands as close to a North American as his/her culture dictates is acceptable, the North American is likely to feel uncomfortable because his/her space has been invaded. Likewise, the way in which some institutions or organisations designate space, dictating who sits where and how much room they are given, also shows a great deal about status, power and values in that organisational culture. This can result in stereotypes if it is not well handled. Spatial displacements of persons in face-to-face interactions are also noticeably and measurably different from culture to culture (Hall, 1966).

Institutions must consider these issues of time and spatial difference when dealing with students by establishing classroom rules and regulations for the students to sign and observe. Education about multiculturalism is highly recommended both in

majority and minority campuses. For example, the outcome of teaching online classes to HBCUs students should be reassessed. Studies conducted on an HBCU campus reveal that some students from cultures other than the dominant white American culture and traditionally disadvantaged families absorb more information during face-to-face interaction (Nwadike, 2010).

Concept of competition

All institutions including colleges and universities want to produce students who can compete in the global market. This competition sometimes allows one student to succeed at the expense of another. A cross-cultural conflict in schools sometimes revolves around the degree to which schools encourage competition among students of different cultural background. The schools of dominant white America for example, value competition highly. Henry (1963) reveals some of the negative aspects of competition of the “witch-hunt syndrome”. This again was validated in Nwadike (2010) who noted that placing students of different cultural backgrounds and educational levels and development on the same platform that favours the whites (in this instance) amounted to a witch-hunt rather than competition. For example, in elementary schools in which the teacher exerts control over the class by sometimes encouraging competition and carping criticism, the winner usually receives a reward.

Culturally, certain Native American groups, like the Cherokees, value co-operation and togetherness, and are offended by competitive activities that create a winner and a loser (Greenman & Kimmel, 1995). Any culture that does not value competition, whether majority or minority, might find their own cultural values violated in a competitive school or college. Most majority white institutions aspire to achieve academic excellence to enable them to compete in the world market (Casse, 1981).

Even today we still have a huge gap in the performances of black and white students in American schools. A theory to explain why African-Americans do not compete effectively in schools and colleges is Eurocentrism (D'Souza, 1998). Eurocentrism conveys the predominance and superiority of a culture that Americans inherited from Western Europe (D'Souza, 1998). It is a kind of cultural stereotyping that looks down on other cultures that are non-European and creates a kind of inferiority complex for the other cultures that are looked down upon. This affects their competitive abilities or concept of competition, especially when the competitor has such a racial superiority complex. This also explains why some students may not want to compete. This happened in Germany under Adolf Hitler. Advocates of multiculturalism and Afro-centrism seek to correct historical biases and open doors and windows to the world beyond the West. Cultural relativism dictates that

since all cultures are equal, the relatively poor performances by one group must be due to the fact that they are being unfairly judged by the other group's cultural standards (D'Souza, 1998).

In the words of Carter G. Woodson, as cited in Nwadike (2010:69):

In history of course, the Negro had no place in this curriculum. He was pictured as a human being of the lower order, unable to subject passion to reason, and therefore useful only when made the hewer of wood and the drawer of water for others. No thought was given to the history of Africa except so far as it had been a field of exploitation for Caucasians.

To interpret Woodson's theory, there has been unfair distribution of educational resources since the Civil War days.

The question remains, though: how do HBCUs students challenge the mainstream majority through education, increase retention and graduation rates and compete in a diverse world market?

Strategies

If HBCU institutions are to be significantly successful in attracting, retaining and graduating racially and

ethnically diverse student populations and professionals, they must be able to meet the needs for safety, sense of belongingness and love, psychological, self-esteem, and self-actualisation that students bring to the campuses and workplace (Donnell, Edward, & Green, 2000 cited in Nwadike 2010:23). Other needs to address are self-fulfillment, self-esteem, security of identity, fair and equitable treatment in all aspects of living, and mutual respect. There is an effort to decrease attrition of racially and ethnically diverse students, colleges and universities through the implementation of comprehensive programmes that address students' diverse needs (Dumas-Hines, 2001 op. cit.). These institutions also need to consider supplying, on campus, academic and career advice, and assistance with various non-academic matters (Dumas-Hines, 2001 op. cit.).

It is imperative for HBCU institutions to have meaningful and effective career planning and placement services, as well as work towards improvement of social and racially conducive climate on campuses and support cultural competency skills of academic advisors and faculty members (Dumas-Hines, 2001 op.cit.).

There is a low retention of minorities in professional studies due to lack of mentors and generally unsupportive work environments, such as: lack of family support, lack of faculty support, lack of administrative and staff support, lack of self-motivation, and lack of appreciation for diversity (Dresser, 1996).

All HBCUs should encourage both faculty and staff to

develop curricula and write textbooks for their students to use in their respective disciplines, thereby avoiding expensive foreign and over-loaded textbooks.

Effective strategic plans

There are many strategies for success in retention and graduation of people from different multicultural groups. These strategies include:

1. Develop and adopt a Multicultural Affairs and Students Success (MASS) centre. MASS is a concept that brings students of multicultural backgrounds together in a familiar learning environment and introduces them to programmes that are meant to integrate them into the larger society of multiculturalism. This exposure creates a learning environment when they eventually step out to the real world of multicultural educational environment. To justify the validity of MASS, a recent retention study revealed that ethnic minority students, low-income students, students with disabilities and students who are the first in their families to attend college are retained at higher rates after participating in this programme and services (*Hispanic Outlook*, November 2005). MASS programmes and services have had a positive impact on retention and graduation rates. MASS has a broad range of programmes that are available to help students in their first year.

2. A government funded programme could be designed to assist first generation students, low-income students and /or students with disabilities to successfully attain their academic goals. New Start Summer programmes in the US are designed to connect students to university life for six weeks before the semester begins, and include exchange programmes and short-term study abroad programmes.
3. Initiate pathways in an academic learning context for after-school activities and supporting students. For instance, personal academic advisors should select classes on behalf of the students, and assist them choose information about scholarships, employment, and internship opportunities.
4. The institutions or colleges supported by government should provide resources for students, help them form study groups that should focus on leadership opportunities, and encourage them to attend evening study classes to improve their grades and performance.
5. College administrators should also make contacts and connections that lead students to meeting their major advisors in academic departments. These meetings should also be extended to the students meeting informally with their professors and/or deans over tea or coffee.

6. Create workshops that consistently provide students with time management skills, study skills, financial aid knowledge and how to select a major.
7. Create Peer Mentor (PM) students to connect with curriculum and extracurricular activities on campus. Peer Mentor students help other students in identifying relevant curriculum and extracurricular activities on campus that will integrate them into a multicultural educational context. PM students are usually knowledgeable in this area through training.
8. Form a strong Student Outreach Services (SOS) on campus to monitor activities, including the safety and security of students.
9. The Human Resources department should hire committed, qualified instructors and give them appropriate training in their disciplines.
10. Finally, for diversification to take place appropriately and without bias, the top administrators and faculties should have an open-door policy that allows students, faculty and staff easy access to the minority programme office. Most importantly, build differences by learning about multicultural education; ask questions, develop mindfulness, tolerate ambiguity, develop flexibility, practise shared governance and avoid

negative judgment. In pursuit of an operationalised, multicultural education programmes, educators should investigate and evaluate projected possibilities of a cultural variation system in which diversity would not be tied to social relations, especially if it has economic and educational disadvantages.

Conclusion

Historically Black Institutions must decide on how to work together and not separately, in order to achieve more academic excellence, promote graduation and retention, and compete in the global market.

According to several *Baltimore Sun* newspaper reports (2008-2009), HBCUs have low retention and graduation rates. In a multicultural education, students must receive the best practices in promotion of academic excellence to prepare them for the competitive world market. There are some successful programmes on the advancement of multicultural education used in some institutions of higher learning, which could be emulated. Some of the programmes reviewed in this paper call for commitment of resources, as well as collaboration with local and regional communities. Records also show that many institutions have initiated one or more of these activities that characterise best practices.

Since the purpose of this paper is to improve minority

student retention and graduation, amongst others, at the historically black institutions, effective and workable strategies have been enumerated. To name a few institutions that adopted some of these practices: University of Arizona; University of Michigan; Washington State University; and Texas A & M. All these programmes have been found not only worthy in promoting graduation and retention, but also help promote integrity, diversity, civility, and collegiality. Engaging in a multicultural education does not suggest a total departure of one culture, but suggests that the institution will not be wholly part of *any* culture (Hess, 1994). People must understand that individuals in other cultures think, feel, believe, and appreciate differences among cultures through education and communication. This understanding must permeate the thinking of college administrators, policy formulators and educators if racially diverse societies will exist without the usual tensions and apprehension associated with such communities.

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**What features of printed information products do information users and designers want?
A case study with International Institute of Tropical Agriculture's (IITA) '*Soybean for Good Health*' booklets.**

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Abstract

Of significant research and practical interest in information design are the variables that information content designers need to manipulate and interrelate toward producing information content and products of value to users. It was in order to contribute to understanding of such variables that this study investigated the user and information designer preferences for some of the information content attributes of the text- and picture-dominated versions of the '*Soybean for Good Health*' booklets targeted at rural and urban households in Nigeria by the International Institute of Tropical Agriculture (IITA) Ibadan, Nigeria. Data were collected from 195 users (specifically, nursing mothers) at three post-natal clinics in Ibadan, as well as from six information designers who worked at the institute. The users and designers were given different versions and parts of the booklets

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along with different corresponding questionnaires. The study found that although users of information products might differ on the relative importance that they place on some information content features, they nevertheless tend to agree on many others. Also, although designers and users tend to agree on the importance of many of the information content features, they perceived the importance of a few of them differently, particularly those that require some technical expertise to implement or interpret effectively, such as the desirability of different mixes and placement of text and pictures on a printed page. The study also found that demographic characteristics of users, specifically age, educational attainment and rural/urban location, were related to how they perceived the desirability of the content features of printed information products.

Keywords: Information Design, Information Product, Printed Booklets, Information Users, Soybean

Introduction

Researchers in communication studies often distinguish between formal communication exemplified by, for instance, the processes of authoring a publication, and informal communication exemplified by oral or non-verbal communication. Formal communication invariably entails the recording of communication symbols in a physical medium (usually paper or electronic) and, consequently, this also leads to the creation of an information product. Mowshowitz (1992) analyses information products (which he referred to as information commodities) in terms of their content, media and technological make-up. Tiarniyu (1993) also defines information products as “*techno-physical objects* designed to express, store or convey information symbols from a particular source to one or more target destinations”. The symbols could be textual, numerical, graphical/pictorial, or sound; the technology could be manual or mechanical; and the physical medium could be paper, audio-visual or computer devices.

The process of creating an information product is essentially one of information design. Yerbury (1991) therefore describes the task of designing value added information products as that of implementing a planned solution to an information-handling problem based on knowledge of the user, the subject matter, and knowing how to present the message *with appropriate technology* (italicised words added for completeness). Technology is clearly fundamental to the design of

information products, not only because it is required for recording communication symbols, but also for accessing the symbols when the products are being used. Nevertheless, technology is but one of the important considerations in information product design, because information products are designed not as works of art merely to be admired for their appearances or aesthetics, but to communicate meaningful messages to specific or general audiences. Accordingly, the other important considerations in the production and use of information products pertain to: the goals of the designer of the product (designer considerations), nature of the message, information or knowledge to be conveyed (message considerations), nature of symbols to be used to communicate the message (symbolic and literary considerations), and the cognitive, social and environmental situation of the target audiences (user considerations).

Accordingly, the fundamental challenge for designers of information products is how to appropriately interrelate these considerations in their design processes and decisions. The problem is not simple, because the domain knowledge for understanding the different considerations are dispersed in diverse disciplines and professions, including communication studies, information science, computer science, economics, sociological and psychological sciences and information design. Pettersson (1998), for instance, observes that information design encompasses

influences and facts from more than fifty areas of research, including language, aesthetic, information, communication, behavioural and cognitive disciplines, as well as business, law and media. Furthermore, Shedroff (1999) notes that the field of information design is labelled by writers from different disciplinary and professional backgrounds, alternatively as information design (*information science/studies*), information communication and presentation (*communication and media studies*), interaction design (*man-machine studies*), sensorial design (*cognitive science*), instructional design (*educational pedagogy*), and information architecture (*computer science*). (Note: italicised words are only suggestive of the possible disciplinary homes of the different labels.) The field of information design has grown in professional and social importance because of the growing need to investigate, prescribe and teach best methods for solving the information design challenges faced by designers of information products in today's dynamic information societies.

Information design is of interest to both designers and users of information products. Designers are concerned, usually from professional and work perspectives, about how to use appropriate technologies to publish what they consider to be valuable information content through specific information products to target users. Conversely, users are concerned, in work and/or social settings, about how best to access and gain maximally

from the published content. Information design seeks to increase the probability that prospective users of information products would know about, and can access, use and obtain maximal value from the product. Zurkowski (1984) has observed that the information explosion of the electronic age has compelled individuals to develop personalised cognitive screens to help them manage information overload in their environments. Accordingly, information product designers are expected to use effective strategies for producing information content and products that can penetrate such screens. The selection and presentation of communication symbols on the one hand, and the perception and interpretation of the symbols on the other, might appear to be natural and effortless processes when human beings exchange messages, either non-verbally, orally, or in writing. Nevertheless, there are innate interpersonal differences in the capabilities of individuals to perform these processes. Differences in physiological and cognitive attributes among people account for initial differences in individual abilities to express, perceive and interpret communication symbols, and such initial differences subsequently moderate, and are moderated by, the cognitive, educational, social and environmental experiences of different individuals.

Research problem

What considerations influence designers of information products in selecting different strategies, technologies

and formats for presenting information content in different situations? Conversely, what attributes of information products and their contents are highly valued by users of information products in different settings? These are clearly very broad questions, in view of the different important considerations in designing and using information products highlighted above. The questions only become manageable research questions when one is dealing with specific information design and situations of use. In other words, and in the context of the publishing and use of a specific information product intended for a specific group of users, one might want to know the information design strategies that were used by the designers of the product. Conversely, one might also want to identify the information product and content attributes that appeal most to that group of users, as well as how the users actually value different information content features.

The digital revolution continues to provide an expanding array of technologies, media and formats through which information designers can deliver information to users. Publishers in developed countries now routinely use multimedia and hypertext strategies and technologies to combine texts, images, charts, fonts and layouts, along with reading or browsing guides, links or tips, and real-time online help and support for delivering information through both electronic and print information products to target users. In developing countries however, text- and print-publishing

technologies and information products are still the most common, and are likely to remain so for some time in view of the lower levels of literacy, limited access to computing and telecommunications infrastructure and services, and limited experience in multimedia content publishing. Accordingly, one might assume that the preponderant context, technology and medium for the design, access and use of information content in developing countries is still the printed book, newspaper, or catalogue, featuring mostly black-on-white text pages with a spattering of graphical images. Within this general pattern there is also sometimes the publication and delivery of information in both printed text- and picture-dominated versions, with the latter intended for audiences that might not have the education attainment or inclination to read and comprehend the text-dominated versions. An instance of the design and publication of both text- and picture-dominated printed information products conveying virtually identical information is the *Soybean for Good Health* booklets published by the International Institute for Tropical Agriculture (IITA), Ibadan, Nigeria. These two English language booklets are published and distributed free to information users as part of the agricultural extension services of the institute.

The simultaneous publication of the booklets prompted a number of questions that motivated this study, among which were: Why were the two versions produced? What information design variables were considered in

the design of the two versions? What do the intended users of the booklets consider to be attributes of good information design? What importance do the intended users place on the information content features of the two booklets separately and comparatively? Are the preferences of the target users similar to those of the designers of the booklets? Consequently, the following research objectives were set for the study:

1. to identify from relevant information design literature important information content design variables that information designers can manipulate to design specific information products;
2. to identify the information content design features of a specific real life information product (the *Soybean for Good Health* booklets) intended for an identifiable group of users;
3. to investigate the preferences by the intended users of the product for the different information content features of the real life information product;
4. to investigate the relationships between the user preferences and some of their demographic attributes;
5. to investigate similarities or differences in the ratings of the importance, value or effects of different information content features by designers and intended users of the product.

Literature review

In view of the diverse origins of ideas useful for the practice of information design as noted above, it is clearly impossible to review all aspects of the relevant literature here. Of direct relevance to this study, nevertheless, are models and findings on (i) designer objectives/motives for presenting information in different formats; (ii) cognitive capabilities of the human mind to perceive and understand textual and graphic communication symbols; and (iii) importance of user situational characteristics in the process of accessing and using information products.

Designers' objectives and preferences

Tractinsky and Meyer (1999) identify from the literature two main approaches to understanding the motives of information designers – the rational and the communicational. They note that the rational approach, as proposed by early researchers of management information systems (MIS) and human factors (HF), emphasises improvement in decision-making by information users as the main objective that information designers seek when presenting information. The communicational approach, however, emphasises transformation in user emotions and attitudes, rather than knowledge improvement, as a major objective. Tractinsky and Meyer report criticisms of the rational approach by Feldman and March (1981), firstly, that information is often provided in order to persuade someone to do something; so facts might be represented

in special ways to achieve that aim. Secondly, response time and accuracy of presented information (the performance variables emphasised by most MIS and HF researchers respectively) are often not necessarily those that presenters want to maximise. Jones (1990) had observed that information presentation often serves as an opportunity for the presenter to claim competence by means that are not directly related to the information as such. This likelihood of promoting self-promotion has equally been observed by Tufte (1993), who is of the opinion that practically every existing presentation software package provides ample means to overwhelm the user with gratuitous graphics.

Tractinsky and Meyer themselves argue for the consideration of a theory of ‘information presentation as self-presentation’ in their study of information designers’ use of graphics for presenting information. Citing Lesikar and Pettit (1991), they support the view that the communication approach offers only vague and general advice on how graphics should be used, but says nothing about why or when a person would prefer to present information in one way or another. They then suggested that whenever presenters are able to ignore self-presentation considerations, they are likely to prefer presentations that are more efficient and more in line with recommendations in the MIS/HF literature. However, when self-presentation’s interests enter into the presenter’s consideration, one expects to find more gratuitous presentations. They acknowledge that this

view is similar to the observation by Levy, Zacks, Tversky, and Schiano (1996) that a presenter might emphasise self relative to others' interests, or vice versa, when selecting information presentation formats. Tractinsky and Meyer conclude therefore that among other criteria that should be considered are those related to the user's potential response to the presented information, as well as possible presenter tendencies to impress or divert the attention of intended users of the information with ostentatious presentation formats, particularly when the information being presented could portray the presenter in a bad light.

Users' cognitive capacities and preferences

The content of information products invariably comprises formatted text, images and, sometimes, voice and sound that information designers want users to perceive and understand. Information perception is a cognitive process and, in its simplest definition, refers to the way in which we recognise, interpret or understand the symbols or messages our sensory systems receive. A question that has been researched by psychologists is how people read (i.e. perceive and make sense from) organised communication symbols on a printed page. Early research showed that reading involves a sequence of visual fixations producing patterns of stop-and-go fixation, followed by eye movement from left to right. Just and Carpenter (1987) report from an experiment that when college students read text that is appropriate for their age, they fixate on

almost every content word, and skip short function words such as *a*, *the*, or *that*. Readers also fixate longer on unfamiliar words, and on words that are important to the theme, than they do on other words. Psychologists have also suggested the Fog Index as a way of assessing the readability of a passage of text. The Fog Index depends on the length of the words and sentences in the passage, on the assumption that shorter words and sentences would generally be easier to comprehend than longer ones.

