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The Nigerian University System and the
Challenge of Ethnicity

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I. Introduction

The concept of ethnicity is one that is loaded with all kinds of sentiments both negative and positive. It is most often realized when several ethnies or groups are in a situation of strife or unhealthy competition for scarce goods, opportunities and chances. Thus ethnicity is easily realized or seen at work in interracial contents, interracial but culturally plural contexts and in situations of colonial domination of one group by another. Quoting Franz Fanon, Nnoli (1978:2) has remarked that “the, colonized man existed only where there was a dominant culture that reduced him to an inferior status.” In the African and Nigerian context, that brand of ethnicity that an entire race of people from their culture and tradition no longer exits. It existed during the days of colonial domination and the apartheid in southern Africa.

The phenomenon of ethnicity which we see in Nigeria today was entrenched during the days of colonialist. The British colonizers adopted policies as they found fit. For example in the Nigerian north the indirect rule policy enabled the British to preserve the Muslim emirates and the local chiefdoms, using them as instruments of the colonial administration. But in the southern part of the country, warrant chiefs were created where none existed hitherto. Even where chiefdoms and chieftaincies existed, the British overlords occasionally found it necessary to dismantle such structures by subduing the chiefs or deposing them outright. In certain cases such as those king Nana of Iteselain, Jaja of Opobo, and Ibanichuka of Okirika the British administrators exiled them or overthrew them. But such incidents hardly occurred in the Muslim North. The upshot of such differential attitude or approach to the administration of the colonies was that both during and after colonization some ethnic in the country had their cultural mores intact and held in very high esteem while some others were bastardized and denigrated relative to their neighbours. Otonti …….(1964) remarked about the British divisional officers attitude to chiefs and other dignitaries was that of colonialist racist arrogance smacking of ethnic centricism. Commenting of the colonialist-racialist brand of ethnocentricism which one can in another context regard as the “ethnicity” of that order the present author writes in Aminigo (7)

Nduka’s blunt and frank assessment of the moral contradictions of the colonial order includes issues such as the practice of colour bar and the lack of values such as neighbourliness, Christian charity and fraternity. The effect of such moral contradictions could hardly have been lost on the colonial citizens who were supposedly being ‘converted’ to the ‘Christian’ values of the western world.

The essence of ethnicity in the relationship between colonial overlord and the colonial citizen was the general feeling that the cultural mores of the overlord were inherently ……..to those of natives. For that reason Nduka’s Western Education and the Nigerian Cultural Background (1964 has as its memorable subject the cultural dislocations in Nigeria caused by the ……….. hegemony on the Nigerian traditional cultures. Part of that dislocation was the practice of the colonalis’ categorization of African peoples into tubes with an emphasis on the differences among them to the neglect of their similarities. Nnoli (1978:23) has aptly remarked with regard to the colonial situation in Nigeria that many a citizen found himself in a situation demanding identification with majority groups of the nation so that his aspirations could be safeguarded.

He feared that since he was regarded as a member of an ethnic group by others he would likely be discriminated against by them and would be lost in the struggle for socio-economic rewards if he did not identify with this ethnic group.

The tendency referred to above crystallized later into the creation of “majority” and “minority” groups in the three regions of the Nigerian polity at that time. The same subtle division of Nigerian
natives into “majority and “minority” groups has metamorphosed into the current national cutthroat struggle for scarce socio-economic opportunities and resources in the Nigerian nation. Nnoli (1978:35) himself notes “the fact is that tribalism or ethnicity in Nigeria is a creature of the colonial and post colonial order”. This order is crudely marked out by the fierce struggle for national resources and influence and the desire to control these to the total exclusion of disfavoured groups.

Within the context of the unevenly setting, education at the higher level, is regarded as a scarce social opportunity because of its strategic importance in matters of upward individual social mobility and socio-political influences for ethnic groups with a lot of tertiary level education at the national level. Thus we see heavy competition at the group and individual levels based on ethnicity. Nnoli (1978:74) notes with regard to this:

As a determinant of ethnicity competition alone is not enough; Charles Wagley and Ularim Harris suggest that it is important to know the objective of competition. The more vital valuable the resources over which there is competition, the more intense is the resultant insecurity that gives rise to ethnicity.

It is with regard to the foregoing that the subject of ethnicity in the Nigerian university system will be explored.

II. Ethnicity and the Nigerian University System

The beginnings of higher education in Nigeria did not register elements of ethnicity except that the colonial masters started with the Yaba Higher College in 1932 as if they did not really want full scale university education for Nigeria. And this was so because in the words of Nduka (1964:52)

Although many wished to learn science at the secondary schools, finds were rarely available to could and equip laboratories for proper science teaching. Physics and chemistry could not often be taught for this reason. The Cambridge overseas school certificate examination was such that it was possible to obtain a pass in biology, even with credit, with the minimum of acquaintance with scientific equipment and practical work, sometimes with no acquaintance with such things.

The situation described above showed the high level of colonial policies involving higher education at that time.

For nearly forty years there was no official provision for higher education for talented students. It was not until 1938 that the covenant first awarded a scholarship for a full degree course overseas. (Nduka 1964:51)

The upshot of the aforementioned state of affairs was that African graduates were not available for employment; they were not needed at all, and their ‘absence’ was deliberately cultivated. European and American graduates could always be despite their huge expenses involved in doing so.

In the Northern region of Nigeria educational program was thoroughly regimented by the cultural resistance of the Muslim rulers, the Emirs who saw Western education as a disrupting influence. They prevailed upon lord Lugard who for the sake of his indirect rule had to accede to their demand. At the tertiary level, their ‘reverse’ ethnicity with respect to the rejection of Western education was such that, in the words of Nduka (1964:50)

It was not until the early fifties that the 16 million people of the Northern region could boast of having one person with a university degree, and he was trained by one of the missionary pioneers.
This was the situation in the colonial Nigerian nation until the Yaba Higher College was opened. In its operation and philosophy, the Yaba College served the aims of British colonial ethnocentrism and ethnicity fix a seven years of medical training turned out medical ‘assistants’ and engineering assistants’ who could not rise above a certain upper limited in the colonial civil service. Unfortunately, the very best of Nigerian pupils from the secondary schools were sent there to roast and their intellectual inferiors who were lucky enough to go abroad spent a year or two less to obtain full degrees from British universities and returned home to enjoy higher status. In essence ethnicity, as practiced against Africans by the European overlords was in full operation at the tertiary level. It was under such circumstances the University College, Ibadan opened its doors to its first set of students in the year 1948. It must be pointed out nationalist agitation by African elite such as James African Horton, Edward Blydu, James Casely Hayford and Dr. Nnamdi Azikiwe initially clamoured for a university for the whole of West Africa. However, the Second World War and the strong wind of anticolonial current forced the British overlords to gradually plan for the independence of a lot of African colonies. To make this possible between 1940 and 1960 every colony in West African began to clamour of its own university it was this clamour to gave both to the university college Ibadan in 1948. Nationalist criticized the Yaba idea so much that it was difficult to remain adamant to criticism. A university had to be established locally to meet manpower needs while also serving the British ‘mentality’. And so the university college because a college of the University of London.

III. Ethnicity, Politics and Tertiary Education Provision

In April 1959 as part of the preparations for independence in Nigeria, the Federal Minister of Education appointed a commission to investigate Nigeria’s appointed need in the field of post school certificate and higher education over the next twenty years. Dike in Ifemesia (1988) state that the Ashby commission constituted a watershed between the dying colonial empire and the renascent Nigerian nation. Pan-Africanist ideals and Nigerian nationalist ideas fixed in the struggle for the nation’s independence. By 1956 under the regional arrangements for self-government the Eastern Regional Government of Dr Nnamdi Azikiwe had proposed to build the University of Nigeria, Nsukka. Zik’s idea of a university can be seen as the first strings of university education founded upon ethnic consciousness coincided the intellectual garb. This is because during the heydays of colonialism ethnic bonfires were easily ignited in political speeches and….. to underscore the reality of interethnic struggle for political power in the Nigerian nation. The Almighty Zik of Africa for example addressed the Igbo national union at Aba (1949) in the following words. (Nnoli 1978: 230)

\[\text{It would appear that the God of Africa has specifically created the Igbo nation to lead the children of Africa from the boudnage of the ages ... the martial powers of the Igbo nation at all stages of human history has enabled them not only to conquer others but to adapt themselves to the role of the preserver. The Igbo cannot shirk its responsibility.}\]

It is obvious that ethnic remarks such as the foregoing served to create fears of Igbo domination not only in the Nigerian nation at large, but in the former “eastern region” where “minority groups” exist. Till today those fears are strong and are regularly nourished by events, happenstances and ethic outlook in the tertiary institutions of the Nigerian nation especially in minority areas of the country.