Psychologists also contend that visual imaging is often superior to textual presentations in aiding memory and thinking (Philips, 1986). Educators have also found that picture-word diagrams are more effective than text alone for the comprehension of science concepts (Winn, 1980), and that graphical representations direct learners' attention to the importance of concepts, hence increasing learning (Reynolds & Baker, 1981).

Chambers, J.M., Cleveland, W.S., Kleiner, B. and Tukey, P.A. (1983) believed that, even for small sets of data, there are many patterns and relationships that are considerably easier to discern in graphical displays than by any other data analysis method. Spence (2001) reviews some of the newer models and methods for enabling the visualisation in graphical forms of large quantities of numerical data. It is now generally established that graphical representations (such as drawn images, photographs, charts) can group a large amount of information that are used together, explicitly

preserve the information about the patterns of relations among entities, and support perceptual inferences that are extremely easy for learners to comprehend.

Accordingly, information designers are expected to select and align text, symbols and images, create hierarchies, and differentiate components based on their communicative or information delivery potentials. Scholarly and professional journals in the overlapping fields of design, publishing, technical writing, graphic arts, photography provide a diverse range of theoretical and practical principles and guidelines for information design in different contexts. For instance, Philips (1986) recommends the principles of parsimony, accessibility, and reflection for the design and use of computer graphics. Jefkins (1995) also itemises the following eight laws/principles for designing an information product: the laws of: (i) unity – every part of a layout should contribute effectively towards the whole; (ii) variety – there should be variety in the use of typefaces, photographs and white space; (iii) balance – i.e. the arrangement of elements on the page should provide for overall optical balance; (iv) rhythm – the overall arrangement of elements should flow logically and be pleasantly rhythmic; (v) harmony – all the elements of the design should integrate with each other; (vi) proportion – the relative magnitudes of type sizes, faces, etc. should not diverge markedly; (vii) scale – the scale of the type sizes, tones and fore and back colour mixes should facilitate readability; and (viii) emphasis –

emphasis should be very selective, as all emphasis is no emphasis.

Users' situational characteristics

Two main categories of users may be identified in respect of an information product: target users, comprising one or more users possessing identifiable and homogeneous attributes for whom particular information content is intended and potentially valuable, and accidental users, comprising users who might benefit from an information product that wasn't initially meant for them. Information design is essentially about selecting, formatting and presenting content to satisfy the envisaged information needs of target users. Researchers of user characteristics in information design (e.g. Orna, 1992; Yerbury et al, 1991; Bardini, 1997) agree that, in order to present or deliver information effectively to target users, it is imperative to have an in-depth knowledge of the physiological, cognitive, and affective characteristics of the users, as well as of the most probable technological, environmental, real-time settings within which the users are likely to access and use the information.

Knowledge of the technology available to target users for accessing and using information products is clearly critical. Someone has produced an information product with a technology, and the technology also serves as the information delivery and means of accessing the information. However, also critical are physical,

cognitive, affective and other variables (McCreadie & Rice, 1999). Physical variables originate in the environmental or space setting where information content would be accessed by users, and are usually tied to the medium through which information is presented, such as the printed page, the TV, computer or overhead screen, or an audio channel. The medium or form in which information is displayed must match the needs of the potential user for effective information access to occur (Chang & Rice, 1993). The medium must also match the physiological and cognitive characteristics of the user (Raghuram, 1996). Also of importance is how the available space in a given medium is used for presenting information, and this relates to such matters as text, image or sound clarity, layout and density, as well as background noise or distractions. A general guiding principle, according to Berghel, Berleant, and McGuire (1999), is to provide users with only the information they need, and to provide the information in a user-friendly way that will promote its absorption, while minimising user effort.

Methodology

The objectives of the *Soybean for Good Health* publications, as could be inferred from their contents, were to educate and motivate farmers, families and home keepers on the economic value and nutritional uses of, and the cultivation methods and food preparation methods for, soybeans. The content of the publications also indicated that they were designed for

fairly literate and educated information users in rural and semi-urban areas. The IITA supported the study with adequate copies of the two booklets, for which the authors are very grateful.

The study collected data from two types of populations: designers of the *Soybean for Good Health* booklets; and literate nursing mothers who constitute one of the categories of the users for which the booklets are intended. Data were collected from a sample of 195 nursing mothers selected systematically randomly from the list of nursing mothers registered at three post-natal clinics in Ibadan city – the IITA clinic (IITA), the Child Care Centre of the University College Hospital, Ibadan (UCH), and the Immunization Centre of the Jaja Clinic of the University of Ibadan (JAJA). Respectively, these clinics serviced populations that were predominantly members of an agricultural research organisation (IITA), or lived within or around a university campus (JAJA), or served as basic or referral health facility for the general population of Ibadan City (UCH). 65 participants were selected from each location, for a total of 195 participants. The following considerations informed data collection from literate nursing mothers attending the clinics: (i) the aspect of the contents of the publications that explained the nutritional uses and food preparation methods for soybean were clearly targeted to nursing mothers, housekeepers and households; (ii) literate nursing mothers would be used to reading similar types of publications; (iii) nursing mothers

registered at post-natal clinics are expected to visit the clinics at periodic intervals to complete the immunisation programme for their babies, and this would facilitate the administration of the data collection questionnaires.

Subsequently, the 195 sampled nursing mothers were allocated randomly to 13 different control and experimental data collection groups with 15 nursing mothers in each group. This was in order to enable the comparison of the potential influence of the different group conditions on the different information design variables that were investigated in the study. The procedure was for each participant nursing mother, depending on her grouping, to read and evaluate the whole or selected parts of the textual or pictorial, or both publications, and use their evaluation to complete a questionnaire designed for the group. Figure 1 below summarises how the participants were allocated to the 13 different groups.

Figure 1: Research design and data collection groups

<i>Respondent group</i>	<i>No booklet</i>	<i>Text booklet only</i>	<i>Picture booklet only</i>	<i>Both text & picture booklets</i>	<i>Totals</i>
<i>Control – no booklet</i>	15				15
<i>Control – partial</i>		15	15	15	45
<i>Whole booklet</i>		15	15	15	45
<i>Extract A</i>		15	15	15	45
<i>Extract B</i>		15	15	15	45
<i>Totals</i>	15	60	60	60	195

The first group (*Control – No booklet*) comprised those who were asked to read no booklet at all, but were nevertheless asked to complete the appropriate questionnaire on the spot at the clinics. The basic reason for this group is to test the respondents’ knowledge on the use of soybean either prior to or after the production of the booklet, and to see if their prior knowledge of the booklet do influence their responses to the questionnaire items. The three groups in the *Partial Control* row totalling 45 participants (referred to as the *Partial Control* groups 1, 2 and 3 respectively), were given the textual or pictorial booklet, or both, to take home to read and return on their next clinic appointment, at which time they were asked to complete the appropriate questionnaire, although they were not previously informed that they will be required

to do so. This was to ascertain whether they actually read the booklet(s) as they were instructed. The 45 participants in the *Whole booklet* row were required to read the appropriate whole booklet(s) and answer their corresponding questionnaire on the spot at the clinic, whereas participants in the *Extract A* or *Extract B* rows were given either Extract A or Extract B from either the textual, or pictorial booklet, or both, to read on the spot at the clinic and answer the appropriate questionnaire. The second sample comprised six purposively sampled information product designers in the publishing and Soybean Crop Improvement Program units of the IITA.

Data were collected with different versions of a structured four-page questionnaire. The first three pages of the different versions were the same, whereas the last page differed for the designer groups and the 13 nursing mother groups. The first page of the questionnaire requested selected demographic information, and the next two pages requested information on each participant's preferences for different content features of printed information products. The last page collected data on each participant's preferences for different features of the booklet (or part thereof) which she received. The last page of the designer's questionnaire collected data regarding the importance that they accord different information design variables when designing information products like the *Soybean for Good Health* booklets. This is to determine the level of

agreement/disagreement in the way the designers and the users perceive information design.

An interactive session was organised among prospective participants, the clinic workers and the researchers prior to the administration of the study protocols, with a view to informing participants about the aims and methods of the study, and to seek the support of those who were eventually sampled. The session was also used to explain procedures for completing the questionnaires, including the requirement that they should not discuss their booklets, questionnaire or responses with any other participant in the study. The setting and the explanations motivated the selected nursing mothers to participate willingly, with very few refusals. Each consenting and selected participant was thereafter randomly assigned to any of the 13 user groups, and the corresponding booklets, questionnaire administered to the participant. Data were collected intermittently at the three clinics over a period of about 12 weeks.

Analysis of the demographic attributes of the sample of nursing mothers showed that 82.5% of the participants were aged 21-40 years. Almost all of them had had at least secondary education (95%), whereas 47.3% were educated up to bachelors degree and equivalent levels. Most of them were working (88.7%), with only 5.4% being full-time housewives. There were only 9.3% rural dwellers in the sample.

Analyses and results

The analyses of the data were undertaken at two main levels – general and comparative. The general analyses involved analysing the data collected in respect of identical product design and formatting variables from all respondents on their preferences for different design and formatting strategies that may be used for designing the content of printed information products like the IITA Soybean booklets. The comparative analyses were also done to compare responses to the different formatting strategies in order to ascertain similarities and differences in perceptions that might arise from the different experimental conditions to which the different groups were subjected. This paper, however, reports and discusses findings in respect of the general analyses.

1. Relative importance of content and packaging design features

Figure 2 below summarises the data in respect of the extent of agreement or disagreement by the sampled target users with statements describing the importance, or effect, of different content and packaging features of printed information products. The users agreed or strongly agreed most with “1. Words in capital letters easily read” (85.2% of the respondents), “14. Understand better brief sentences than long ones” (75.4%) and “10. Interested in reading material with beautiful cover design” (72.3). Also, slightly below or

above 65% of the users agreed or strongly agreed with “17. Refer to table of contents of any booklet when reading it” (69.7%), “3. Understand information better in textual form” (67.7%), “2. Understand information better in pictorial form” (65.6%). The last two results suggest that the users appeared to be comfortable with information presented in either textual or pictorial formats. But only about a third of them agreed with “6. Prefer pictorial to textual information” (38.5%), and even much fewer agreed with “5. Get easily confused with pictorial information” (13.8%). The conclusions from these results, therefore, are that the users tended to prefer textual to pictorial presentation of information, although they were not put off by pictorial presentation formats. The slightly higher preference for textual than pictorial presentation of information is likely explained by the medium to high level of education of most of the users.

Figure 2: Users' agreement or disagreement with importance of different content features

<i>S/ N</i>	<i>Content feature</i>	<i>Agreed and strongly agreed responses (%)</i>	<i>Disagreed and strongly disagreed responses (%)</i>	<i>Undecid ed response s (%)</i>	<i>N</i>
1	Words in capital letters easily read	85.2	8.2	6.7	182
2	Words in small letters easily read	62.6	26.6	11.8	180
3	Understand information better in pictorial form	65.6	14.4	19.0	179
4	Understand information better in textual form	67.7	13.3	19.0	177
5	Get easily confused with pictorial information	13.8	70.8	15.4	179
6	Prefer pictorial to textual information	38.5	26.7	34.9	175
7	Don't care about quality of paper used	27.7	55.4	16.9	179
8	Consider number of pages of booklet before reading	56.4	27.6	15.9	180
9	Quality of print does not affect value I attach to information	44.1	35.4	20.5	177
10	Interested in reading material with attractive cover design	72.3	11.3	16.4	176
11	Prefer photographs to illustrative	55.4	17.4	27.2	179

	diagrams				
12	Prefer arrowed diagrams to numbered steps	32.8	37.4	29.7	179
13	Prefer top-down to left-right list of procedures	39.0	23.1	37.9	175
14	Understand better brief sentences than long ones	75.4	10.7	13.3	181
15	Prefer plenty of explanatory sentences	30.2	53.9	15.9	179
16	Derive more meaning from question/answer presentation of information	49.8	25.6	24.6	178
17	Refer to table of contents of any booklet when reading it	69.7	10.7	19.5	177
18	Do not like reading booklet without table of contents	42.6	34.3	23.1	180
19	Relative positions of text/pictures not significant to understanding	26.2	53.9	20.0	176
20	My attention caught by long than short title of booklets	17.0	62.6	20.5	177

The following three results in the table also provide interesting conclusions about the preferences of the users: “14. Understand better brief sentences than long ones” (agreed/strongly agreed with by a very high 75.4% of users), “15. Prefer plenty of explanatory sentences” (by a low 30.2%), and “20. My attention caught by long than short title of booklets” (by a very

low 17.0%). These results confirm that users usually prefer briefer information to verbose ones.

Another set of interesting results pertains to the following two content features: “8. Consider number of pages of a booklet before reading” (56.4% agreed/strongly agreed, 27.6% disagreed/strongly disagreed) and “15. Prefer plenty of explanatory sentences” (30.2% agreed/strongly agreed, 53.9% disagreed/strongly disagreed). The two results are about the exact reverse of each other. Moreover, an identical percentage of the users (i.e. 15.9%), were undecided about the importance of these two content features. The results may be interrelated as follows: the majority of users consider the volume of material in a booklet before reading it, and about the same majority of users were averse to having to read plenty of explanatory sentences in a booklet. The results clearly confirm that users prefer brief booklets, as well as brief explanations in the booklets.

Furthermore, the users mostly either disagreed with or were undecided on “12. Prefer arrowed diagrams to numbered steps” (37.4% disagreed, 29.7% were undecided), “13. Prefer top-down to left-right list of procedures” (23.1 disagreed, 37.9% were undecided) and “19. Relative positions of text/pictures not significant to understanding” (53.9 disagreed, 20.0% were undecided). These results indicate that, although most of the users were able to discern the importance of

such information content design variables as the relative positioning of text and figures on a printed page, top-down or left right sequencing of content material, and use of numbering or arrows to facilitate user navigation of content, many of them were nevertheless unaware or undecided about the importance of such features.

Information designers are expected to be conscious of the importance of these content design variables; but users may be excused if they are not conscious or are undecided about of their importance or value.

2. Rural-urban differences in users' preferences for content features

Figure 3 summarises the results of chi-squared analyses of the cross-tabulation of the location of the users (rural, urban) with their agreement (agreed and strongly agreed responses) or disagreement (disagreed and strongly disagreed responses) with the importance of the different content design features. Only the significant chi-squared results are provided in the table to save space. Further analyses comprised the comparison of the observed and expected cell values for the significant results to determine the groups of users (rural or urban) that tended to agree or disagree more on the importance of each content feature.

The figure shows, firstly, that there was a significant level of association between users' location and their tendency to agree or disagree that they preferred arrowed diagrams to numbered steps in presenting

information, with urban users tending to agree more (+) and rural users tending to agree less (-). Secondly, there was a significant level of association between users' location and their tendency to agree or disagree that they preferred the use of plenty of explanatory sentences to present information, with urban users tending to agree more (+) and rural users tending to agree less (-).

Figure 3: Significant chi-squared test results for location of users (rural, urban) and their agreement or disagreement with content feature

S N	Content feature	N	Chi-squared Value	df	Asym p. Sig. (2-sided)	Groups tending to agree or disagree more
12	Prefer arrowed diagrams to numbered steps	108	4.861	1	.027*	Urban (+) Rural (-)
15	Prefer plenty of explanatory sentences	120	6.012	1	.014*	Urban (+) Rural (-)

Notes:

1. (+)/(-) means that the group tended to agree more (+) or less (-) with the importance of the feature.

* Test was significant at the .05 level.

3. Age group differences in users' preferences for content features

Chi-squared analyses were also performed to ascertain possible relationships between the age group of users

and their tendency to agree or disagree with the importance of each of the content features (Figure 4). The figure shows, firstly, that users aged less than 30 or aged between 31-40 years tended to agree more that words in capital letters are easily read, whereas their older counterparts tended to agree less. Secondly, users aged less than 30 years tended to agree more that they get easily confused with pictorial information, whereas those aged 31-40 years tended to agree less. Finally, users aged less than 30 years tended to agree more that their attention is drawn to a long than short titles of booklets, whereas those aged 31-40 years tended to agree less. These results could be because older users, who would have had much experience with a diverse range of printed information products, might be less carried away by capitalised words or long titles, and might also be better able to interpret pictorial information than their younger, less experienced counterparts. Wong and Stokerson (1997) had actually observed that the narrative and subjective nature of pictorial information demands a higher understanding in interpreting its complexity, which is expected to mature with age. Moreover, research has equally shown that lower case print is preferred by most fluent and experienced readers, and is read about 10 per cent faster than words in capital letters. However, for single letters (e.g. labels on diagrams), capital letters are more easily differentiated (Johnson and Johnson, 2010).

Figure 4: Significant chi-squared test results for age of users and their agreement or disagreement with content feature

S N	Content feature	N	Chi- squa red Valu e	df	Asym p. Sig. (2- sided)	Groups tending to agree or disagree more
1	Words in capital letters easily read	70	6.18 4	2	.045*	<30 years (+), 31-40 years (+), >40 years (-)
5	Get easily confused with pictorial information	11 9	7.77 8	2	.020*	<30 years (+) 31-40 years (-)
20	My attention caught by long than short title of booklets	10 7	6.02 9	2	.049*	<30 years (+) 31-40 years (-)

Notes:

1. The users age groups were < 31 years, 31-40 years, and > 40 years.
 2. (+)/(-) means that the group tended to agree more (+) or less (-) with the importance of the feature.
- * Test was significant at the .05 level.

4. Educational level differences in users' preferences for content features

Finally, chi-squared analyses were performed to ascertain significant levels of association between the educational level of users and their tendency to agree or disagree with the importance of each of the content features. Significant levels of association were found in respect of four of the features (Figure 5).

The results show, firstly, that users with comparatively lower educational levels tended to agree more that they get easily confused by pictorial information. They also tended to agree more that they prefer plenty of explanatory sentences and that they derive more meaning from information presented in question/answer format. Finally, they also tended to agree more that they are attracted by long than short titles of informative booklets. With respect to each of the above content features, these tendencies of users with low educational backgrounds were almost always contrasted by those of users with high educational backgrounds who tended to agree less.

Figure 5: Significant chi-squared test results for education level of users and their agreement or disagreement with content feature

S N	Content feature	N	Chi-squared Value	Df	Asym p. Sig. (2-sided)	Groups tending to agree or disagree more
5	Get easily confused with pictorial information	11 9	10.3 27	2	.006*	Low (+) High (-)
8	Consider number of pages of booklet before reading	11 6	6.39 3	2	.041*	Low (+) Average (-) High (+)
15	Prefer plenty of explanatory sentences	12 7	18.3 92	2	.000*	Low (+) Average (-) High (-)
16	Derive more meaning from question/answer presentation of information	11 9	9.02 1	2	.011*	Low (+) Average (+) High (-)
20	My attention caught by long than short title of booklets	10 7	14.2 42	2	.001*	Low (+) High (-)

Notes:

1. The users' educational level categories were Low (Primary and Secondary); Middle (NCE, OND); High (HND, Degree, Higher degree) levels education.
 2. (+)/(-) means that the group tended to agree more (+) or less (-) with the importance of the feature.
- * Test was significant at the .05 level.

5. Differences in preferences between users and designers

The final type of analyses involved the use of Mann-Whitney non-parametric tests to compare the extent of agreement or disagreement by users (N=195) and information designers (N=6) with the importance of each of the content features. Figure 6 summarises the significant test results. The results showed that users and designers differed significantly in the extent of their agreement in respect of only two of the 20 content features. These are: “1. Words in capital letters easily read”, with which users tended to agree more and designers tended to agree less; and “15. Prefer plenty of explanatory sentences”, with which users tended to agree more and designers tended to agree less.

Words and sentences rendered in capital letters are generally more difficult to read than those rendered in small (lowercase) letters. Information designers, from both training and experience, are expected to know this more than the average user. Similarly, experienced designers usually seek to convey ideas with as few simple sentences as are adequate to convey intended information accurately. As noted earlier in this section, users themselves usually also prefer briefer information presentation formats than verbose ones, including brief booklets and brief explanations. But the results pertaining to the relative preferences for explanatory sentences in Figure 6 also suggest that, compared to

information designers, users might be willing to tolerate slightly more explanatory sentences to promote their understanding of information being presented in a printed booklet and similar products.

Figure 6: Significant Mann-Whitney tests of differences in the importance rating of different content features by users and designers

	Feature	Sample Group	N	Mean Rank	Mann-Whitney U	Z	Sig.
1	Words in capital letters easily read	Users	182	97.13	68.000	-4.129	.000*
		Designers	6	14.83			
15	Prefer plenty of explanatory sentences	Users	164	86.84	273.000	-2.011	.044*
		Designers	6	49.00			

Notes:

1. The Mann-Whitney test comparing the mean ranks of importance ratings of each feature by the samples of Users and designers. Higher mean ranks indicate stronger level of agreement with corresponding feature, and vice versa.

* Test was significant at the .05 level.

Discussion

The findings of the study also confirm that users are generally put off by verbose information, although they would usually be attracted to bold titles and headlines, as was also found by Oyovwevoto (1993). One finding of this study that confirms users' preference for briefly presented information is their preference for shorter titles of booklets. The preference for brief information

is further confirmed by the finding that most of the users preferred a question-and-answer format for information presentation, a format that is extensively used by online information systems through their Frequently Asked Questions (FAQs) facilities. The question-and-answer format for presenting information actually packages chunks of information in the form of brief answers to directly meet the information needs represented by the questions. This strategy helps users to find required information more easily, in much the same manner as tables of contents and indexes of books and database and help file indexes help users to locate desired information in electronic information products such as software and websites.

These findings corroborate those of many earlier studies. Hamilton and Shedlock (1992) concluded that the question-and-answer format for presenting information is one of the distinctive features that enhance report effectiveness. Gibson (1998) also observed that questions can lead readers into a story to learn answers, and that magazine titles in the form of questions could be very effective in this regard if they are not exaggerated. Abeytungwa (1999) cites the Canadian Center for Occupational Health and Safety (CCOHS) as a case study where all the required health information in both printed and electronic format were available in question-and-answer format. Finally, Bachmann (2005) also agrees that question-and-answer format for presenting information is the key for

effective documentation and successful communication to users, and that by knowing the right questions, presenters can provide answers that lead to greater acceptance and usability of the information.

The findings of this study also show that the users preferred information presented to them in both lower and upper case letters, but with the younger, less educated and less experienced users preferring the use of upper case letters slightly more than lower case letters. Upper case letters are generally bolder than lower case letters rendered in the same font type and size. Younger, less educated and less experienced individuals are likely to be more impressionable than their older, more educated and less experienced counterparts. They are therefore more likely to prefer upper than lower case letters for presenting information. However, research has shown that lower case letters are usually easier to read than uppercase letters, but one is of the opinion that this knowledge only comes as a user gains reading experience with information presented in different types of fonts.

Tinker (1963) observed that upper-case letters are more legible than lower-case letters when presented individually. This is probably because upper-case letters contain more horizontal and vertical strokes, which are easily processed, as opposed to lower-case letters that have more curved strokes. Whealdon (1997) has equally observed that since words in upper-case letters

generally have rectangular outlines, we read them slower than the lower case words that can be recognised at a glance. Bowles and Borden (2004) have however observed that a combination of upper and lower-case letters enhances legibility, although earlier research has found such practice, which is called “false capitalisation” or “upstyle” according to Gibson (1988), slows reading. Both Kowles and Martins (1982) and Aslin (1985) also observed that children’s eye-movement patterns remain significantly less efficient than those of adults. As a result, children and less experienced readers might likely prefer individually presented upper-case letters for presenting information as Tinker (1963) earlier noted.

The study revealed that users are attracted by beautifully designed cover pages of printed products, a feature usually exploited by glossy and attractive magazine covers. Daily newspapers and tabloids also seek to exploit this feature through use of tantalising or screaming headlines, banners, and a mix of colour and extra-large font sizes. These findings corroborate Bohle’s (1990) findings, who observed that given today’s fast-paced lifestyles, an uninviting, grey-looking newspaper may end up in the waste basket, unopened and unread. Dahl (1990) also reported that an attractive page layout is one of the distinctive features that enhance information products. Campbell (1983) discovered earlier that colours have the power to evoke specific emotional responses in the viewer and that

cultural association with colour also influences the way users relate to information. Accordingly, as noted by Finberg and Itule (1989), designers need to pay close attention to this relationship when considering colour schemes for information products such as books or newspapers, especially the cover page, headline or homepage of a website. The importance of attractive and beautifully designed cover page of printed materials is further corroborated in a survey conducted by the America Newspaper Advertising Bureau. According to Finberg and Itule (1989), the study found out that body copy of colourful advertisements is read 50 to 80% more than copy in black- and-white advertisements.

Most of the users preferred the combination of text plus illustrative photographs or diagrams for the presentation of information. However, they tended to prefer real life photographs to diagrams, a user preference also noted by Gastel (1983). A probable reason for this is that, although constructed diagrams and images are more likely to present information more precisely and clearly than photographs, users are more likely to perceive them as constructed technical objects designed to convey technical information that might be difficult for them to interpret. This reasoning is corroborated by the finding in this study that roughly a third (32.8%) of the surveyed users said they preferred arrowed diagrams to numbered steps for the presentation of information. This shows that users were often unsure about the interpretation of diagrams. Accordingly, users would

view diagrams as less friendly than a photograph that presents scenes as they are.

These findings also corroborate those found by Harris (2000) who observed that pictures tend to illustrate events and situations better and as such have more impact on many people than illustrative diagrams which have limited scope. Harris observes further that an illustrative diagram does not impart information in the same way as a real picture because readers know that illustrative diagrams are “tricks” and not real. Research has also shown that readers enjoy reproductions of actual events and people (Finberg and Itule, 1989). Agreeing with these views, Wilbur and Burke (1998) observe that readers who expect to see factual reporting on the news pages always get confused when an illustrative diagram is used instead of a photograph. Finberg and Itule (1989) have equally observed that using illustrative diagrams on page one of newspapers, rather than photographs, give the page a cartoon-like and “feature-like” appearance. This could be misleading and as a visual device, the illustration could cause more problem than it is trying to solve.

However, in variance with the above views, Arnston (1998) observed that illustrations may be chosen instead of photographs in order to provide detailed information on subjects that cannot be photographed, for instance, highlighting tiny engine parts that are difficult to see or photograph. In the medical field for instance, where the

need for accuracy of information as well as the clarity and effectiveness of presentation are vital, the need to simplify, clarify and select only detailed information required for complete communication illustrative diagrams are considered (though not in all cases) to be more effective than photographs (Arnston, 1998). Steur (1995) also believes that illustrative diagrams are considered to be the most effective way to present highly emotional materials. Zakia (1979) also stated that though a photograph is capable of creating surreal and emotive images, illustration is still more flexible.

Conclusion

The findings of this study confirm that although users of information products may differ on the relative importance or value that they place on some information content design strategies and features, they nevertheless tend to agree on many others. The findings also show that although designers and users tend to agree on the importance of many of strategies and features, they however perceive differently the importance of a few of them, particularly those that demand the use of high-level design expertise to implement or interpret, such as the optimal arrangement, sequencing or mix of text or objects on a printed page. Finally, the findings also show that demographic characteristics of users, such as age, educational qualification and rural or urban location can influence how they perceive and value the different content design features of an information product.

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Presenting children's rights' issues in Nigerian and Ghanaian newspapers

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Abstract

A number of people get most of their information from news in the media. Thus, the way we identify, define and respond to social issues largely depends on how those issues are presented in the news. This study sets out to establish how the media cover children's issues, with a view to establishing whether the media help to expand or constrain the understanding of children's rights. Through content analysis, two newspapers each from Nigeria and Ghana are compared. The findings show that the presentation of children by the two countries' newspapers will not deliver the expected understanding of child rights' issues, due to underreportage of children by the newspapers. Only 448 stories were identified in 1 200 issues of newspapers over five years. Besides, children's issues are not given extensive treatment by appropriate media genres, were presented as not newsworthy, and children's voices are poorly represented in issues that affect them. It is

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therefore necessary for a more determined effort to be made in placing child rights' issues on the public agenda by giving them their place in news presentation and treating child rights as a development issue following the principles of development journalism and media's responsibility to society.

Keywords: Children's Rights, Newspapers, Nigeria, Ghana, Content Analysis

Introduction

Children's rights are claims that all children have for survival, development, protection and participation. It is necessary to secure these claims for children if the future is to be sustainable. It is against this background that all efforts are made to ensure that the rights of children are guaranteed. The first global attempt to bring issues affecting children to the fore was the 1924 Geneva Declaration of the Rights of the Child. This was followed by the 1959 Declaration of the Rights of the Child and the proclamation of 1979 as the International Year of the Child by the United Nations.

But the most notable event connected to children's rights was the UN Convention on the Rights of the Child, which was adopted and opened for signature, ratification and accession by UN General Assembly resolution 44/25 of November 20, 1989. It became effective on September 2, 1990. About 191 countries have since ratified it (Unicef 2002), including Ghana and Nigeria. The Convention is child-centric and places the child's needs and rights first, ahead of the parents' or others'. It requires that states act in the best interests of the child. The Convention also assigned certain responsibilities to the media in the pursuit of the fulfilment of child rights; among which are to disseminate information and material of social and cultural benefit to the child and ensure that the child has access to information (Unicef 2002:65-66).

It is against this background that the Asian Summit on Child Rights and the Media (1996) and the Oslo Workshop (1999) were held. The relationship between the rights of the child and the media was established in 1996 at the Asian Summit on Child Rights and the Media held in Manila, the Philippines (Hurights, 1996). Part of the Summit's resolutions is that media content aimed at children should be of high quality, made specifically for children, and should not exploit them but support their mental, social, moral and spiritual development. When the media enable children to hear, see and express themselves, their culture, their languages and their life experiences, it will affirm their sense of self and community. In much the same way, media should be made accessible to children when they need it and when the content is aimed at them (Hurights, 1996).

The Oslo workshop of 1999 noted that “the child/media relationship is an entry point into the wide and multifaceted world of children and their rights to education, freedom of expression, play, identity, health, dignity and self-respect, protection; and that in every aspect of child rights, in any element of the life of a child, the relationship between children and the media plays a role” (Onumah, 2004:65; The MediaWise Trust, 2003). The Challenge is a call to action with the aim of ensuring that the overwhelming power of the media for good in the lives of children is identified, encouraged

and supported, while the potentially harmful effects are recognised and reduced. The Oslo Challenge also assigns the media practitioners the crucial role of acting as a catalyst for the realisation of children's many unfulfilled dreams. The media should empower children to make informed choices and actively participate in society with a view to helping to realise their rights to life, freedom of expression, education, sound health, and protection from abuse, exploitation and violence.

It is against the backdrop of the roles and challenges given to the media in respect of the rights of the child by the aforementioned Convention and resolutions that this paper examines how Nigerian and Ghanaian newspapers have given attention to issues that concern children. The objectives of the study are to:

- compare the extent of the coverage given to child rights by selected Nigerian and Ghanaian newspapers in terms of frequency, level of prominence and types of journalistic genres used in reporting child rights' issues;
- determine which government-owned newspapers and privately owned newspapers give greater commitment to child rights' issues;
- examine the extent to which the selected papers expose child abuse;
- determine the issues (themes) that the newspapers report on; and

- identify the categories of people that the newspapers engage on the issue of child rights.

Theoretical framework

The theoretical framework of this paper is based on the Social Responsibility and Development Journalism theories. The idea that emerged from the Hutchins Commission report of 1947 formed what is known today as the Social Responsibility theory of the press (Nerone, 2002). The hub of the Social Responsibility theory is that the media should be used for the public good. It emphasises the need for an independent press that scrutinises other social institutions and provides objective, accurate news reports. Though it canvasses for the freedom of the press, such freedom places obligation on the press; it should be responsible to society for carrying out certain essential functions of mass communication in contemporary society (Siebert, Peterson and Schramm, 1963; McQuail, 1987). It calls on the media to be responsible for fostering productive and creative “Great Communities” (Baran and Davis, 2003:109), and suggests that media should do this by prioritising cultural pluralism – by becoming the voice of all the people – not just elite groups or groups that have dominated national, regional or local culture in the past. It also points out that the media, in carrying out their obligations, must adhere to the highest ethical standards.

Development journalism refers to the practice of journalism concerned with gathering, packaging and disseminating development-oriented news and information (Adebayo, 1990:45). It involves reporting on ideas, programmes, activities and events that are related to improving people's living standards. In other words, the media ought to be committed to contribute to the overall goal of development, to promote cultural and informational autonomy, to support democracy and show solidarity with other developing countries (McQuail, 2005). Basically, it is assumed that journalism is able to influence the development process by reporting on development programmes and activities. Accordingly, it is the journalists' duty to "critically examine and evaluate the relevance of a development project to national and local needs, the difference between a planned scheme and its actual implementation, and the difference between its impact on people as claimed by government officials and as it actually is" (Aggarwala, 1979:181). This means that news should not only be defined in terms of conflict, timeliness and unusualness, but rather in terms of commitment and participation (Okigbo, 1991:9). Okigbo (1991:9) further itemised some of the roles that mass media should perform in the development process. They include:

- providing access to a wide variety of people;
- determining the people's needs for development information and programming for these needs;

- supporting horizontal and vertical flows of information;
- supporting cultural communication; and
- raising people's awareness and adoption of new methods that promote development.

Soola (2003) added to this list that the media should:

- help government's and people's agendas for development to converge;
- explore and integrate the potential of traditional and interpersonal networks into mass media development and activities;
- mobilise resources for development programmes and projects.

Thus, in this view of media's role in society, the media have a responsibility to promote the rights of the child and to protect them from harm in the media. Similarly, the media should be occupied by the issues affecting children, supporting children in every way possible to attain a proper childhood and sustainable future.

The role of the media in promoting child rights

The media are influential because they penetrate every segment of modern-day society and effectively influence how people view themselves, their neighbours, their communities and their world. Media representations are the primary source of information

on social problems for many people (Hutson, Liddiard and Campling, 1994). Maley (2000: 37) for instance, notes that: “In social and cultural matters, the various media provide the main platforms of debate, and their choices of subjects, participants and opinions shape the agenda and much of its content.” The media play a significant role in forming and influencing people’s attitudes and behaviour (Brawley, 1995).

Goddard and Saunders (2001) draw attention to the essential role of the media in increasing the society’s awareness of, and response to, child abuse and neglect. News and features could be used to report child abuse cases, research and intervention strategies. Such media attention paid to child abuse can positively influence public opinion, professional and political responses to the circumstances in which children and young people find themselves. Ericson, Baranek and Chan (1987:3) observe that journalists play a major role in constructing what is considered “deviant” in our society and, therefore, what is “normal”. Journalists do not merely reflect the work of others who define deviance and attempt to control it, but are themselves in some ways agents of social control; they are “a kind of deviance defining elite” who articulate the “proper bounds to behaviour” in our society (Ericson, Baranek and Chan, 1987:3).

In addition to news stories, feature articles and investigative journalism, sporadic mass media

education and prevention campaigns could be launched. These campaigns could broaden communities' knowledge of child abuse and neglect, influence people's attitudes towards children and young people and change behaviours that contribute to, or precipitate the problem of, child abuse and neglect in our communities.

Though it has been argued that complex attitudinal or behavioural change requires more direct forms of citizen contact and intervention, the media at least are effective in building citizen awareness of an issue (Freimuth, Cole and Kirby 2001; McDevitt, 1996; O'Keefe and Reed, 1990; Reger, Wootan and Booth-Butterfield, 2000; Saunders and Goddard, 2002). Besides, mass media campaigns and coverage of children's rights play a significant role in placing the relevant issues on the public and political agenda. Lindsey (1994:163) also asserts that "media has a central role in mediating information and forming public opinion. The media casts an eye on events that few of us directly experience and renders remote happenings observable and meaningful".

Parajuli (2004) also notes that the media can highlight children's issues by allowing children who have been working (in the worst form) as domestic servants, on the streets, in factories and mines/quarries as well as those rehabilitated from any organisation to participate in their media programme. He adds that children, being

the future of a country, must be provided with education, socialised, motivated and equipped with all the basic necessities for their personality development. In this connection, the rights of the children to education, health, communication, participation, physical and moral support are some of the major components for their well-being. So the media have to raise the awareness of children's situation to relevant NGOs or government. In other words, mass media education and children's rights campaigns present ways of breaking the cycles of suppression and denial.

Method of study

The method adopted in this study is content analysis research design. Content analysis is a method of studying and analysing communication in a systematic, objective and quantitative manner for the purpose of measuring variables (Wimmer and Dominick, 2003:141).

The population for this study comprised all newspapers published in Nigeria and Ghana between 1999 and 2003. With the use of stratification, the newspapers were separated along the lines of ownership: those owned by the government and those that are privately owned. Furthermore, between these two categories, only the national newspapers were considered appropriate for selection because this is a comparative study of two nations. Consequently, from the Nigerian national dailies, *Daily Times* was the only government

newspaper published during the period under study; it thus constituted the selected sample. *The Guardian* was randomly selected (through a simple random technique) from the list of the privately owned national newspapers. Ghana is said to have 11 national newspapers, but only *Daily Graphic* – a government-owned newspaper – is truly national (Kafewo, 2006), and thus constituted the sample. *Daily Guide* is included in the sample because it is a leading privately owned newspaper and the only national daily paper giving the *Graphic* some form of competition. Therefore, *Daily Times* and *The Guardian* were selected from the Nigerian newspapers while *Daily Graphic* and *Daily Guide* were selected from Ghanaian newspapers. It is hoped that the study will be a continuous one so as to monitor the trend of the coverage of children's issues by the Nigerian and Ghanaian press.