The upshot of the foregoing sentiments openly expressed is that in and out of the university system, the ethnic card has now fully crystallized into the major motivating factor for social demand for higher education. It also informs the configuration of staff recruitment patterns and even promotions, in Nigerian higher institutions. The reasons why this is so are obvious. In a third world country such as Nigeria tertiary education is easily seen as the most potent weapon of political power and influence. It sometimes matters even more than population. In a nation of over three hundred ethnic groups higher education seems the sole open sesame to elite status through individual upward
sonal mobility. For this reason it has for many years been courted on a broad ethnic basis. It has always been a question of silent interethnic competition at the national level. And this redounds on the university system to foist the ethnic card upon a cost of processes and procedures in the Wory tower complex.

Basil Fletcher’s (1968:36) statement seems appropriate to the Nigerian context of interethnic competition for higher educational opportunities:

*In the long history of man, higher education has often been used in order to maintain in a privileged position a particular class or race or group in him a nation. Where higher education has been thought of in this way the privileged elite has come to think that its members alone represent man in the fullness of his powers; given the frailty of human nature is not a long step from this position to the belief that those outside the privileged group are not really or fully men and so not worthy to be given the rich possibilities of development open to the elite. The only way to avoid this denial of human dignity is for a society to open the resources of its education equally and widely to all men.*

The meaning of the concluding part of the foregoing statement is that in many Nigerian universities the ethnic card is played so ruthlessly that the nation ends up spending money on tertiary education not to enhance national development but to underscore the myths of interethnic infermization. The very negative outcomes of this tendency will engage our attention presently.

We have stated earlier that the Nigerian nation set up the university of Ibadan in 1948 as a federal institution before Ashby, the Eastern regional government of Dr Azikiwe had started planning for its own university, which started in 1960 at Nsukka. The Ashby Commission’s Report and Fred Habison’s high level manpower forecasts for the nation brought about proposals for more universities in the country. A second federal university Lagos, was to be setup, while the Northern, Western and Eastern regions were to start a university each. Even though the western region had Ibadan in its enclave, it went ahead to start the university Ife so that it would not be outdone by the other regions in the tertiary educational race nationwide. We are contending that healthy as this interregional competition for tertiary educational provision was, the real maturing factor for it was the ethnic factor, the ethnic card.

We are saying that in Nigeria educational acquisition and the attainment of political advantage (via population) have merely served as weapon of domestic colonization of under-privileged groups within the Nigerian polity. The privileged, the political and tribal chieftains of the heydays of anti-colonial nationalist politics merely betrayed these wordmate tendencies in their public speeches. Similar to Azikiwe’s earlier quoted speech is another vitriolic speech by Alhaji Abubakar Tawafa Balewa in the federal legislative council on March 24, 147:

*I should like to make it clear to you that if the British quitted (sic) Nigeria now at this time, the Northern people would continue their interrupted conquest to the sea.*

(Nnoli, 1978:231)

Balewa’s speech was obviously an ethnically-loaded speech based of their population advantage the ‘North’ has over the rest of the nation, especially the sea-ward minority groups in the South South. Such unguarded uncouth statements provided the basis for the protective device of wordmate competition at the level of tertiary education in the country. Now every state (or ethnic group actually) now sees its ultimate political salvation in the acquisition of higher education since that holds the key to the corridors of economic, political and social power and influence in the nation. And so a race that started in 1948 with the university college Ibadan had, by 1975 balloned into thirteen universities all owned by the federal government of Nigeria as Ibadan, Nigeria Ife, ABU,
Lagos and Benin now had Sokoto, Ilorin, Kano, Maduguri ………. Calabar and Port Harcourt joined
the fold. These new seven universities were established to enhance the ethnic self-retrieval needs of
the various ethnic or geopolitical groups of our ethnically diverse Nigerian nation. The nation did not
have ready manpower to run these universities. Port Harcourt for example was established in 1975 but
could only start off in 1977.

By 1979 the second republican government of Shehu Shagari was established within one year
of its coming, the government opened the universities of Technology Akure, Owerri, Minna and Yola
and the Universities of Agriculture at Abeokuta, Umudike and Makurdi. These are the ‘Third
generation’ Nigerian Universities. Dr. Alex Ekweme Nigerian Vice President argued that the federal
government was to establish seven new universities while placing prime focus on the development of
technologies for the country will also ensure proper distribution of university institutions and the
location of a federally-owned university in each geo-political state of the country (Okoli, 2002:32).

It should be noted that once the Shagari regime was toppled, the military government of
Major-General Buhari merged these new universities with the conventional universities at Lagos, Jos
and Zaria (Ahmadu Bello). In the next decade state universities took center-stage and Ondo, Lagos,
Oyo, Abia, Cross River, Edo, Delta, Ogun, Enugu, Anambra, Benue, Kogi, Nassarawa, Rivers
and Bayelsa state among others have established universities. Our contention is that in view of the
level of grinding poverty in the country, and the fact that many state governments that cannot pay
secondary and primary school teachers’ salaries are all joining the rush to establish state universities
the whole idea becomes funny. The very sad commentary on the inordinate rush for the establishment
of university institutions is that eh whole thing is motivated by considerations of ethnicity. Pride of
the ethnic ingroup based in this case on the current state structures has created these new universities.
And so the Yoruba-University at Ife is no longer sufficient, just as the Hausa-Fulani University at
Zaria and the Igbo University at Nsukka are no longer sufficient. The Efiks, Ibibios, Ijawas and
Ikwerre-Ogoni’s including the Edos and Urhobos have all established their universities within their
ethno-political domains. Within a generation we now have wide over 50 universities including private
and religious universities. (Okoli 2002:42) has summarized the “deploria disease” of the rush for more
universities in Nigeria based on ethno-political considerations in the following words;

*The decision to establish universities at both federal and state levels was mainly
motivated by political rather than educational consideration. The states came under
direct control of the state governors, who were in positions to dictate terms.
However, to gain widespread acceptability (sic) economic arguments such as
manpower shortage, technology transfer and other points were adduced as the
rational for the establishment of state universities.*

*The inadequate teaching and research input in almost all the universities seriously
threatened and still threatens the quality of academic programmes. Curricular
offering still left a lot to be desired in both content and structure.*

The upshot of the aforesaid commentary is that university education in Nigeria today is not
planned and executed to match the developmental goals of the nation. At best it is geared towards
providing manpower to enable each ethno-political and cultural subgroup of the nation to join the
affray of sharing the “national cake”. The unfortunate thing about this tendency is that we now have
higher education within the intellectual spirit, without the much needed technological knowledge and
values necessary for economic development as a nation. For this reason Nigeria’s experience with
higher education has failed to yield the much expected benefits of tertiary education, as in the
developed world. The reasons are obvious: we have exceeded Fred Harbison’s High-level manpower
professions by the 1980 deadline. The Ashby Commission’s proposed of five new universities for the
country were to provide adequate manpower up to the 1980’s. By 1975 Gowon’s seven new
universities, courtesy of the oil boom brought the number of universities in the country to thirteen. Today in the year 2006 we have over 50 universities ranging from Federal to state, private and religious universities.

The vision of such a large number of universities without the necessary funding to enhance standards and quality is questionable. It is an open secret that in many Nigerian universities non-salary inputs are totally non-existent. In essence in Nigeria our experience with the Nigeria University system is that rather than become a tool for economic development, the expected positive returns have been bedeviled by ethno-politically motivated actions and policies. This holds true for intra varsity matters such as appointments, promotions, student unionism, Vice Chancellorships, corruption, victimizations, inter-ethnic wrangling, etc. Hence in Nigeria the ethnicity motivated proliferation of higher educational institutions has not really enhanced national government. It has rather produced a lot of people with the wrong type of skills. The universities have produced men and women with elitist tastes and tendencies but the nation is not the better for it. Hence today, the elites, including the professoriate in the universities are not working to make the nation a better place to live and work. They have merely joined the bandwagon of pen pushers in the tiny modern sector or else they are unemployed or wrongly employed. As part of their wrongful utilization they are (in whatever sector they work in) involved in the continuous inter-ethnic strife and rivalry which keeps the nation perpetually fighting a psychological civil war.