Two factors informed the choice of the years of investigation, which were 1999 to 2003. Firstly, landmark events took place during this period in respect of the child and the media, among which were the passing of the Children's Act of 1998 by the Ghanaian Parliament; the formation of the Oslo Challenge in the year 1999; the African Regional Summit on Media for Children which was held in Abuja, Nigeria in 2000; the launch of Magic (Media Actions and Good Ideas by, with and for Children – a network initiated by Unicef and the Norwegian government); and the passing of the Child Rights Act of 2000 by Nigeria's National

Assembly. Secondly, one of the objectives we set out to achieve in this study was to examine how government-owned newspapers covered child rights' issues in comparison with privately owned newspapers. To make for a fair representation of the newspapers in the countries, it was necessary to draw from both government-owned and privately owned newspapers. While this was easy with respect to Ghanaian newspapers, Nigeria's only government-owned national newspaper, the *Daily Times*, was privatised in August 2004. Since we wanted to use a Nigerian government-owned national newspaper, we were compelled to stick to that period.

A total of 1200 issues of the newspapers constituted the sample size. Through the use of simple random sampling, five issues were selected in every month of the five-year period. Thus, 300 issues per newspaper yielded 1200 issues from the four selected newspapers. The unit of analysis comprised all articles or stories on child issues in the form of news, features, opinions, editorials, pictures or letters to the editor. They were examined for frequency of reporting children's rights issues, prominence given to the reports in terms of newspaper page placements, and people quoted as news sources. The data were analysed using percentages.

Content categories

The units of analysis were examined in the following categories:

- Journalistic genres (types of editorial matter) – comprising news, features, editorials, opinions and pictures. Cartoons are not included.
- Prominence – categorising the front-page items as ‘most prominent’, back page as ‘prominent’ and inside-pages’ items as ‘least prominent’.
- Child abuse exposure – frequency of reports on physical injury upon a child, assault of a minor, sexual abuse, neglect, armed conflict and trafficking.
- Source of report – whether it was locally sourced or from wire services.
- Primary subjects – the issues or themes that the stories focused on. They are: (1) Plights of children/abuse – these are stories on difficulties confronting children and reports on child abuse but without proffering solutions to the problems; (2) Advice to parents/children – including counsel given to parents and guardian; (3) Welfare stories on children/philanthropy – philanthropic deeds to children such as donations to schools and motherless babies’ homes, or scholarships; (4) Children involvement in sport/entertainment – reports on children involvement in sports, music and other forms of entertainment; (5) Efforts to redress harmful situations – stories on what is being done to improve children’s bad situations, or solutions offered to children’s problems, such as opening new schools, introduction of free feeding

in schools, immunisation for children; (6) Juvenile delinquencies – antisocial behaviour of juveniles; (7) Children’s efforts for their own care – stories on what children are doing to help themselves, like children’s parliament reports, children’s clubs, and associations’ activities. (8) Other: themes that do not belong to already mentioned categories, such as birth registration, or disciplinary actions against children.

- People quoted: individuals who were contacted as news sources in the reports. These include: (1) Government agents – these are individuals working for government irrespective of their professional leanings. (2) NGOs/advocates – these are independent individuals or groups who are championing the cause of children irrespective of their professional calling. (3) Police/court – The police or court of law reported in the news in respect of children. (4) Parents/relatives – people who spoke primarily as parents/guardian/relatives on children’s issues. (5) Donors – those who render philanthropic deeds to children. (6) Teachers/administrators – school teachers and administrators like head teachers and principals. (7) Politicians – elected officers in the government like the state governors, or legislators. (8) Researchers/professors/experts/doctors – these are professionals who make statements about children’s situations out of their professional base, without speaking for the government. (9) Children.

(10) Others – including clergy, neighbours and journalists.

Cohen’s Kappa reliability (k) test method was adopted to calculate the intercoder reliability. The values of intercoder agreement were interpreted using Landis and Koch’s (1977) interpretation guidance. Eight major variables were examined for intercoder reliability, ranging from substantial agreement to almost perfect agreement between the two ratings. They included child right issues (0.80), genres (0.83), prominence (0.91), source of report (0.90), exposure of abuse (0.90), primary subjects (0.82) and people quoted in the reports (0.73).

Results

Figure 1: Coverage of children’s issues by the selected newspapers

Newspapers	Frequency	Percentages
<i>The Guardian</i>	96	21.4
<i>Daily Times</i>	97	21.7
<i>Daily Graphic</i>	170	37.9
<i>Daily Guide</i>	85	19
Total	448	100

Figure 1 shows the coverage given to child right issues by the four newspapers. A total of 448 stories were covered over the five-year period of study. *The Guardian* had 21.4% of the stories, *Daily Times* had

21.7%, *Daily Graphic* had 37.9%, while *Daily Guide* had 19%. *Daily Graphic* reported child rights' issues more than the three other newspapers. The summation of reports of the newspapers, based on country of publication (as shown in Figure 2), shows that Ghanaian newspapers gave greater coverage to child rights' issues with 56.9%, than Nigerian newspapers with 43.1%.

Figure 2: Coverage of child rights by country

Countries	Frequency	Percentage
Nigerian newspapers	193	43.1
Ghanaian newspapers	255	56.9
Total	448	100

Figure 3: Distribution of child rights coverage by newspaper ownership

Government-owned papers	Privately owned papers
<i>Daily Times</i> 97 (21.7%)	<i>The Guardian</i> 96 (21.4%)
<i>Daily Graphic</i> 170 (37.9%)	<i>Daily Guide</i> 85 (19%)
Total 267 (60%)	Total 181 (40%)

As seen in Figure 3, 60 per cent of the stories on child rights are published by government-owned newspapers, while privately owned newspapers had 40 per cent. It then means that government-owned newspapers give greater coverage to child rights than privately owned newspapers in both countries at the time of analysis in this study.

Figure 4 shows that the four newspapers reported children’s issues mostly as straight news. The *Guardian* devoted 58.3% of its total stories to straight news, *Daily Times* had 44.4%, *Daily Graphic* had 82.3% and *Daily Guide* had 88.6%.

Figure 4: Journalistic genres adopted in coverage of child rights

Journalistic Genres	Newspapers			
	<i>The Guardian</i>	<i>Daily Times</i>	<i>Daily Graphic</i>	<i>Daily Guide</i>
News	56 (58.3%)	43 (44.4%)	140 (82.3%)	75 (88.2%)
Features	19 (19.8%)	23 (23.7%)	17 (10%)	5 (5.9%)
Editorial	4 (4.2%)	4 (4.1%)	0 (0%)	0 (0%)
Opinion	3 (3.1%)	7 (7.2%)	12 (7.1%)	0 (0%)
Picture	14 (14.6%)	20 (20.6%)	1 (0.6%)	5 (5.9%)
Total	96 (100%)	97 (100%)	170 (100%)	85 (100%)

Figure 5: Prominence of coverage by the newspapers

Story placement	<i>The Guardian</i>	<i>Daily Times</i>	<i>Daily Graphic</i>	<i>Daily Guide</i>
Front-page lead	6 (6.3%)	8 (8.2%)	7 (4.1%)	6 (7.1%)
Front-page minor	5 (5.2%)	3 (3.1%)	7 (4.1%)	9 (10.5%)
Back-page lead	2 (2.1%)	4 (4.1%)	4 (2.4%)	0 (0%)
Back-page minor	5 (5.2%)	2 (2.1%)	4 (2.4%)	2 (2.4%)
Inside-page lead	40 (41.6%)	57 (58.8%)	50 (29.4%)	24 (28.2%)
Inside-page minor	38 (39.6%)	23 (23.7%)	98 (57.6%)	44 (51.8%)
Total	96 (100%)	97 (100%)	170 (100%)	85 (100%)

Figure 5 reveals that most stories on child rights are found inside the pages of all the selected newspapers. *The Guardian* published 81.2% of all its stories on children (for both lead and minor stories) in the inside pages of the papers. *Daily Times* had 58.8% inside-page lead stories, followed by 23.7% inside-page minor stories. *Daily Graphic* also published 57.6% stories as inside-page minor and 29.4% as inside-page lead. Inside-page minor stories dominated the *Daily Guide's* coverage of child rights, with 51.8%, followed by inside-page lead stories.

Figure 6: Coverage of child abuse by the selected newspapers

	Newspapers			
	<i>The Guardian</i>	<i>Daily Times</i>	<i>Daily Graphic</i>	<i>Daily Guide</i>
Child abuse stories	22 (22.9%)	8 (8.2%)	10 (5.9%)	49 (57.6%)
Non-abuse stories	74 (77.1%)	89 (91.2%)	160 (94.1%)	36 (42.4%)
Total	96 (100%)	97 (100%)	170 (100%)	85 (100%)

Figure 6 presents the extent to which the newspapers expose child abuse. Of all *The Guardian's* stories on children, 22.7% were on child abuse, while 77% were not on abuse. For *Daily Times*, 8.2% of its stories about children centred on abuse, while the remaining 91.2% were not. *Daily Graphic* recorded 5.9% child abuse stories, so 94.1% did not focus on abuse. *Daily Guide* had 57.6% child abuse stories and 42.4% that did not focus on abuse. It was the *Daily Guide* that reported child abuse most among the four newspapers.

Figure 7: Sources of child rights reports by the newspapers

Sources	Newspapers			
	<i>The Guardian</i>	<i>Daily Times</i>	<i>Daily Graphic</i>	<i>Daily Guide</i>
Local	69 (71.9%)	82 (84.5%)	162 (95.3%)	73 (85.9%)
Wire service	27 (28.1%)	15 (15.5%)	8 (4.7%)	12 (14.1%)
Total	96 (100%)	97 (100%)	170 (100%)	85 (100%)

Figure 7 above shows that most of the reports on children were locally sourced. *The Guardian* had 71.9% reports sourced locally, as opposed to 28.1% reports from wire services. *Daily Times* published 84.5% locally sourced news and 15.5% from wire services. *Daily Graphic* reports had 95.3% local sources and 4.7% from wire services. For *Daily Guide*, 85.9% were locally sourced, while 14.1% were from wire services.

Figure 8: Primary subjects (themes) covered by child rights' reports

Child rights' issues	Newspapers			
	<i>The Guardian</i>	<i>Daily Times</i>	<i>Daily Graphic</i>	<i>Daily Guide</i>
Plights of children/abuse	40 (41.7%)	35 (36.1%)	34 (20%)	35 (41.2%)
Advice to parents/children	6 (6.3%)	11 (11.3%)	28 (16.5%)	2 (2.4%)
Welfare stories on children/philanthropy	4 (4.2%)	9 (9.3%)	39 (22.9%)	10 (11.8%)
Children involvement in sport/entertainment	2 (2.1%)	6 (6.2%)	0 (0%)	0 (0%)
Efforts to redress harmful situations for children	26 (27%)	27 (27.8%)	54 (31.8%)	32 (37.6%)
Juvenile delinquencies	0 (0%)	0 (0%)	1 (0.6%)	1 (1.2%)
Children's efforts for their own care	5 (5.2%)	4 (4.1%)	3 (1.8%)	0 (0%)
Others	13 (13.5%)	5 (5.2%)	11 (6.4%)	2 (5.8%)
Total	96 (100%)	97 (100%)	170 (100%)	85 (100%)

As shown in Figure 8, the newspapers reported more on plights and difficulties faced by children. In *The Guardian*, 41.7% of its stories were devoted to the plight of children. This was followed by efforts that are made to redress the harmful situation of children, with 27%. Of the *Daily Times* stories on children, 36.1% were on the plight of children, 27.8% on efforts to

redress the children's poor situation, 11.3% focused on advice to parents, and 9.3% on philanthropic deeds to children.

It was only *Daily Graphic* that reported more on efforts to improve poor children's situation, with 31.8% of its stories. This was followed by philanthropic gestures (in terms of donations) to children with 22.9%. The plight of children, including child abuse, constituted 20% while stories on advice to parents and children took 16.5%. *Daily Guide* also reported more on the plight of children, with 40.2% of its stories. Of its children's stories, 37.6% were on efforts to improve children's poor situations, advice to parents/children constituted 2.4%, and philanthropic deeds got 11.8%.

Figure 9: People quoted in newspapers' child rights' reports

Categories of people	Newspapers			
	<i>The Guardian</i>	<i>Daily Times</i>	<i>Daily Graphic</i>	<i>Daily Guide</i>
Government agents	11 (15.5%)	10 (17%)	35 (24.8%)	10 (13.9%)
NGOs/advocates	29 (40.8%)	20 (33.9%)	32 (22.7%)	10 (13.9%)
Police/court officials	7 (9.9%)	7 (11.9%)	9 (6.4%)	37 (51.3%)
Parents/relatives	4 (5.7%)	1 (1.7%)	2 (1.4%)	5 (6.9%)
Donors	2 (2.8%)	4 (6.8%)	31 (22%)	4 (5.6%)
Teachers/ administrators	3 (4.2%)	2 (3.4%)	11 (8%)	1 (1.4%)
Politicians	4 (5.7%)	3 (5.1%)	5 (3.5%)	2 (2.8%)
Researchers/ professors/ experts/doctors	5 (7%)	4 (6.8%)	5 (3.5%)	0 (0%)
Children	2 (2.8%)	3 (5.1%)	4 (2.8%)	2 (2%)
Others	4 (5.9%)	5 (8.3%)	7 (4.9%)	1 (1.4%)
Total	71 (100%)	59 (100%)	141 (100%)	72 (100%)

Figure 9 focuses on people quoted in the news. Nigerian newspapers mostly quoted NGOs and advocates, *Daily Graphic* quoted government officials the most, and *Daily Guide* mostly quoted police/court officials. For *The Guardian*, NGOs and advocates were quoted in

40.8% of stories, followed by government agents or officials, with 15.5% and police/court officials 9.9%.

In *Daily Graphic*, government agents were quoted in 24.8% of the stories, followed by NGOs/advocates with 22.7%, and donors with 22%. *Daily Guide* recorded the most quotations of police and court officials, in 51.3% of its stories on children.

Discussion

The extent of coverage given to child rights by *The Guardian*, *Daily Times*, *Daily Graphic* and *Daily Guide* newspapers shows a gross under-reportage of children's issues. In fact, one can say that children seemed to be invisible in the newspapers' content. A total of 300 issues of the newspapers were sampled for analysis for each of the newspapers, making a total of 1200 issues. It is amazing that only 97 stories (21.4%) came from *Daily Times*, *The Guardian* had 96 stories (21.4%), while *Daily Graphic* had 170 stories, representing 37.9% and *Daily Guide* had 85 stories (19%). This means that there were several days when children's issues did not feature at all in the newspapers' coverage. If the newspapers were to feature a child rights' story every day, we would have 1200 stories. Thus, a study of 448 stories shows that adequate attention has not been given to child rights issues. It follows then that these newspapers have not practised the requirements of development journalism, which demand that awareness should be given to development issues.

This finding is similar to others carried out on children issues by McManus and Dorfman (2002), Moss (2001) and McNamara (2004), which all show under-representation of children and young people. It appears, then, that children are generally under-reported in the media.

There are many possible explanations for this. Journalists may consider young people to be unimportant in societal decision-making processes, or immature, ill-informed or indeed, not interested in current affairs. Besides, young people do not purchase newspapers regularly, nor do they usually have disposable incomes to do so. Not only that, but some codes of practice, such as the code of ethics for journalists in Nigeria and Kenya among others, suggest that journalists should not interview or photograph those under the age of 18 on subjects involving their personal welfare in the absence and without the consent of their guardian (Nigerian Guild of Editors, n. d.; Kenyan Code of Conduct for Journalists and the Mass Media, n.d.). Because this might give rise to editorial delays, it could discourage journalists from using young people as sources for stories. Journalists tend to feed at convenient tables where information is readily available, easy to access and on the record. Thus, the special status of children and young people may serve to work against them in terms of media coverage.

The finding has shown that Ghanaian newspapers gave greater attention to child rights than Nigerian newspapers did; the difference in the coverage is very significant. As observed in the literature, Ghana seemed to be making better progress in respect of child rights than Nigeria. In the first place, Ghana has been ahead of Nigeria in the formulation of policies and the passage of the Child Rights Act. Since 1997, several important measures, including child rights' legislative reform and related policies, have been instituted to bring Ghana into conformity with international human rights standards on children. Legislation passed includes the Criminal Code (Amendment) Act 1998, The Children's Act 1998, Child Rights Regulations 2002 and The Juvenile Justice Act 2003. All these meant that Ghana has made greater progress in this area than Nigeria, which similarly reflected on the press performance. Secondly, the child rights' indicators in terms of child mortality showed greater improvement in Ghana than Nigeria. Unicef's annual reports on the state of world's children (1997 to 2007) consistently show that the situation of Ghanaian children were better than Nigerian. All these put together suggests better performance on the part of Ghanaian government than Nigerian.

This is also evident in the categories of people quoted in the newspaper reports as shown by our data.

Government officials were the most quoted of all the source categories in Ghana's *Daily Graphic*. The

dominance of government officials in statements about children is an indication of government's commitment to children's well-being. It thus means that the press can only support a government that is making progress in bringing about development. Development journalism advocates media support for government in achieving positive development tasks; this is only possible where the government has embarked on such tasks that the media can support.

Our findings further show that government-owned newspapers reported more on child rights than the privately owned newspapers. Although the difference in the coverage given by these two newspapers in Nigeria is not significant, we must nonetheless conclude that government-owned *Daily Times* performed better than the privately owned *The Guardian*, on the basis of the number of pages that these papers published. *Daily Times* published an average of 40 pages while *The Guardian* had twice that number, that is, an average of 80 pages; whereas *Daily Times* reported 97 stories compared to *The Guardian's* 96 stories. Ghanaian newspapers' coverage confirmed better performance of government-owned newspapers on child rights' reportage than privately owned newspapers. We thus conclude that government-owned papers gave greater attention to child rights than privately owned papers. This is because children's issues are of not much economic interest; besides, since the private newspapers are more commercial and profit-oriented, it is expected

that they would not give as much attention to children's issues as the government-owned newspapers would.

The newspapers adopted a variety of print media genres in the reportage of child rights. All four newspapers predominantly used the 'straight news' format in reporting child rights. This means that the newspapers are more concerned with delivering first-hand news of child rights to the public. Straight news comes in piecemeal and does not allow for a comprehensive report. Features are more appropriate for thorough treatment of any issue. They allow background information to be gathered and provide detailed information to educate the readers on any issue. The newspapers, however, did not use the feature genre much in their reportage: an evidence of lack of depth in their treatment of child rights' issues.

There is also low engagement of the public on the subjects of child rights, as reflected in the low coverage of opinion. The situation is even worse with the privately owned newspapers. This shows that the newspapers either did not carry the readers along actively on the issue of child rights, or the readers were indifferent to the issue. We also see that the newspapers did not get involved in presenting many opinions on the child rights' issues. While 4% of the Nigerian stories were in the form of editorials, the Ghanaian newspapers had none in all the samples analysed. In fact, the Ghanaian newspapers reported the issues mostly as

straight news (over 80% of their stories on children's rights). There is therefore no balance in the reportage of child rights.