In the higher educational sector, the ‘civil war’ consists in the continued proliferation of universities by the Federal Government, the States, religious groups and individuals. But our contention is that all these mushrooming efforts are founded in the fact of ethnicity. Another major problem created is that the new universities merely duplicate the curricular of the older ones without any pretence to quality of manpower even among the professoriate. Moreover, by neglecting economic considerations the products of these universities now amount to surplus unemployable manpower. The World Bank Report (1988:71) reflects on this issue in the following words:

*The apparent surpluses represent not so much overproduction as a general failure by African countries to nurture conditions in which individuals with tertiary qualifications can be productive.*

Arguing earlier in the same vein, Theodore Harf et al (1975:70) had contended that;

*If substantial investments in education are not accompanied by complimentary capital investments, education will not yield any profits and these investments will be withheld from alternative more profitable investment possibilities.*

The afore cited statements indicate the extent to which the sudden expansion of educational facilities without a proper basis in economic planning can lead to national economic frustration. In fact the real thing about Nigerian University education is that a lot of the ‘investments’ made in the proliferated institutions constitute a loss in as much as such investments have been withheld from other more viable economic ventures. In essence, rather than enhance economic development in the nation the university system in Nigeria has brought about the inordinate mushrooming of wrong graduate manpower. In terms of input, much financial infusion has ceased. Even opportunities for post-doctoral training for young PhD’s have dried up. Ultimately, the critical situation in Nigeria’s tertiary education can be aptly described as a situation in which

*The skills most relevant to development, those acquired when theory is confronted with the exigencies of the real world, are exactly the very ones that do not get learned (World Bank 1988:75)*
Decrying the intellectual and moral decadence of the Nigerian nation over two decades ago Otonti Nauba (1983:70) citing Alatas complained that

Universities are introduced without the intellectual spirit. A bureaucracy is introduced without the rigid and widespread adherence to the spirit of promotion by merit, efficiency, and a public service attitude... the sciences are introduced without the spirit of inquiry...

Ndulsa has summarized it all for us: our nation should give more consideration to the intellectual values of honesty, balance, objectivity, the scientific method and balanced consideration of interests which is a subspecies of justice and moral values.

IV Cases of crude Ethnicity in The Nigerian University System: Ibadan, Lagos, Port Harcourt and Niger Delta University, Amassoma.

The content thesis of this paper can now be resumed mainly the fact that though the university is a center of excellence, the ethnicity virus has several times threatened to destroy the way lower to bring it down to the level of ordinary roadside Nigerians. This is because sometimes ethnic interests which may be valid, have been overplayed to such a point that merit is almost sacrificed in the Nigerian university system. To support our argument we shall examine a few instances of ethnically based happenstanes at the universities of Ibadan, Lagos, Port Harcourt and the Niger Delta University.

In 1948 the university of Ibadan started its medical school with transfer students from the Yaba Higher College. Professor Aladele Ajose a Yoruba was appointed to that position at the inception of the university. The Colonial Government appointed Dr. Kenneth Mcllanby, the Principal of the College. But on Bellanby’s departure, Dr. Akanu Thiam, medical doctor and Chairman of Council in collusion with Dr. Okehukwu Ikejiani another council member skipped Professor Ajose and appointed their kinsman Professor Kenneth Dike to the post of Vice Chancellor. Dike bagged his PhD in 1950 and had been promoted Professor in 1956. He was a professor of History. There was nothing in the books to suggest that the older professor of medicine who started with the university ought to have been skipped. The only explanation to justify that action in the early years of the University College was the ethnic consciousness of Dike’s brethren as organized by Dr Azikiwes earlier quoted 1949 speech at Aba.