The level of prominence, in terms of page placement, given to a report has implication for the extent to which newspapers are able to raise any issue to the plane of discussion. The results show that reports on child rights were buried within the newspaper pages. This is an indication of weak newsworthiness of child rights' stories. The *Monitor* (n.d.), illustrated the significance of front page news as showing strong newsworthiness. It noted that every front page magnifies stories that appear on it. For example, the front-page story in *The New York Times* will likely be broadcast on the evening news, summarised by the wire services, ripped-off by ten thousand bloggers, and otherwise spread everywhere. *Times* front-page stories influence elections, national policy – and even launch wars. The concentration of child rights' reports on the inside pages then means that the newspapers did not consider child rights' issues as a subject that deserves great focus.

The study went further to examine the extent to which the newspapers reported child abuse. The abuse here is not limited to sexual abuse alone; other forms of abuse such as child labour, neglect, armed conflict and trafficking were considered. We observe that Nigerian newspapers did not give much attention to child abuse – an indication of inadequate presentation of the subject.

Saunders and Goddard (2002) noted that media coverage of child abuse and neglect of children performs an important and significant role in placing issues on the public and political agenda. They emphasised that such media coverage increases society's awareness of, and response to, child abuse and neglect, as well as positively influences public, professional and political responses to the circumstances in which children and young people find themselves.

The analysis of the reports also focused on what was being said about child rights. Most of the substantive pieces concerned difficulties that confront children. These challenges included cases of abuse, children suffering from diseases, children that are out of school, those who are victims of accidents and disasters, etc. Newspapers also reported on efforts being made to redress harmful or generally disadvantageous situations that some children experience. These included governments' activities to that effect, the efforts of advocates and NGOs, such as fora held to discuss promotion of child rights and to increase advocacy on them. It is worth mentioning that welfare of children was generously reported on by the Ghanaian newspapers.

We also examined the individuals quoted in the newspaper reports. This shows to whom the newspapers turn when they need information and reveals the

dominant opinion represented in the news coverage. For the two Nigerian newspapers, child rights' advocates and NGOs are predominant voices, followed by government officials and agents. This shows that the struggle for child rights is being championed by advocates who are doing a good job in getting their voices into the news. While advocates and NGOs had fair coverage in Ghanaian newspapers, the government-owned *Daily Graphic* quoted government agents most frequently. This is not surprising for, as a government-owned newspaper, it is expected that it would give greater attention to government activities than would the private media. The *Daily Guide*, for its part, quoted the police and the court most in its coverage. This is also expected, since *Daily Guide*, as shown in our previous analysis, reported more child abuse than the other three newspapers. We see a generally low coverage for other categories of people such as teachers, donors, politicians and parents, as well as children themselves. It is surprising, however, that the newspapers gave fewer opportunities to children to speak out on issues that seriously affect them. The hub of the Social Responsibility theory is that the media should be used for the public good and "become the voice of all the people – not just elite groups or groups that had dominated national, regional or local culture" (Baran and Davis, 2003:109).

Conclusion and recommendations

This study set out to examine the coverage given to child rights by comparing Nigerian and Ghanaian newspapers. We discovered that the coverage given to child rights by the four newspapers drawn from the two countries is generally low. This calls for newspaper reporters and editors to step up the attention given to children. Against the backdrop of child rights as a development issue and the fact that the media have great roles to play in the realisation of children's rights, there is a need for newspaper organisations to expand the coverage given to child rights. It will also be necessary for the government to formulate a policy guideline to compel newspapers to devote a certain percentage of their news coverage to issues that will serve the purpose of protection and promotion of the rights of the child. The news organisations can facilitate this by setting up children's desks in their newsroom. The desk must be equipped with well-trained journalists who are familiar with the details of child rights and materials on child rights so as to ensure excellent delivery on child rights issues.

It is also a challenge to Nigerian newspapers to improve on their performance, since Ghanaian newspapers did better than Nigerian newspapers in reportage of children's rights. The Nigerian press community happens to be the biggest in Africa and constitutes one of the most resilient and daring segments of Nigeria's civil society (Olukoju, 2004). One therefore expects the

Nigerian media, as part of their social responsibility functions, to improve on previous performance by playing a more active role in covering development issues like child rights.

Moreover, the newspapers should strive to balance the format for presenting child right issues in order to achieve adequate presentation of the details of child rights. Presenting some stories in feature format will allow background information to be added to the report, thus giving the readers the full import of such stories. In other words, the readers will have the opportunity of understanding the full content of the issue of child rights under focus – from the cause to the consequences and then the resolution of the issue. Similarly, the use of opinion articles and letters to the editor will allow expression of divergent views, which would help policy-makers in understanding the public perspectives on the issue.

Furthermore, child rights, as a development issue, need to be presented as newsworthy stories. It follows, then, that efforts should be made by the newspapers to present more of the children's stories on the front and back pages of their papers. Putting children's stories on the front page will thus increase their newsworthiness. As there are many stories competing for the front page, one way around this is to set some children's news headlines in the front page, while the stories continue in

the inside pages. This will to some extent push child rights' issues to the forefront of social issues.

Finally, the better performance of government-owned newspapers in reporting children's rights calls for continued sustenance of government-owned newspapers, as they are in a better position to report development issues than privately owned newspapers. Because of the commercial interest of privately owned newspapers, the drive to make profit and succeed as a business may not allow them to give much attention to issues that are not of economic interest. Therefore, there is a need for government-owned media to continue operations, basically for development purposes. It is unfortunate that the Nigerian *Daily Times* was privatised in August 2004, leaving the country without a national government newspaper. This is then a challenge to the private national newspapers to endeavour to give greater attention to development issues such as child rights than they currently do. However, the state government-owned newspapers should raise the standard of their papers by expanding the horizon of their coverage, and taking the challenge of supporting child rights, rather than being used predominantly as government propaganda machines within their states.

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An appraisal of Nigerian newspapers' coverage of women's participation in the 2007 general elections

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Abstract

The professionalism of media is crucial at all times, especially during election periods, to promote fair, safe and professional media election coverage. It is a truism that the media play an indispensable role in the proper functioning of a democracy. Discussion of the media's functions usually focus on their "watchdog" role: by unfettered scrutiny and discussion of the successes and failures of governments, the media can inform the public of how effectively its representatives have performed and help to hold them to account. Yet the media can also play a more specific part in enabling full public participation in elections by giving equal coverage to both men and women in politics. The study aimed to ascertain how well Nigerian newspapers cover women's participation in the 2007 general elections. There are many newspapers in Nigeria; however, this study makes use of two national newspapers, as the research is on a national issue. For the purpose of this study, two Nigerian daily newspapers were studied – *Punch* and *Guardian*. For the study period of eight months, 422 stories were gathered, of which only 56

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stories were on women's participation. Also, the data analysis indicated that of the 56 news items, 50 (89.3%) were on the inside pages, while the back pages contained the least, 1 (1.8%). The media is encouraged to air their opinions on women's issues, especially when the turnout is as high as witnessed in the last general elections. Editorials allow the newspaper house to share their opinions on national issues; it will be stimulating to perceive different views of women's participation in politics. It will indeed be interesting and different to see editorials on women during elections and on women in general. It is therefore pertinent for media professionals to play their fundamental role in the quest to eradicate gender discrimination of all types.

Keywords: Elections, Media, Newspaper, Participation, Politics, Women

Introduction

Election is one of the most important pillars of democracy. Indeed, it is a necessary condition for democracy, because it provides the medium for the expression of the core principles and purposes of democracy such as the sovereignty of the citizens, freedom, choice and accountability of political leaders. In order to serve these purposes of democracy, elections must be free and fair. The notion of free and fair election expresses several conditions, including absence of manipulation, violence and fraud, as well as impartiality of election management authority and effective participation by the electorate at all stages of the electoral process. An electoral process involves different stages at which decisions are made and activities are undertaken.

The stages include enactment of electoral laws; establishing electoral management authority and appointing its officials; constituency delineation; party formation and registration; voter registration; nomination of candidates and campaigns; procurement of relevant services and materials; determination of polling centres and provision of polling booths; polling, counting and declaration of results; and determination of election petitions. At all these levels, there must be transparency, fairness, and unhindered participation by every eligible person and group. Any government that emerges from any election that is not free and fair cannot be the true choice of the electorate and therefore

represents the usurpation of the sovereignty of the citizens.

Successive elections in Nigeria since the colonial period lacked the essential ingredients of democratic electoral process: transparency, fairness and freeness. This failure is due to several factors: manipulation of the decisions and activities at the various stages of electoral process by the governments and politicians; corruption of officials and electorates, violence during campaigns, polling and collation; rigging through the stuffing, snatching and destruction of ballot boxes.

The general elections for electing the president, vice-president, senators and representatives in the federal bicameral legislature; state governors, and the legislators in the unicameral legislatures in the respective 36 states of the Federation, were scheduled and conducted on April 14 and 21, 2007. Due to the various adverse political conditions enumerated above, there were concerns about the preparedness of the electoral body to conduct free and fair elections in 2007. Citizens were also concerned about the capacity of the security institutions to ensure a peaceful atmosphere. The avalanche of litigations occasioned by the manipulations of the electoral rules and processes; electoral administration lapses, and election-related campaigns fuelled public apprehension and cynicism. A total of 7 160 candidates participated in the April

elections, of whom 628 were women. A breakdown of candidates is given below:

- Out of 25 candidates contested for president's office, only one was a woman;
- Five women contested for the vice-president's office;
- 474 candidates contested for governorship in the 36 states, including 14 women running for governor's office and 21 women running for deputy governor's office;
- 799 candidates contested for Senate; 59 were women;
- 2342 candidates contested for House of Representatives; 150 were women;
- A total of 5647 candidates contested for the positions in the assembly of whom 358 were women.
- Ninety-four women finally emerged as winners: 6 deputy governors, 9 senators, 27 national representatives, and 52 in various state Houses of Assembly. There were also notable increases in the number of women holding cabinet and ministerial positions.
- Although it failed to fulfil its promise of 30 percent of cabinet positions for women, the Yar'Adua government did place 7 women in these high offices (18 percent of the cabinet). The April 2007 elections also saw Nigeria receive its first female

Speaker of the House, the Hon. Patricia Olubunmi Etteh (<http://www.iri.org> 2007).

Statement of problem

Women attempting to enter into politics in Nigeria face numerous obstacles. Those who have aspired to office must often deal with a lack of funds to run an effective campaign, a discriminative use of party zoning, low education and a slew of cultural and religious barriers. The marginalisation of women in politics is certainly not new to Nigeria, having dated back to colonial times. In fact, women did not gain the right to vote until 1976.

Although there was improvement in the participation of women in the 2007 general elections, in Nigerian politics, sexism has become a major predicament. Women have been politically considered as an endangered species, and their low participation in Nigerian government and politics is often associated with cultural, religious and economic constraints, and male chauvinism (Umechukwu, 2004).

The mass media provide perspectives, shape images of candidates and parties, help highlight issues around which a campaign would develop, and define the unique atmosphere and areas of sensitivity with any particular campaign (Lang and Lang 1999). This research therefore seeks to find out how well Nigerian newspaper covered women's participation in the 2007 general elections. In this study, 'participation' here

refers to all women's issues in 2007 elections whose activities and events influenced the electoral process.

Media and elections

Elections can be a key element either in both conflict resolution and conflict escalation. Therefore, free and fair elections are essential for democracy consolidation and conflict prevention. The professionalism of media is crucial during election periods, to promote fair, safe and professional media election coverage (Iwu, 2007). United Nations Educational, Scientific and Cultural Organization (Unesco) supports advocacy to encourage full, fair and efficient disclosure of information to journalists covering the elections; training to enhance professional election reporting; training on the safety of journalists and their right to work without threat; and the production and distribution of election guidelines reflecting principles of professional reporting during elections, journalists' rights, election processes and safety information, as well as briefing notes on international human rights law with emphasis on freedom of expression.

It is a truism that the media play an indispensable role in the proper functioning of a democracy. Discussion of the media's functions usually focuses on their 'watchdog' role: by unfettered scrutiny and discussion of the successes and failures of governments, the media can inform the public of how effectively its representatives have performed and help to hold them to

account. Yet the media can also play a more specific part in enabling full public participation in elections, not only by reporting on the performance of government, but also in a number of other ways:

1. By educating the voters on how to exercise their democratic rights;
2. By reporting on the development of the election campaign;
3. By providing a platform for the political parties to communicate their message to the electorate;
4. By allowing the parties to debate with each other;
5. By reporting results and monitoring vote counting;
6. By scrutinising the electoral process itself in order to evaluate its fairness, efficiency, and probity.

However,

Studies of media coverage of political campaigns have covered some disturbing trends; journalists function as a pack; there is seldom any really distinctive political reporting during elections. Furthermore, journalists treat fore-runners differently than they do the remainder of the candidate pack. Fore-runners are the objects of closer scrutiny, but those examinations are seldom about issues, it is issue oriented reporting that tends to provoke political interest and public

participation. Electoral reporting therefore focuses on personality, a key component of political leadership, but certainly not the only one. (Pettersen and Wilkins 1994:149)

There is a bewildering variety of possible systems for regulating political advertising or free direct access coverage and reporting. This refers to that portion of election reporting that is under the editorial control of the parties or candidates themselves. There may be obligations on some sections of the newspapers to carry such material, and there will almost certainly be conditions that they must abide by if they do.

Research questions

1. What prominence was given to the reports on women's participation in the Nigerian 2007 general elections?
2. What was the volume of coverage given by Nigerian newspapers to female candidates as opposed to their male counterparts?
3. Did *Punch* newspaper show greater commitment to the coverage of women's issues in the 2007 general elections than *Guardian* newspaper, or vice versa?
4. What category of stories has the highest report in the Nigerian newspapers?
5. What slant or tone was used to report women's participation in the 2007 general elections?

Significance of the study

The findings of this study will serve as additional literature on media coverage of political issues. It should also be of immense value to the media, as it will enlighten and educate media professionals on how to play their role in the quest to eradicate gender discrimination of all types, since the media can help to change harmful images and stereotypes.

Although the 1999 Nigerian constitution protects women's rights and grants them equal participation, women often find that their rights are secondary to prevailing traditional and religious laws. This is particularly true in the northern states, where Sharia law is widely practiced.

Women who seek public office find their political rights are sidestepped by political party manipulations of the system. For instance, although some political parties waive the nomination fee for women running for office, party members use this to claim that women lack serious commitment to politics and to their party. Women running for public office are also labelled 'cultural deviants' – they are said to be too assertive and independent to be team players. Opponents also use the power of the press to run smear campaigns against women candidates. They rely on abusive language to publicly demoralise and delegitimise women, ruining their reputations.

Political parties also often rely on the ‘indignity clause’ of the 1979 constitution to derail women’s campaigns. The clause, initially created to provide for more equality in representation, distinguished between the indigenes of a state and the settlers. Therefore, women who marry men from other states and move out of their hometown are discriminated against.

Nigerian women, like many others in Africa, are also hindered by their lack of education, lack of economic independence, and often domestic violence as well. These factors of a lack of skills, financial means or family support combine to derail the campaigns of many women who would participate.

The concept of political participation

Political participation is an essential component of ensuring the stability and legitimacy of every political system. Political participation is one of the fundamental ideas of a democratic society. It is the *sine qua non* of democracy, because it involves a commitment to equal opportunity for men and women to develop their individual capacity (Agbaje, 1999).

Anifowose (2004) defines political participation as voluntary activities such as holding public and party office, attending election campaigns, voting and exposing oneself to political stimuli. Lewu (2005), however, defines political participation as a variety of

ways in which people try to exercise influence over the political process.

This encompasses the involvement in decision making by which individuals acting singly or through group organisations' attempts to influence decision making or alter the manner in which power may be distributed and the principles by which it may be exercised in a particular society. Participation involves taking part in an event or activity. In this study, 'participation' refers to women whose activities and events influenced the electoral process either directly or indirectly.

Women and politics

Politics is very important in every human society. According to Omenugha (2007), it is a system of administration that ensures that there is orderliness and development in society. It ensures that human, natural and economic resources are managed by a few people who are versed in the acts of governance, on behalf of the generality of the people. These are, of course, positions of responsibility that confer on the holders certain rights, authorities and privileges above their peers, who willy-nilly have to submit themselves to the authorities of the politicians. In order to take care of all human interests, the two genders are supposed to be fully engaged in politics. The reverse is the case in Nigeria, where the political arena is largely dominated by men, often to the detriment of women. The result is a

‘malevolent’ militarisation of politics in Nigeria (Alemika and Omotosho, 2008).

Participation in politics refers to different ways in which people exercise their rights over the political process. It is seen as a means to an end, where the end may be referred to as political leadership. The concept of participation lies in the culture of democracy. The first principle of democracy adopted by the Council of the Inter-Parliamentary Union, Cairo, 16 September 1997, is stated as being:

a universally recognized ideal as well as a goal, which is based on common values shared by peoples throughout the world community irrespective of cultural, political, social and economic differences. It is thus a basic right of citizenship to be exercised under conditions of freedom, equality, transparency and responsibility, with due respect for the plurality of views, and the interest of the polity.

This concept affords all human beings the right to share in the making of decisions that affect their lives and that of their community. This right was affirmed by the establishment of the Commission on the Status of Women (to promote women’s political and economic rights) by the United Nations in 1946. The year 1952 saw the adoption of the Convention on Political Rights of Women world-wide, and in 1967 the Convention for

the Elimination of all forms of Discrimination Against Women (CEDAW) was endorsed. This convention is upheld by all international, regional and national legal instruments that concern children and women, such as the Convention on the Rights of Child (CRC) and the Organization of African Unity's (OAU) Charter on the Rights and Welfare of the Child. It also includes the National Policy on Women (NPW) adopted by the Federal Government of Nigeria in July 2000. With the ratification of CEDAW in 1985, Nigeria undertook to work towards the elimination of all forms of discrimination against women and girls in all fields, whether political, economic, social or cultural. Yet since the adoption of this policy by the government, very little improvement in the exercise of women's rights has been witnessed. The Beijing Conference of 1995 on women articulated some areas considered crucial to the empowerment of women. These include poverty, education, healthcare, violence against women, effects of conflict on women, power-sharing and decision-making mechanisms to promote the advancement of women and girls, as well as management of natural resources and the environment.

The Beijing Platform for Action made concrete plans to ensure women's equal access to and full participation in power structures as one of its strategic objectives. It also affirms the need to increase women's capacity to participate in leadership and decision-making processes and bodies. One of the key initiatives in the ongoing

process was the Security Council Resolution 1325, which urged member states to ensure increased representation of women at all decision-making levels in national, regional and international institutions and mechanisms for the prevention, management, and resolution of conflict (UN, 2000As/1325).