In 1967 Professor Sbiru Biobaku wanted the post of Vice Chancellor at the University of Lagos. Biobaku was Registrar of Ibadan in the 50’s when the Dike/Ibiam coup occurred against Ajose. He did not want it to be repeated against himself. He and Professor Eni Njoku were in one race of the post of Vice Chancellor, University of Lagos. Eni Njoku had served his first tenure and wanted a second one. The struggle for that position generated inter-ethnic feelings of bitterness. An idealist Yoruba student stabled Biobaku with a knife over this incident of struggle for the Vice Chancellorship. Biobaku finally won.

At the University of Port Harcourt similar ethnic cards have been played both by the Rivers/Bayelsa indigenes who are the primary hosts of the University and other ethnic groups in the University, especially the Igbos and other minority groups from Delta, Edo and the Efik/Ibibio region. In 1975 Prof. Donald Ekong was appointed Vice Chancellor/Principal of the University. His registrar was Mr. M. E. Akpe from Bendel State while the Bursar was Mr. M.N.S. Mbanjogu from Anambra State and the Librarian from the Cross Rivers State in the person Rev. G.B. Affia. Despite all anti-Ekong wranglings by the Rivers/Bayelsa politicians, the regime of Prof. D. Ekong witnessed the great and fastest developmental strides in the growth of the university. Within four years (1977-81) Ekong built up the three campuses and all subsequent Rivers “sons of the soil” put together did not accomplish fifty percent of what Professor Ekong did for the University of Port Harcourt. The only
Vice Chancellor with Ekong’s vision and potentials is Prof. Don Baridam who within 3 months of arrival, refurbished structures left desolate for over twenty-five years. Baridam did this with the same money while others sent university money to the failed banks. In essence the ethnicity of the ‘hosts’ in monopolizing the post of Vice Chancellor of the university has not necessarily made the place grow faster. But one might argue that the level of power play between the Rivers/Bayelsa hosts and their dominant Igbo Colleagues has always determined a lot of things in the university. This is also because there have been glaring cases of fraud fake certificates, victimization, redeployment of even academic staff to wrong position all based on ethnic considerations. For instance there is the very memorable case of a female lecturer in French who in the 1995/96 year has redeployed to the Faculty of Education when she had no degrees in Education! There was also the case of a young lecturer who was found appointable to teach adult education, but who claimed to have been born in 1963, started school in 1970, passed primary six in 1973 and ended up with a PhD degree in 1998 from the University of Nigeria Nsukka. I very much doubt if such a lecturer could have been found appointable if not for his ethnic connections (despite the glaring inconsistencies in his age and claims of educational experience). There was even the case of a female lecturer in Educational Management who was victimized for not towing the expected ethno-political position. Worst of all, a Professor and Dean was pilloried endlessly for his balanced political outlook in faculty election and matters. A particular extremist ethnic ingot kept writing baseless petitions against him!

The fail case of ethnicity in the Nigerian University system is the mad case of Professor Abiye Obuoforibo, Provost, College of Health Science, Niger Delta University, Amassoma, Bayelsa State. Prof. Obuoforibo, became a Professor at Benin 1978. He moved to uniport in 1980 or so and became Provost after Professor Theodore Francis was appointed Vice Chancellor at Akure. Obuoforibo taught at Nairobi under a UNESCO programme and spent some years in the USA before being appointed Provost at Amassoma. Unfortunately, when an Ijaw Professor (not a core medical scholar) wanted to become Vice Chancellor, he had to generate students unrest against Obuoforibo. His long experience as a medical scholar and tutor of generations of medical students was ignored by the Bayelsan schemers who wanted his job given to their kinsman who needed that job as a stepping stone to the Vice Chancellorship of the young institution, the Niger Delta University. Obuoforibo threw in the towel to save his skin and the efforts of Prof. Kimse Okoko Pro Chancellor could not make him change his mind. Ultimately Obuoforibo’s great experience and tract records as a medical tutor which could have enhanced the quality of the NDU medical school were lost! Qualitative education was sacrificed on the altar of the ethnic politics in the young university of Bayelsa State.

V. VALUE – Judgement about the Ethnic card in Nigerian Universities

In the foregoing sector some instances of the ethnic card played in the Nigerian universities have been cited. Its ugly manifestations and potential for bastardizing and destroying the intellectual spirit and the true essence of a university have also been pointed out. The truth is that the university being the intellectual powerhouse of any nation is supposed to contribute to national development through the cognitive domain. And so any tendency that distracts from this noble talk or goal becomes a worthless distraction. Any ethnopolitical gangings or “monopolies” that threaten the noble idea of the ivory tower becomes a tool of destruction of the university system. For instance the English Department of the University of Port Harcourt is one place where four highly reverend Professors are retiring without any younger colleagues stepping into their shoes. These venerable Professors are Charles Nnolim, Chidi Maduka, Helen Chukwuma and Chidi Ikonne. In the past twenty five years since the university has been running post-graduate programmes they have found it worthwhile employing only for younger lecturers - Green, Koroye Udumuku and Ojukwu who were either undergraduate or post-graduate students of the department. The only reason why people like kontein Trinja or the late Ibiwari Ikiriko, both brilliant PhD’s were not drafted into the department is probably because the senior folks felt threatened by the prospect of increasing the young lecturer
intake that would disturb the balance or 2:2 ratio of Green/Koroye and Udumulam/Ojukwu in the department.

In essence the problem of ethnicity has become an albatross to the university system and caused distractions from its noble objective of enhancing national development in the country. The university of Port Harcourt for instance has the following noble objective which have been torpedoed by excessive ethnic card-playing;

“the academic objectives of the University of Port Harcourt shall be to contribute to National Development, self-reliance and unity through the advancement and propagation of knowledge and to use such knowledge for service to the community and to the community and to humanity programmes shall be provided to assist the community in which the university is situated to benefit from the facilities provided by the institution, (Uniport Calendar 1982-84). But the crude play of the ethnic card has robbed the university of the opportunity to excel and be a true World-class university. This is because corruption is covered-up, bad-Vice Chancellorship candidates are sponsored, fraudulent union-leaders are condoned, thieving works directors are eulogized and fake certificate welding professionals are covered-up, all because of the ethnic card. Given, in clear cases of outright fraud in which National President and National Treasurer of the University of Port Harcourt Alumni Associated were found to have defrauded the Association, an ethnicity-motivated and sponsored probe-panel set up by a particular Deputy Vice Chancellor who was playing the crude ethnics card, made sure that these erring officials were covered up. Rather than expose the fraudsters, this writer was victimized and his promotion delayed by those who used their high vantage positions to play the ethnic card!

VI. Conclusion
Our discussion of the problems of university education in Nigeria has shown that excessive ethno-political consciousness can ruin the university and detract if from its enviable position as an ivory tower of learning meant to support the nation’s developmental efforts it is better that planning should be guided more by national development considerations. Excellence and the intellectual spirit of enquiry should be given primary consideration. The values of critical thinking, justice, patriotism, honesty, fairness and objectivity should be paramount in the operation of Nigerian Universities. If these positive values continue to be ignored, in another decade the glory the nation had during the first decade of independence which arose from careful economic planning of its university education will be totally gone and can only be a matter of historical references.
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Bacteriological Investigation of Commercial Intravenous Infusions in South Western Nigeria

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Abstract
Intravenous infusion samples representing two local brands were randomly purchased from various retail outlets and Government Hospitals in Lagos, Abeokuta, Ibadan, Oshogbo, Akure, Ado-Ekiti and Ilorin Nigeria. The visibly defective and visibly normal bags were analysed for bacterial contaminants, pH, Osmolarity values and antibacterial susceptibility test. The major bacterial content in the visibly defective samples were Bacillus subtilis, Bacillus cereus, Acinetobacter sp, Corynebacterium sp, Citrobacter diversus, Bacillus mycoides and Pseudomonas sp. From the visibly normal samples the bacterial content were Alkaligenes sp, Klebsiella aerogenes, Pseudomonas sp, Corynebacterium sp, Bacillus megaterium and Micrococcus luteus. There were greater reductions in pH and Osmolarity values of the defective samples than the visibly normal samples. The lowest pH was recorded in sample B with pH 3.3 and osmolarity 245 mosmol/l. Most of the bacterial isolates were multidrug resistant strains. Potential life threatening complications may ensue as a result of inadvertent administration of the seemingly normal infusions and the patient may experience treatment failures attributable to the multidrug resistant bacteria contaminants.

keywords: Intravenous infusions, Contamination, Multidrug resistant, Endotoxin, Haemolysis, septic shock.
Introduction

Pharmaceutical preparations are regarded contaminated or spoilt if, low levels of acutely pathogenic microorganisms or high levels of opportunist pathogen are present. Toxic microbial metabolites persist even after death or removal of any microorganisms originally present and detectable physical or chemical changes have occurred in the product (Hugo and Russell, 1992).