On the African continent, the First Regional Conference on the Integration of Women Development was held in Nouakchott, Mauritania in 1977. The second Regional Conference on women took place in Lusaka, Zambia in 1979. The third Conference (1984) was held in Arusha, Tanzania, while the fourth Conference was held in Abuja, Nigeria in 1989. The 1989 conference adopted a declaration on participatory development with the theme 'The Role of Women in Africa in the 1990s'. In Dakar, Senegal, the fifth Regional Conference prepared the Agenda on African issues in 1995, preparatory to the Beijing platform. In 1994, the Pan-African Women's Liberation Organisation (AWLO) was established by the 7th Pan African Congress in Kampala, Uganda. At the national level in Nigeria, several conferences, workshops and organisations have been initiated to foster women's political participation and gender sensitisation.

Agenda-setting theory

According to agenda-setting theory, first developed by Maxwell McCombs and Donald Shaw in their Chapel Hill study (Mathews, Lickert and Holiday, 1999), mass

media sets the agenda for public opinion by highlighting certain issues. The agenda setting role of the media is expected to explain the mode of operation of the print and broadcast media in Nigeria. The agenda-setting theory states that the media (mainly the news media) tell the audience not so much what to think as what to think about. It says that the agenda of the media is basically the agenda of the people. The media sets an agenda for what the people should think about, and the order of importance of these thoughts. The agenda-setting theory focuses on the cognitive, indirect effects of the mass media. This theory has led mass communications researchers to study how media news coverage affects an issue's salience. Baran and Davis (2003), however, assert that the press does more than bring these issues to a level of political awareness among the public; agenda-setting affirms that the priorities of the press to some degree become the priorities of the public.

According to Mathews, Lickert and Holiday(1999), agenda-setting has three levels, which are:

- First-level agenda setting: This is the level most studied by researchers. In this level, the media use objects or issues to influence the public. On this level the media suggest what the public should think about (amount of coverage).

- Second-level agenda setting: On this level the media focuses on the characteristics of the objects or issues and suggest how the people should think about the issue. There are two types of attributes: cognitive (substantive, or topics) and affective (evaluative, or positive, negative, neutral). For instance, *the Guardian* newspaper, for over two weeks in 2007 made the abduction of Anambra governor its front-page story with banner headlines; several pages of the paper were devoted to news and issued related to the abduction.
- Third-level agenda setting: Agenda setting occurs because the press must be selective in reporting the news. The news outlets, as gatekeepers of information, choose what to report and how to report it. Therefore, that the public knows about the state of affairs at any given time is largely a product of gatekeeping.

In studying the way political campaigns were covered in the media, Shaw and McCombs (1972) in Mathews, Lickert and Holiday (1999) found that the main effect of the news media was to set an agenda, i.e. to tell people not what to think, but what to think about, as opposed to persuasion or attitude change. Agenda-setting is usually referred to as a function of mass media and not a theory (McCombs and Shaw as cited in Mathews, Lickert and Holiday, 1999). This term is used by media theorists to refer to the way in which the media:

- set the order of importance of current issues; and
- set the terms of reference for the debate on those issues.

Grabber further opines that, when the media make events seem important, politicians and the populace are likely to comment about them and take action. This enhances the widespread belief in the importance of these events and ensures even more public attention on the events.

Description of study population

A population refers to all the cases or individuals that fit a certain specification. The universe in this study refers to Nigerian newspapers. The newspapers include *Punch* newspaper and *Guardian* newspaper.

Sample size

The sample size for this study is 192 issues of the newspapers under study. Twelve (12) issues were selected per month for each newspaper. The 12 issues were arrived at by selecting three papers per week for the study using simple random sampling and multiplying the three papers by four weeks in a month. The 12 issues are multiplied by the eight (8) months under study to arrive at a total of 96 issues per newspaper. 96 issues multiplied by the two newspapers give a total of 192.

The reason for this sample size is to have a manageable sample and to avoid thin data that could mar the analysis, thereby rendering the discussion and conclusion problematic. Below are the issues of the two newspapers studied:

- November 2006 issues: 1, 2, 8, 10, 11, 15, 19, 21, 23, 27, 29, 30
- December 2006 issues: 1, 3, 6, 13, 15, 17, 18, 19, 21, 27, 28, 30
- January 2007 issues: 1, 5, 10, 14, 16, 19, 20, 21, 23, 27, 30, 31
- February 2007 issues: 1, 2, 5, 8, 9, 14, 19, 22, 24, 25, 26, 28
- March 2007 issues: 1, 2, 3, 7, 8, 11, 14, 15, 17, 20, 29, 30
- April 2007 issues: 2, 6, 8, 11, 15, 16, 18, 19, 20, 22, 27, 28
- May 2007 issues: 1, 4, 5, 7, 9, 11, 12, 15, 16, 27, 29, 31
- June 2007 issues: 2, 3, 7, 8, 11, 15, 17, 20, 22, 24, 28, 30

The two newspapers used for this study were selected for the following reasons:

1. They are national newspapers owned and run by Nigerians.

2. They appeal to both masses and the political class. Thus, they have a wide readership.
3. They are available in the market nation-wide to all levels of Nigerian consumers.
4. The copies of these newspapers are also available to the researcher for the purpose of this study.
5. They uphold a sound professional/ ethical practice.

Units of analysis

‘Unit of analysis’ here refers to the actual thing counted when coding, which were tested based on prominence, frequency of reports, quality of reports, tone of reports and source of reports.

Frequency is determined by the degree of the coverage of women in politics as against other women issues and political reports. The newspapers’ stance can either be ‘favourable’, ‘unfavourable’, or ‘neutral’. Favourable reports occur when the news stirs up positive reactions, while unfavourable reports occur when the news content stirs up negative reactions. A neutral report however, occurs when an indifferent reaction is stirred.

Prominence is determined by the placement of each item (in this case, on women’s participation in the 2007 general elections) on the pages of the newspapers. Front-page appearance signifies that the news stories are the most important for that day, while those that appear on the back page are regarded as semi-important. The inside story pages are counted as least

important stories and they usually appear from page 2 to the last page before the back page.

The source of a report can be ‘identified’, which refers to sources either within the Nigerian print media industry or news agencies. They could also be ‘unidentified’, which implies that the stories were written without a byline.

As for the quality of a report, it can be ‘very high’, which means those reports adjudged by the reporter as excellent in quality with regards to the content and language or presentation of reports. ‘High’ are those that are seen as very good with regards to the content, language or presentation of reports. ‘Low’ refers to those reports adjudged to be poor in quality, while ‘very low’ reports are those with very poor quality with regards to content, language or presentation of reports.

Content categories

Story types: News stories, feature stories, editorial, opinion articles, personality profile, cartoons and pictures

Prominence: Front page, inside page and back page

Quality: Very high, high, low and very low

Slant/ Tone: Favourable, unfavourable and neutral

Frequency of coverage: Women in politics and men in politics

Sources: Identified and unidentified

Intercoder reliability

Cohen Kappa's (2003) reliability test method was adopted for this study to calculate intercoder reliability. Six variables were examined and this includes: prominence, sources, quality, frequency of report, tone of report and story types. The values and the interpretation of the six variables examined are presented as follows:

- Prominence – 0.75, which shows there is substantial agreement between the two coders
- Sources of report – 0.71, which shows there is substantial agreement between the two coders
- Quality of report – 0.88, which shows there is almost perfect agreement between the two ratings
- Tone of report – 0.77, indicating that there is substantial agreement between the two coders
- Frequency of report – 0.84, which shows there is almost perfect agreement between the two ratings
- Story types – 0.85, indicating that there is almost perfect agreement between the two ratings

Instrument of data collection

The instrument of data collection for the study was the coding sheet, which contained the parameters of analysis. The coding sheet is an instrument peculiar to content analysis. Content analysis in respect to this research was designed to compare media content to the real world, i.e. coverage of media in issues related to

women participation in the 2007 general elections in Nigeria. This technique is used to obtain data from the manifest content of the newspapers, thereby describing communication content. Content analysis was used in this study to determine the direction, prominence and frequency given to stories concerning women's participation in politics.

Results

192 issues from *Punch* and *Guardian* newspapers were sampled, giving rise to a total of 422 reports or news items on the 2007 general elections. From these reports, *Punch* reported only 23 items on women as opposed to 200 for men, while *Guardian* reported a total of 33 issues on women as opposed to 166 issues reported on men. This implies that for the study period of 8 months (November 2006 – June 2007), Nigerian newspapers reported only 56 issues on women out of 422 issues on the 2007 general elections. However, the ratio of this to the entire body of news reports in the Nigerian press in the study period is not within the scope of this study.

Figure 1: Frequency distribution table on 2007 general election coverage

Newspapers	Frequency	Percentage
<i>Punch</i>	223	53%
<i>Guardian</i>	199	47%
Total	422	100%

A grand total of 422 stories were reported on 2007 general elections by the newspapers, with *Punch* leading with a total of 223 stories.

Figure 2: Coverage of men/ women in the 2007 general elections

Frequency	Punch	Guardian	Total	Percentage
Women in politics	23	33	56	13.3%
Men in politics	200	166	366	86.7%
Total	223	199	422	100%

Although *Punch* had a higher percentage of coverage of the 2007 general elections than *Guardian*, the reverse is the case in terms of coverage on women, as *Punch* reported only 23 issues on women compared to 200 for men. The *Guardian* reported a total of 33 issues on women compared to 166 issues reported on men.

Figure 3: Distribution of women in newspaper articles according to the content categories

Story type	<i>Punch</i>	<i>Guardian</i>	Total	Percentage
News stories	16	21	37	66%
Feature stories	3	9	12	21.4%
Editorial	0	0	0	0%
Opinion articles	0	0	0	0%
Personality profile	3	3	6	10.7%
Cartoon	0	0	0	0%
Pictures	1	0	1	1.7%
Total	23	33	56	100%

As could be deduced from Figure 3, news stories about women were reported most in the Nigerian newspapers,

while they did not appear in editorials, opinion articles, cartoons and *Guardian* pictures.

Figure 4: Distribution of women’s participation in the 2007 general elections according to slant given

Slant/tone	<i>Punch</i>	<i>Guardian</i>	Total	Percentage
Favourable	10	13	23	41%
Unfavourable	6	5	11	19.6%
Neutral	7	15	22	39.3%
Total	23	33	56	100%

The study also sought to find out the slant or tone of the reportage to the various news stories reported. To do this, the researcher classified reports that present or support the public opinion on the issues raised in the report as ‘favourable’. Reports that do not support the public opinion on the issues raised, thereby generating a negative perspective of the issues are classified as ‘unfavourable’. The reports that present women and men’s participation equally were classified as ‘neutral’.

It is also part of the study objective to find out if the Nigerian newspapers attach importance or give prominence to reports on women’s participation in the 2007 general elections. To determine this, the researcher classifies the reports importance according to the page they appear. This implies that the stories that appeared on front pages were regarded as very important, followed by those that appeared on back pages, but those that appeared on inside pages were

regarded as least important. Again, Figure 6 gives a breakdown of the data thus:

Figure 5: Distribution of women’s participation in the 2007 general elections according to prominence

Prominence	<i>Punch</i>	<i>Guardian</i>	Total	Percentage
Front page	3	2	5	8.9%
Inside page	19	31	50	89.3%
Back page	1	0	1	1.8%
Total	23	33	56	100%

The above table shows that there was no story on women’s participation in the 2007 general elections on the back page of the *Guardian* newspaper.

Figure 6: Distribution of women’s participation in the 2007 general elections according to the quality of report

Quality	<i>Punch</i>	<i>Guardian</i>	Total	Percentage
Very high	1	6	7	12.5%
High	20	27	47	83.9%
Low	2	0	2	3.6%
Very low	0	0	0	0%
Total	23	33	56	100%

This study also attempted to determine the quality of reports on women’s participation in the 2007 general elections. The researcher discovered, as can be seen in the above table, that most of the reports were ‘high quality’ in terms of content and language of presentation.

Discussion

The presentation and analysis of the data above showed in clear terms the level of coverage the Nigerian press gave to women's participation in the 2007 general elections. It is obvious that the Nigerian newspapers did not give women's participation the desired coverage it required as compared their male counterparts. For the study period of eight months, 422 stories were gathered, of which only 56 were on women's participation.

Also, the data indicated that of the 56 news items, 50 (89.3%) were on the inside pages while the back page recorded the least. Moreover, the data also indicated that 11 (19.6%) news items were unfavourable, compared to 23 (41%) that were favourable and 22 (39.3%) that were neutral. This is a pointer to the fact that when women's participation in the 2007 general elections was reported, the reports were mostly favourable.

The quality and depth of the reportage on the basis of content categories left much to be desired, as the two newspapers concentrated more on news stories, giving inadequate coverage to important facts behind the news. Opinion pieces, editorials which could have given the news, facts and figures behind the news were not given adequate attention. They lacked good journalistic analysis. However, on a scale of comparative analysis, *Guardian* is rated highest of the two newspapers under study. It gave the highest quality reports in terms of

news stories and features, while *Punch* gave the highest quality report in terms of photo news (see Figure 3).

The presentation and analysis of data aided in answering the research questions and satisfying the objectives of the study. The research questions also guided the direction of the study and the researcher used graphical illustrations to answer the research questions for further clarification.

Conclusion

The findings of this study support the argument that women's participation in the 2007 general elections was not adequately covered when compared to their male counterparts. Although it should be stated at this juncture that the print media have not done an entirely bad job, the researcher deduces that the print media did not give coverage of women's participation high prominence as expected. After all, it was the first time in the history of Nigeria since independence that there would be a large turnout of women participating in elections.

It was also observed that the reports on women in the elections tended to be news stories more than any other genre. Features, which give an in-depth coverage of the news behind the news, were relatively few and this implies that the readers were not given an in-depth analysis of the issues regarding women's participation in the elections.

There was no editorial in either newspaper, which was unexpected as editorials give readers the point of view of the newspaper's house on the issue. This would have been of great relevance as women turned out en masse to participate in the elections. Therefore, the researcher is of the view that the subject of imbalance in reporting men and women issues should be tackled squarely.

It is noted that the print media in their agenda-setting role place stories that are important on the front page of the newspaper. However, women's participation in the Nigerian 2007 general elections occupied only 8.9% of the front pages. This suggests that the media do not count women's participation in elections as important.

The study also showed that the media, in terms of quality of news stories, are superb. The stories are usually of high and sometimes very high quality in both language and presentation. In addition, most news stories analysed were by in-house sources. This is a welcome development in the print media, showing that the Nigerian media are withdrawing their reliance on foreign news agencies for local stories.

Recommendations

A wise man once said, "The largest room on earth is the room for improvement." For the media to play a positive and meaningful role in reporting women's

participation during elections there is a need for reorientation in news coverage and reportage.

Women in politics, whether during election times or not, must be on the agenda of the media coverage of national issues. Encouraging continued discourse in this area should also be a critical part of the curricula of higher institutions of learning. The students should also be trained in gender sensitivity and how the media shape the perception of men and women.

The media is encouraged to air their opinions on women's issues, especially when the turnout is much as witnessed in the 2007 general elections. Editorials allow the newspaper house to share their opinions on national issues; it will be stimulating to perceive different views of women's participation in politics. It will indeed be interesting and different to see editorials on women during elections and on women in general.

It is commendable that the media made sure most news items on women's participation in the 2007 general elections were favourable and of high quality. This should be a continued effort and could be improved on. The media has the power to build or destroy through the power of the pen, words and pictures. Ashimi (2008) asserts that:

The ability of the media to make or mar the image of women in the society cannot be denied or underestimated. In fact, the

United Nations document recognizing the media as a critical area for women listed the media as one of the ten obstacles to women advancement.

It should be noted that this study is an extension of sexism or gender inequality: therefore, female stereotypes due to cultural, religious, moral and social beliefs as portrayed in the media should be eradicated, as they keep women's voices out of the media or sometimes, present caricatures of women. Women are not only wives, cooks or mothers, but people with dreams, visions and focus. Their one centred deed in life is not just to have a family like most media tend to portray, but to achieve fulfilment from self-accomplishment and actualisation.

The media is encouraged to continue its vigorous free debate, while tempering passionate reporting with the need to respect the truth and adhere to international standards of journalistic integrity. Media outlets should act in a non-partisan manner and remember their responsibility to provide the most accurate, unbiased information to the Nigerian electorate. To this end, media outlets must take seriously the need to avoid inflaming already tense situations with unbalanced, biased or partisan reporting.

The media must also recognise their role in mobilising women to greater heights and inspire them to achieve

more. They should be mobilised to take up greater responsibilities like official appointments and managerial positions, and women should also gain confidence and the qualities required for such positions.

In all, the media must become agenda setters on the issue of women in electioneering and politics as a whole. Media professionals undergo training, workshops, and conferences on how to handle specialised reporting. Reporting women during elections should be a specialised area for the media.

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Reporting the global war on terrorism: Cases from Nigeria

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Abstract

The terrorist attacks of September 11, 2001 on US soil changed the world and the way it views today's global security environment. The events of that day led to a global war that is referred to as the GWOT (Global War on Terrorism); a war which has since attained a ubiquitous presence in the international media. The December 2009 botched terrorist attempt involving a Nigerian and the subsequent classification of Nigeria as a high-risk area by the United States government make it imperative that the media industry in Nigeria begin a self-evaluation of how it had handled the GWOT. This paper, therefore, evaluates the Nigerian press coverage of the GWOT using the agenda-setting media model as a basis of analysis. Indications from the study are that the Nigerian press has not done well enough in this area of coverage.

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Keywords: Terrorism, Global War on Terrorism, Gate-Keeping, Agenda Setting Theory, Nigerian press, United States

Introduction

Hundreds of people die each year in terrorist attacks and it is always heart-rending news each time such attacks occur. Terrorism is present in many countries of the world; it has since become a global norm and a regular feature of news headlines. Today it is New York, tomorrow London, the next time Spain, India, Pakistan, Afghanistan, Iraq, Algeria and so on. There is a paralysing fear all over the globe; fear of vicious death at the impious hands of state enemies and terrorists.

Presently, everybody is a potential victim of this dilemma; there is no state in the world without designated terrorists, enemies of the state that should be liquidated. Russia, the successor-state to the defunct Soviet Union, regards its province, Chechnya, as a terrorist territory. The mighty Russian Army has not been able to defeat the terrorists who have also been blamed for several assassinations and bomb attacks in Russian cities including Moscow. Germany has been a home of terrorism even before the rise of Hitlerian fascism, but especially since then, terrorism has proved undefeatable.

Italy, France and Spain have their fair share of terrorism. Spain, in particular, harbours one of the most resilient terrorist groups in the world: ETA, located in the Basque Region. The Irish Republican Army (IRA) is the “mother” of terrorism in Europe. The Kurds, an unfortunate ethnic group, are regarded as terrorists by

Turkey, Syria, Iraq and Iran. Every state in the Middle East is actively engaged in fighting terrorism. The territory under the control of the Palestinian Authority is at present in a life-and-death struggle against those it has designated as terrorists. The whole of America (North, Central and South), the Caribbean and the Pacific are sites of permanent terrorism. In some of these cities, no two or three months pass by without a terrorist act being committed on such soil. Algeria, Sudan, Senegal, Mauritania, Mali, Niger, Sierra Leone, Liberia, Burundi, Rwanda, Uganda, Democratic Republic of Congo (DRC), and Nigeria are among African states infested with terrorism. Both India and Pakistan have been battling terrorism that developed with the dispute over Kashmir. Sri Lanka has its Tamil Tigers, the Philippines are fighting the so-called Muslim terrorists; Indonesian terrorists are particularly blood-thirsty: they measure the success of any operation by the number of human heads they have cut off. In historical terms, Chinese terrorists are late entrants into the business of modern terrorism. But they have made their mark as a social force (Lutz and Lutz, 2004).

It therefore seems that everyone round the globe is under siege. Fear has gripped big cities of the world, raising security alerts and signals higher to sublime levels. Suicide bombers have been unleashed on society, with innocent victims blown up on daily basis. With terrorism growing as a world problem, people in these recent times wonder where it is heading. There is this

particular fear that terrorist schemes and devices may not be limited to hijacking of planes, kidnappings, embassy takeovers, bombing of public buildings, metro-trains and assassinations, but might soon rise to nuclear terrorism, the use of weapons of mass destruction: chemical, biological and nuclear weapons.

It is now a tradition for the US and other Western governments to warn their nationals where to go and where not, when to go out and when not to, when to disguise and when to be inconspicuous. Flights are regularly cancelled, embassies closed at short notice. Security around airports, seaports, coastlines and other sensitive areas of national economies is now tight just to avert possible terrorist attacks. Travelling has become a nightmare; a multitude of passengers are frisked at entry and departure points for the sins of those who have chosen terrorism as a means of settling political scores. In the United States, shoes are systematically examined and fingerprints taken at the airports and other areas important to their national security. The scenario so far is that of a world wallowing in fear and reeling in pain, whilst the aggressors seem to be enjoying the situation.

Political implications are often blamed for many terrorist attacks, thus, Sick (1990) sees terrorism as “the continuation of politics by other means”. Herbst (2003) agrees that definitions of terrorism are typically political and misleading – biased against one group to the benefit of another. Countries that are troubled by

these macabre acts have proffered an answer to the problem of terrorism for centuries, but there is no universal agreement on a workable solution.

Defining terrorism has always been an uphill task for decision-makers, academics, defence personnel and journalists. However, Lutz and Lutz (2004:10), citing the works of Hoffman (1998), Kushner (1998) and Claridge (1996), define terrorism thus:

Terrorism involves political aims and motives. It is violent or threatens violence. It is designed to generate fear in a target audience that extends beyond the immediate victims of the violence. The violence is conducted by an identifiable organization. The violence involves a non-state actor or actors as the perpetrator, the victim of violence, or both. Finally, the acts of violence are designed to create power in situations in which power previously had been lacking (i.e. the violence attempts to enhance the power base of the organization undertaking the actions).

Terrorism may also be referred to as the calculated use of violence or the threat of it, against the civilian population, usually for the purpose of achieving political or religious ends. This is the acceptable definition to the FBI, but the British definition of terrorism does not admit this theory. The British Terrorism Act of 2000 defines terrorism in such a way

that it includes attacks on military personnel; or acts not usually considered violent, such as shutting down a website whose views one loathes. On the other hand, some authorities define terrorism as the planned application of violence or threat of violence against both civilian and military targets for political and religious reasons. This particular definition enjoys a wider acceptability, because it embraces all ramifications of the act of terrorism.

Also, the Nigerian anti-terrorism bill, which states that anyone convicted of a terrorist offence can be sentenced up to 35 years in jail, according to a partial copy of the draft provided to reporters, defines terrorism as:

Any action that may seriously damage a country or an international organization, unduly compel a government or an international organization to perform or abstain from performing an action or seriously intimidate or destabilize a population. This could include the use for terrorist ends of propaganda, violence, kidnapping, attacks on infrastructure or oil rigs, the hijacking of vehicles, the acquisition or development of nuclear, biological or chemical weapons, the release of dangerous substances or arson.

The bill specifically excludes from the definition of terrorism the disruption by protesters of private or government business.

Terrorism mostly takes the form of shootings, suicide bombings, kidnappings, assassinations, drive-by shootings, lynching and random killings, and in recent times, we now have bio-terrorism, cyber terrorism, narco-terrorism, etc. However, terrorism is not just brutal and unthinking violence, deliberately designed to rattle and influence a wide audience beyond its victims; it also involves using the psychological impact of violence, or the threat of it, to effect political change, instil fear and to possibly shape public opinion in the terrorists' favour.

Terrorism became an acknowledged global issue and the phrase 'Global War on Terrorism' (GWOT) was born after the September 9/11 terrorist attacks on US interests and soil. The US President then, George W. Bush and his then-Secretary of State, Colin Powell, built a worldwide coalition for the war and formulated new policies which aimed not only to seek terrorists out wherever they operate, but also to punish them wherever they may be, using the combined assets of US law enforcement, diplomacy, and intelligence.

Nigeria, as a nation, is committed to the global war against terrorism and has continued diplomatic efforts in both global and regional forums concerning counterterrorism issues. The Nigerian government has also actively shared information about the rise of radical Islam in Nigeria – home of Africa's largest Muslim population. Nigeria is a party to six of the 12

international conventions and protocols relating to terrorism, including the Convention for the Suppression of Financing of Terrorism. Although terrorism is yet to manifest in full in the country, the enabling conditions supportive of it have been laid down, begging to be exploited.

However, the December 2009 botched attempt by a Nigerian to commit acts of terrorism in the US is a recent case in point that again calls on responsible institutions like the media industry to assist in mobilising efforts and mounting campaigns against this hydra-headed monster called terrorism. It is on this platform that the study presented in this paper assesses how the Nigerian press covered the global war on terrorism, with the ultimate aim of identifying areas of strength and weakness.

Objectives

The study seeks to identify the degree to which Nigerian newspapers participate in the reportage of the global war on terrorism by evaluating some of the reported stories in the national dailies to find out the frequency of coverage, the depth of coverage, quality, sources, story categories, tone and prominence.

Research questions

Having considered the objectives of this study, the following questions were formulated to guide the research:

1. Do Nigerian newspapers cover GWOT issues?
2. Are GWOT stories adequately reported in the Nigerian newspapers in relation to other crime-related stories?
3. Does the Nigerian press place prominence on the reports of the GWOT?
4. In what story categories do Nigerian newspapers frequently feature the reports on the GWOT?
5. What is the tone given to the stories reported in the Nigerian press on the GWOT?
6. What is the quality of reportage given to the stories on the GWOT in the Nigerian newspapers?
7. How do Nigerian newspapers source their stories about the GWOT?

Literature review and theoretical framework

What role does the press play in a society: that of the looking glass, the mediator, or the instrument for shaping issues and events in a society? The safest response to give perhaps is that the press performs all of these functions, and even more, from time to time.

One of the major functions of the press in virtually every country is to inform the citizens about local, foreign and global affairs. People thus tend to rely on the media as their major source of news, particularly news of events outside their immediate experience. Based on information obtained from their local media, they acquire knowledge, create images and form opinions about other nations and their institutions.

Global news does not end at informing the citizens; it also legitimises the interest and involvement of the country's government in international affairs.

Many reasons have been given to explain why the media of a particular country would tend to report news of countries other than theirs. According to Mowlana (1985), the reasons are economic, political, socio-cultural, infrastructural and extra-media. He argues that if the nation and its media are economically buoyant, the buoyancy will be reflected in the quantity, quality and distribution of foreign news in the media. Secondly, Mowlana (1985) argues that the political interests of a country will undoubtedly betray the behaviour of the national media. For example, the foreign policy of a country is likely to influence the direction of the media coverage to reflect national political interests. Thirdly, socio-cultural factors like language, culture, religion and traditional beliefs, and the differences or similarities between nations will explain the interest of the press in their foreign/global news coverage.

With specific reference to the African context, Da Costa (1985) reports that in several African countries, including Nigeria, global news is covered, as it affects the reporting country's psycho-political security, community of interests and imperatives of national politics. Even factors like the professional standards of journalists, their ethnic, religious and political background coupled with age, experience and general

socialisation level, assist in the selection and reportage of foreign news.

Lent (1976), writing on the platform of political communication/reporting, posits that global news reporting in a country's newspapers depends on their ties with the superpowers, colonial backgrounds, relationship with neighbouring countries, economic infrastructure, governmental stability and professional training of journalists. As a result of these factors, stories about Western Europe and North America have become 'semi-permanent' in the media of Third World countries like Nigeria. The former are newsmaker nations that are constantly being reported, as opposed to the developing countries that provide only occasional 'hot' news.

Researchers in the area of political communication have found that global understanding of the GWOT is directly shaped by how the mainstream news media report events associated with it (Kuypers, 2002). Kuypers (2002) illustrates "how the press failed America in its coverage of the War on Terror". In each comparison, Kuypers (2002:23) detected massive bias on the part of the press; he called the mainstream news media an "anti-democratic institution". In his conclusion (2002:23), he stated thus:

What has essentially happened since 9/11 has been that Bush has repeated the same themes, and framed those themes the same way

whenever discussing the War on Terror. Immediately following 9/11, the mainstream news media (represented by CBS, ABC, NBC, USA Today, *New York Times*, and *Washington Post*) did echo Bush, but within eight weeks it began to intentionally ignore certain information the president was sharing, and instead reframed the President's themes or intentionally introduced new material to shift the focus. This goes beyond reporting alternate points of view, which is an important function of the press. In short, if someone were relying only on the mainstream media for information, they would have no idea what the President actually said. It was as if the press was reporting on a different speech.

Media researcher Stephen D Cooper's analysis of media criticism, *Watching The Watchdog: Bloggers As The Fifth Estate* (Cooper, 2006), contains many examples of controversies concerning mainstream reporting of the GWOT. Cooper found that bloggers' criticisms of factual inaccuracies in news stories or bloggers' discovery of the mainstream press's failure to adequately check facts before publication caused many news organisations to retract or change news stories. According to his findings, bloggers specialising in criticism of media coverage advanced four key points:

1. Mainstream reporting of the war on terror has frequently contained factual

inaccuracies. In some cases, the errors go uncorrected; moreover, when corrections are issued they are usually given far less prominence than the initial coverage containing the errors.

2. The mainstream press has sometimes failed to check the provenance of information or visual images supplied by Iraqi “stringers” (local Iraqis hired to relay local news).

3. Story framing is often problematic; in particular, “man-in-the-street” interviews have often been used as a representation of public sentiment in Iraq, in place of methodologically sound survey data.

4. Mainstream reporting has tended to concentrate on the more violent areas of Iraq, with little or no reporting of the calm areas.

In his book *Trapped in the War on Terror*, Lustick (2006) claims that the media have given constant attention to possible terrorist-initiated catastrophes and to the failures and weaknesses of the government’s response. Lustick alleged that the War on Terror is disconnected from the real but remote threat terrorism poses, and that the generalised War on Terror began as part of the justification for invading Iraq, but then took on a life of its own, fueled by media coverage. In a

world hungry for news, people need to understand the genuine context and complexities of the GWOT and efforts geared towards winning it. They rely on journalists to provide them with reliable and timely information. But war is rarely good news for journalism.

The post-September 11 media crisis is seen everywhere. From Australia to Zimbabwe, via Colombia, Russia, the United States and Uganda, politicians have rushed to raise the standard of “anti-terrorism” against their political opponents, and have tried to stifle free journalism along the way. Journalists, their unions and the media staff they represent are in the centre of a fast-developing crisis in the aftermath of the terrorist attacks on the United States on September 11. The crisis challenges media efforts to be professional and the capacity of journalists to work safely in a deepening atmosphere of fear and uncertainty.

Payne (2005:85) summarises the role and significance of the mass media during the modern era of warfare thus:

The media, in the modern era, are indisputably an instrument of war. This is because winning modern wars is as much dependent on carrying domestic and international public opinion as it is on defeating the enemy on the battlefield. And it remains true regardless of the aspirations

of many journalists to give an impartial and balanced assessment of conflict. The experience of the US military in the post-Cold War world demonstrates that victory on the battlefield is seldom as simple as defeating the enemy by force of arms. From Somalia and Haiti through Kosovo and Afghanistan, success has been defined in political, rather than military, terms. Today's military commanders stand to gain more than ever before from controlling the media and shaping their output. The laws and conventions of war, however, do not adequately reflect the critical role that the media play in shaping the political outcome of conflicts. International humanitarian law requires that media members are afforded the rights of civilians; the question is whether this is sustainable when the exigencies of war fighting suggest that controlling the media is essential.

Many theoretical models in communication research can be used to describe the Nigerian press coverage of GWOT. This is because a lot of mass communication theories describe the media's role in setting a schema or line of thought in the society. Researchers have long been intrigued by the media's effect on the national agenda, and how public opinion is formed. Several theories have been proposed to address this

phenomenon. We examine agenda-setting theory as the guiding theoretical foundation for this study.

From the 1930s until the 1960s, mass communications studies focused mainly on the direct effects of the media. Communication researchers' works "revolved around a hypodermic needle model – a view that the media directly [injects] the public with attitudes which subsequently affect their behavior" (Emery and Ted, 1986). However, these studies often disappointed the researchers, who hoped to find evidence of change in public opinion due to exposure to the mass media. According to Iyengar and Reeves (1997), the majority of results from these studies showed that the direct effects of the media are merely an occasional short-term attitude change. The overall failure of this paradigm, or model, led to the development of what is known as the agenda-setting theory.

The power of the press to set a nation's agenda, to focus public attention on a few key public issues, is an immense and well-documented influence. Not only do people acquire factual information about public affairs from the press, readers and viewers also learn how much importance to attach to a topic on the basis of the emphasis placed on it in the news. Newspapers provide a host of cues about the salience of the topics in the daily news – lead story on page one, other front page display, large headlines, etc. Television news also offers numerous cues about salience – the opening story on

the newscast, length of time devoted to the story, etc. These cues repeated day after day effectively communicate the importance of each topic. In other words, the press can set the agenda for the public's attention to that small group of issues around which public opinion forms.

In a similar vein, Simons (2008) notes the importance of news framing and content, and the possible effects that it has on public attitudes and opinions, as highlighted by a contract that was opened by U.S. military leaders in Bagdad. This project, according to Simons (2008:88), involves:

A two year long contract worth US\$20 million which involves extensive monitoring of Middle Eastern and US media in an attempt to promote more positive news coverage of Iraq. The stated aim of the project is to “develop communication strategies and tactics, identify opportunities, and to execute events ... to effectively communicate Iraqi government and coalition's goals, and build support among our strategic audiences in achieving these goals”.

Furthermore, a study by Penn State University (cited in Simons, 2008) also showed some interesting results. The study covered news articles appearing in the period between March 19, 2003 and May 1, 2003; analysing 742 print articles from 67 news sources by 156

journalists. Researcher Andrew Linder (in Simons, 2008:89) notes that:

“The majority of war coverage in the study heavily emphasized the soldiers’ experiences of the war while downplaying the effects of the invasion on the Iraqi people”. The study seems to demonstrate that the environment in which the journalists were placed, attached to a military unit, influences the choice and/or the opportunity of those who they interview. In this case, the outcome is favourable for the military as it downplays the devastating effects of modern warfare and portrays coalition troops in a more personal light.

The principal outlines of this influence were sketched by Walter Lippmann in his 1922 classic, *Public Opinion*, as cited in Ekeanyanwu (2007) which began with a chapter titled “The World Outside and the Pictures in Our Heads”. As he noted, the news media are the primary source of those pictures in our heads about the larger world of public affairs, a world that for most citizens is “out of reach, out of sight, out of mind”. What we know about the world is largely based on what the media decide to tell us. More specifically, the result of this mediated view of the world is that the priorities of the media strongly influence the priorities of the public. Elements prominent on the media agenda become prominent in the public’s mind.

Walter Lippman's notion, based on the public's limited first-hand knowledge of the real world, created the foundation for what has come to be known as agenda-setting. Agenda-setting theory emerges from communications studies and focuses on mass media influence on setting political agenda as articulated in the seminal article by McCombs and Shaw (1972), which through content analysis of a local election documented a high correlation between media agenda and the public agenda – a correlation corroborated in numerous studies since. Their 1972 article coined the phrase “agenda-setting”. Subsequent agenda-setting theorists have followed their lead in contending that the media agenda influences the political agenda more than political agenda influences media agenda.

Conceptualised over time, agenda-setting is the dynamic process “in which changes in media coverage lead to or cause subsequent changes in problem awareness of issues” (Brosius and Kepplinger, 1990:190). Bernard Cohen's statement (1963:13 cited in Ekeanyanwu, 2007) predicted that “the press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about”. Whether social or political, local or national, public issues are generated by the media. Consumers not only learn about an issue “but also how much importance is attached to that issue from the amount of information in a news story and its position” (McCombs and Shaw, 1972:176).

McCombs and Shaw's study of mediated effects on the 1968 presidential campaign nullified previous assumptions that information and how it is presented has an attitudinal effect, inducing behaviour changes. Their groundbreaking efforts focused on issue awareness and relevance, not behaviour and attitude, concluding "the mass media exerted a significant influence on what voters considered to be the major issues of the campaign" (Infante *et al.*, 1997:366).

Agenda-setting theory proposes a relationship between the mass media and the public agenda. It suggests that the media tells the public what to think about by its coverage of a hierarchy of issues it publishes or broadcasts at a given time. Salience, the degree to which an issue on an agenda is perceived as relatively important, is a critical factor in agenda setting. It seeks to answer how a particular issue shown on the television news or printed in a daily newspaper is important. When studying agenda setting, one needs to measure how the salience of an issue changes and why the change happens.

Gitlin (1980) suggests that mass media influence has become the principal distribution system of ideology. People are only familiar with their own "tiny regions of social life" (Gitlin, 1980:14), and that the mass media bring simulated reality into their lives and people find themselves relying on those sources to provide a

conceptualised image of the real world. While agenda-setting theory has its critics, the media's influence is no more evident than in the coverage of events since September 11, 2001.

If the media sets the right agenda for issues concerning GWOT, the society will not only be informed of the situation, but will be given an opportunity to participate in the global issue in ways that contribute to its success. Agenda-setting is the relationship between the salience of a story and the extent to which people think that the story is important. Further research (see Ekeanyanwu, 2007) shows that people tend to attribute importance according to media exposure.

Methods

This study made use of content analysis as the major method of data collection. This involves analysing the manifest content of Nigerian newspapers on matters of the GWOT. Consequently, content categories were developed for the analysis of newspapers studied. These content categories also formed the unit of analysis. The units of analysis were classified into subject themes, frequency of coverage, depth of coverage, prominence, sources, quality of reports and direction/slant of reports that relate to the GWOT. Three Nigerian national newspapers: *The Guardian*, *Vanguard* and *The Punch* were randomly selected from the daily national newspapers in Nigeria. The selected newspapers had wide readership, consistency in news coverage, editorial

independence and nation-wide acceptance; characteristics which definitely qualify them to meet the study objectives set by the researcher. The authors also carried out a pilot study to determine if the selected newspapers actually had content that is relevant to GWOT. The findings show that the selected newspapers were appropriate for the study because they covered stories that focus on terrorism and related subjects.

The sample size for the study is 360. To get this sample size, ten (10) issues were selected per month per newspaper for the year under analysis. Subsequently, for the 12 months in a year, each produced a total of 120 (12 x 10) issues. Therefore, for the three newspapers selected, this will amount to a total of 360 (120 x 3) issues. The 360 issues that were analysed for the three newspapers were selected using the simple random sampling technique, whereby numbers were assigned to identical cards to the units of the population. These cards were put into a box and reshuffled thoroughly each time a draw was made. The cards were drawn one at a time in a lottery fashion until ten issues were selected per month. This process ensured that each day of the month for the entire year had an equal chance of being selected without any form of preference for each month or date.

Unit of analysis or measurement

Generally, the ‘unit of analysis’ refers to the actual ‘thing’ counted during content analysis. Stories or

reports that mentioned terrorism or the GWOT were counted using certain parameters. These parameters include feature articles, personality profiles, photo news, news stories, interpretative articles, editorials and others. The contents of the units of analysis were tested, based on the frequency of coverage, depth of coverage, prominence, sources, quality of reports and direction/slant or tone of reports that relate to the GWOT issues. The content categories are explained below:

Story types/ content categories

Feature Articles (FA): These are in-depth and detailed stories on terrorism and the war against it. They are usually longer and more detailed than news stories. They give thorough reports on issues concerned with terrorism and the global war against it.

Personality profiles (PP): These represent interviews done with political leaders and other key players on issues concerning terrorism and the global war on it. The format is usually that of question and answer. The interviewer or journalist tries to probe and interrogate the interviewee on issues concerning GWOT.

News stories (NS): These are straightforward, short stories which usually give just a brief overview on issues concerning the GWOT. They contain just the basic facts and usually are timely and objective.

Interpretative articles (IA): These are direct reports that focus on the GWOT from columnists, journalists and

experts, or any person whose views the newspaper thinks are valuable or newsworthy.

Editorials (ED): These are opinion articles written by in-house staff of the newspaper. They contain the opinion and viewpoints of the newspaper concerning issues on terrorism, terrorists and the GWOT.

Photo news (PN): This means picture stories that report issues on acts of terrorism, terrorists, or anti-terrorist operations.

Others (OT): This term refers to reports that do not belong to any of specific story category presented above.

Prominence

In determining the importance given to terrorism and the global war against it in Nigerian newspapers, the following classifications were made:

Front page (FP): This entails outstanding, important and prominent stories that appear on the front pages of the newspapers.

Back page (BP): These stories are the stories considered next in prominence and they are found at the back page of the newspaper.

Inside page (IP): These are usually stories which are considered least in the ladder of importance and appear from page two (2) to the page before the back page.

Depth/frequency of coverage

In determining the depth of coverage given to the GWOT, the frequency of stories on terrorism and the

war against it were placed in comparison with the frequency of stories on other global crime related issues:

Terrorism and the global war against it (TGWOT):

Stories in this area reflect terrorism: terrorist attacks and other acts of terrorism around the globe; counter-terrorism efforts and the global war against terrorism.

Other global crime-related issues (OCI): The issue of terrorism and the global war being fought against it has been considered a crucial aspect of global crime and violence. This category captured such stories and used them to test the depth of coverage in relation to TGWOT stories.

Direction/slant/tone

To analyse the way stories or news about the GWOT are presented or treated, with regard to direction, the following labels were created:

Favourable: This term indicates stories or reports in the Nigerian press that present or support the GWOT, commend efforts geared towards combating terrorism globally and condemn all terrorists and acts of terrorism. Both in language and content, favourable reports are positively oriented towards the GWOT. (See Ekeanyanwu, 2007.)

Unfavourable: This term represents reports in the Nigerian press that do not support the GWOT or the efforts geared towards combating terrorism globally. These reports, in both language and content, seem to suggest that GWOT is totally unnecessary and is rather

a waste of time and energy. It also does not consider GWOT as peace effort but as another kind of violence or even an act of terrorism. (See Ekeanyanwu, 2007.)

Neutral: This is used in this study to indicate such reports that do not reveal their stance or take any of the positions elaborated above in both content and the language of the presentation. These reports are strictly objective in all aspects. (See Ekeanyanwu, 2007.)

Sources of stories

In establishing the sources the Nigerian newspapers used to write their reports on issues of terrorism and the global war against it, four categories were developed:

- **In-house staff:** These refer to news sources that are within the Nigerian media industry, including all staff employed and paid by the newspaper in question.
- **News Agency of Nigeria (NAN):** These refer to those GWOT reports in the Nigerian press that are written with the help of Nigerian news agencies' bulletins and newsflashes.
- **Foreign news agency reports:** These refer to those GWOT reports in the Nigerian press that are written with the help of foreign news agencies' bulletins and newsflashes.
- **Unidentified sources:** This specifically refers to news stories on GWOT, written without a known by-line and the sources used in writing the stories are not identified within the report.

Quality of reportage

To determine the quality of reportage given to issues of GWOT, four labels used for this analysis include:

- **Very high:** Very high-quality reports have no grammatical and syntax errors, use simple language, are lucid and straight to the point. They are deemed as very good in quality with regard to the content and the language of presentation of the reports.
- **High:** High-quality reports have few or no grammatical and syntax errors, they use simple language and are easy to understand. These reports are deemed as good in quality with regard to the content and the language of presentation of the reports.
- **Low:** Low-quality reports have many grammatical and syntax errors, there is poor flow of thoughts and ideas and they are difficult to understand since they mostly follow no structured pattern. Low-quality reports are deemed as poor in quality, with regard to the content and the language of presentation of the reports.
- **Very low:** Very low-quality reports are full of grammatical and syntax errors and are not easily understood. These reports contain very pedestrian language and are poorly arranged with regard to the flow of ideas. Usually, these reports are deemed as very poor in quality with regards to the content and the language of presentation of the reports.

Results and discussion

For the 12-month period, the three newspapers studied reported 325 issues on terrorism and the GWOT.

Vanguard had 26 relevant issues, *Guardian* 151 issues and *Punch* 128 issues. The first category of analysis determined the story classification. The result of this analysis for issues studied is presented in Figure 1 below:

Figure 1: Distribution of terrorism and GWOT issues according to story types

Story type	Frequency (N)	(%)
Feature	4	1.2
Personality profile	—	—
News story	296	91.1
Interpretative analysis	8	2.5
Editorial	3	.9
Photo news	5	1.5
Others	9	2.8
Total	325	100.0

To further achieve the objectives of this study, the researcher sought to find out the prominence placed on the GWOT issues by the three newspapers. To determine this, we classified prominence based on the placement of these reports as presented in the units of analysis above. The result is presented in Figure 2.

Figure 2: Distribution of terrorism and GWOT stories according to prominence

Prominence	Frequency (N)	(%)
Front page	2	.6
Back page	-	-
Inside page	323	99.4
Total	325	100.0%

Another major objective of this study was to find out the depth of coverage given to the GWOT in the different newspapers studied. The result is presented in Figure 3 below:

Figure 3: Distribution of terrorism and GWOT stories according to depth of coverage

Depth of coverage	<i>Punch</i>		<i>Vanguard</i>		<i>Guardian</i>		Total
	Frequency (n)	(%)	Frequency (n)	(%)	Frequency (n)	(%)	
Terrorism and GWOT issues	128	30.9	46	15.2	151	19.7	325 (21.9%)
Other global crime-related issues	286	69.1	256	84.8	614	80.3	1156 (78.1%)
Total	414	100.0%	302	100.0%	765	100.0%	1481 (100%)

To find out the slant or tone of stories on GWOT issues, three categories were formed. The finding is summarised in Figure 4.

Figure 4: Distribution of terrorism and GWOT stories according to the slant/tone of story

Slant/tone	Frequency (N)	(%)
Favourable	29	8.9
Unfavourable	41	12.6
Neutral	255	78.5
Total	325	100.0

Figure 5 sums up the results for the source categories thus:

Figure 5: Distribution of terrorism and GWOT stories according to the source of story

Source of story	Frequency (n)	(%)
In-house staff	6	1.8
News agency of Nigeria	3	.9
Foreign news agency reports	198	60.9
Unidentified sources	118	36.3
Total	325	100.0

For the quality of reports, the result is presented below in Figure 6.

Figure 6: Distribution of terrorism and GWOT stories according to the quality of presentation

Quality of reportage	Frequency (F)	(%)
Very high	9	2.8
High	136	41.8
Very low	57	17.5
Low	123	37.8
Total	325	100.0

The data presentation, analysis and discussion have helped to answer the research questions earlier stated and also helped to satisfy the objectives of this study. The analysis of the answers to the research questions are presented below.

Research question 1

Do Nigerian newspapers cover issues on the GWOT?

The total of all the variables presented in all Figures, excluding Figure 3, show that 325 stories on terrorism and the GWOT were found in the 360 issues of newspapers that were studied. However, it should be noted that this is a minute percentage when compared to the other total number of other crime-related issues reported in the three newspapers studied. This shows that the Nigerian press does report on terrorism and GWOT, no matter how low the degree of reportage.

Research question 2

Are stories on the GWOT adequately reported in the Nigerian newspapers in relation to other global crime stories?

Figure 3 clearly indicates that out of about 1481 news reports, only 325 of such reports focused on terrorism and the GWOT. This is just about 22% of the entire reports. This shows that GWOT, when compared to

other global crime issues, are not adequately reported in the Nigerian press.

Research question 3

Does the Nigerian press give prominence to the reports of the GWOT?

Figure 2 shows the degree of prominence the Nigerian press accorded to terrorism and GWOT stories. It is evident that most of the stories found on terrorism and GWOT were found on the inside pages. Therefore, one can conclude that the Nigerian media do not give much prominence to terrorism and GWOT issues. According to Hoffman and Jengellely (2007), the media no longer regards terrorist violence as especially noteworthy and consequently the coverage of terrorist events is increasingly relegated to the insides and back pages of newspapers. From the analysis done, it appears that this is the case in the Nigerian media.

Research question 4

In what story categories do Nigerian newspapers frequently feature reports on the GWOT?

Based on the research findings, Figure 1 shows that most news item on terrorism and the war against it were in the form of news stories. This is not very healthy at all. We expected detailed/in-depth analysis that would give the readers the news behind the news, as well as insights into some of the conspiracy theories making the

rounds on why terrorists strike the way they do.

Research question 5

What is the slant given to the stories reported in the Nigerian press on the GWOT?

Figure 4 helped answer this question. From the analysis, it is evident that most of the news items were neutral in terms of the tone of coverage. This might be as a result of the news reporting ‘objectivity’ requirement; however, it is more discouraging than compelling. A newspaper sets the agenda for its readers; it also shapes their opinion on certain vital issues. By maintaining a neutral stance on an issue, the readers will tend to exhibit nonchalance with regard to such issues or remain aloof as far as GWOT is concerned. This position also gives the media audience the opportunity to take their individual stance on such controversial issues like GWOT.

Research question 6

What is the quality of reportage given to the stories on the GWOT in the Nigerian newspapers?

Figure 6 explains the quality of coverage given to GWOT stories. Most reports on GWOT were high. This is a remarkable and welcome change from the late 80s and early 90s when Nigerian journalists were negligent in checking and editing their stories. It is apparent that journalists are becoming more socially responsible and

making sure that their newspapers and articles are up to standard.

Research question 7

How do Nigerian newspapers source their stories about the GWOT?

Figure 5 clearly shows that for the reportage of global news, Nigerian newspapers source their information from foreign news agencies and reports. Some of the sources indicated during the analysis include AP, Reuters, AFP, BBC, CNN and even Yahoo news. It is encouraging that the Nigerian press, in its effort to flow with the global news scene, has access to global news agencies. However, it is appalling that the number of stories sourced from the News Agency Nigeria (NAN) numbered just three (0.9%). There is a need for the NAN to spread its wings and employ more staff who can cover more news, especially foreign news. This will not only provide the Nigerian media with direct access to global information, but will also upgrade the image of the Nigerian media as a whole and thus make the stories more appealing to Nigerian readers. People tend to respond to stories that are closely related to them in terms of content or source. The News Agency of Nigeria is therefore encouraged to be more responsive to the needs of the media industry at home. It is obvious that if the organisation has the required information, the newspapers might not look to the foreign news agencies for help.

Conclusion and recommendations

The findings of this study support the argument that unlike the global media, the GWOT may not be very popular in the Nigerian press. The issue has not received the kind of attention and publicity that the subject requires and the depth of coverage leaves much to be desired. If the Nigerian media audience wholly relied on newspapers for information on the GWOT, they would have been inadequately informed. Mere news stories may never adequately address issues of terrorism and the war on it. We expected more news analyses, feature articles, interpretative articles, and editorials to help the audience see beyond the straightforward news stories.

The issue of prominence is another area in which the newspapers fared poorly. Most of the news items found in the sample newspapers were on the inside pages of the newspapers, usually towards the end of the newspapers. With the December 2009 botched attempt by a Nigerian, Abdulmutallab, to commit acts of terrorism in the US soil, the Nigerian press should wake up to its responsibility and give the GWOT the prominence it deserves.

Another worrisome fact that came up from this study is that the Nigerian press still relies heavily on foreign news sources in reporting highly sensitive international issues like terrorism. This has remained a sore point in the now-comatose debate on New World Information

and Communication Order and the controversy that surrounds it. Most news stories analysed were sourced from foreign news sources such as Reuters, Associated Press and AFP. Some of the reports were also sourced from mediating news organisations such as BBC and CNN who have international/ foreign correspondents. This is not a very welcome development for the Nigerian press, as it highlights the assertion that it is still dependent on the foreign news agencies for news, especially global news.

The press in Nigeria, despite the advent of the satellite, cable system, the internet and wire service, still do not have foreign correspondents or reporters who can report global news directly to them; they still rely on supplements and handouts from multinational news agencies and other foreign news agencies. Although patronising of the foreign news agency may imply greater access to global news for the Nigerian indigenes, it shows that the media practitioners might not be entirely responsible and disciplined in carrying out their duties as information seekers and disseminators. It is important also to note that the social responsibility ability or inability of the Nigerian press is at the core of building a well informed society.

This study also supports the view that the press in many ways may have neglected the GWOT, which is the only way terrorism could be curbed. Many newspapers do not write editorials, features or give personality profiles

that will enlighten the masses about the GWOT. However, we must not forget that for Nigeria to develop and command respect, especially in the global scene, Nigeria needs to participate wholly in this fight. Not only that, its citizens must be made constantly aware of the issues that surround the war. The awareness will create an opportunity for them to not only be informed of the GWOT events, but also to participate in it. The press must therefore encourage the citizens by reporting factual and reliable stories that not only give detailed information on terrorism and the war against it, but also create an opportunity for citizens to engage in and facilitate the GWOT.

The media is a very powerful tool. It plays a huge part in who we are, what we believe, where we come from and how we feel about certain issues. It is all around us, everywhere we go and thus is one of the most influential aspects of our lives. As earlier mentioned, understanding the trend in press coverage of GWOT in Nigeria is important for at least two reasons. First, the extent to which stories are covered by the news media plays a significant role in the public's assessment of the importance of the issues at stake. In a democracy, neither a public that underestimates nor a public that overestimates the threat terrorism presents is desirable, since public concern can influence governments to over- or under-respond to terrorist violence. Second, there is fear that a press that is desensitised to the

GWOT inadvertently contributes to the growing deadliness of terrorist attacks. This should be addressed.

The American counterterrorism initiatives in Africa since 9/11 have been based on a policy of “aggregation”, in which localised and disparate insurgencies have been amalgamated into a frightening, but artificially monolithic whole. Misdirected analyses regarding Africa’s sizable Muslim population, its overwhelming poverty, and its numerous ungoverned spaces and failed states further contribute to a distorted picture of the terrorist threat emanating from the continent. The result has been a series of high-profile, marginally valuable kinetic strikes on suspected terrorists; affiliation with proxy forces opposed to stated US policy goals on the GWOT and the corrosion of African support for many truly valuable and well-intentioned US endeavours. Nigerians therefore have to be made aware of the original issues at stake with regard to the GWOT. The press is expected to enlighten and sensitise the Nigerian citizenry on what the GWOT is all about, what it entails and why it is essential. This way, they do not fall prey to external manipulations or pretensions.

Again, it seems that the Nigerian press had devoted too much attention to other American incidents, especially political ones, to the detriment of terrorist and GWOT issues that are equally deserving of attention. For instance in the first week of November, there were

bomb attacks in Iraq, but they were hardly mentioned in the newspapers as media interest focused on the US presidential elections. There is therefore a need for the media to focus on, rather than trivialise, terrorism and GWOT issues. More prominence should be given to terrorism-related issues, since participatory democracy so far has foisted on the media as a whole and the Nigerian press in particular, the responsibilities of acting as a civic forum; a watchdog and a mobilising agent. The media should not only inform, but should also mobilise the citizens, to help create an avenue for the audience to participate in the global discussions on GWOT.

Many studies have shown that people tend to attribute importance according to media exposure; therefore, there is need for the Nigerian media to increase the frequency of their reportage of GWOT. This will impress on the mind of members of the Nigerian society the importance of the GWOT and the need to support or fight against it, as their choice may be.

The press is also encouraged to air their own opinions in the media on terrorism and the GWOT issues. It will not only be stimulating for readers to acquaint themselves with the opinion of the Nigerian press on GWOT, but will also give them a guideline or framework on which they can build their own opinion. The Nigerian press sets the agenda for the people and influences how they shape their opinion; so the authors

feel that the Nigerian press should condemn terrorism and assist its government in its efforts to win the GWOT. Also, in doing this, the media should abide by their ethics and code of conduct, by objectively presenting the different sides to the issues to enable the reader or audience to arrive at a balanced conclusion and avoid being manipulated by politicians and policy-makers.

Finally, it is our submission that media organisations should endeavour to employ international correspondents who can report global news to the Nigerian media directly. That way, the Nigerian media will not always have to rely on second-hand information from other foreign news organisations or media houses such as BBC, CNN and Yahoo News, as was evident in this study. This will not only boost the readers' confidence on the quality of the newspaper, but will also lead to the development of the Nigerian press at large.

In conclusion, conceptions of representative democracy suggest three basic roles for the news media: a civic forum encouraging pluralistic debate about public affairs; a watchdog against the abuse of power; and a mobilising agent encouraging public learning and participation in the political process. The events that border the GWOT cannot only be considered a global public affair, but also a political vendetta. This must therefore be positively and continually impressed on the

citizens' mindset in the Nigerian press.

As the conflict generated by the GWOT is escalating, the stakes are becoming much higher. This drives the desire to control the message of the media towards controlling the type of influence such message could cause. The control of images is also one of the goals the media should pursue to avoid escalating the conflicts to a dangerous negative level. For instance, the filming of US soldiers killed in Iraq returning to the US in flag-draped coffins is strictly off-limits. Images such as these have the power to heavily influence the US public, in a very profound and emotional manner, making an already unpopular war even more unpopular (Simons, 2008). However, it is still recommended that the media must set the agenda on the tone the coverage of the GWOT must take. This responsibility cannot be shirked on the platform of any political calculations.

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