While the presence of a few microbial survivors in an injection after production is often unlikely to induce infection, considerable growth can occur during storage, prior to administration thereby yielding highly infective or toxic products. Danger from the presence of microbial toxins in pharmaceuticals lies mainly with pyrogens liberated primarily by Gram negative bacteria and pyrogenic substances from some fungi. Bacterial sepsis and endotoxins usually give rise to acute febrile shock and toxemia if present in infusion fluids (Maki, 1986). Contaminated vials of Ampicillin injection have led to excess death of patients in an NGO supported Hospital in Pakistan. This was traced to contamination of over 500 vials of Ampicillin injection by Pseudomonas and Bacillus sp leading to sudden deterioration, septic shock and death of the patients a few hours after intravenous injection of the suspect Ampicillin (Harry, 1996). Prolonged storage of a parenteral solution containing as a consequence of inadequate heat sterilization procedure, an extremely low level of viable but damaged bacteria might enable marked multiplication and endotoxin release to transform a relatively innocuous preparation into a potentially lethal one.

Sources of resistant microbial strains in pharmaceutical preparations include the raw materials of plant and animal origin, water, the manufacturing environment and personnel. Methicillin resistant Staphylococcus aureus (MRSA) and Pseudomonas are growing problems in many parts of the developing world. The most important factors associated with their spread were found to be poor hospital hygiene, contaminated pharmaceuticals, lack of resources for infection control, and so on (Gakuu, 1997).

Contaminated products with non-visible signs of deterioration have been sold to unsuspecting retailers, particularly in rural chemists, pharmacies and health centres where such medicines have been inadvertently dispensed. The objectives of this Study were; to isolate and identify the bacteria associated with contamination and spoilage of intravenous infusions retailed under tropical conditions, to evaluate changes in pH, Osmolarity of the products as a result of microbial degradation and to test for antibiotic resistance of the bacterial isolates.

Materials and Methods

Collection of pharmaceutical product samples

A total of 42 sterile intravenous infusion products made up of two local commercial brands in South Western Nigeria were randomly purchased from various retail outlets, as well as Government Hospitals and Health centres in Lagos, Abeokuta, Ibadan, Oshogbo, Akure, Ado-Ekiti and Ilorin, Nigeria. All the products selected for this study carried comparable expiry dates, different batch numbers and none was expired prior to analysis. The product were 500ml bags of 5% and 10% sterile Dextroses intravenous injection fluids popularly called “Drips”. The 5% Glucose injection is used for correction of fluid (i.e. replacement of water loss) and electrolyte imbalance in patients. The 10% Glucose injection is an hypertonic solution used for treatment of patients in hypoglycaemic coma, for energy supplementation and parenteral nutrition.
Bacterial content analysis of the intravenous infusion samples

Each of the defective samples were analyzed by employing the pour plate technique following the methods of Scott et al., (1985) and adaptation of the British pharmacopoeia (1988). Each product sample consisting of a 500ml intravenous infusion sachet was thoroughly disinfected with 70% ethanol and well shaken. With the aid of a sterile needle/ syringe inserted through the wall of the bag, 10ml sample of each product was withdrawn and diluted in 90ml of sterile distilled water. One ml aliquot of the sample was taken from 10^{-1} dilution to seed sterile plates of Tryptone Soy Agar (TSA) and Plate count Agar (PCA), all in replicates. The TSA was supplemented with sterile 5% Glucose to simulate the nutritional condition obtained in the test samples as the bacterial colonies were fastidious in the trial run.

For the visibly normal samples, 10ml sample of each product was withdrawn aseptically and diluted in 90ml of sterile Tryptone Soya Broth (supplemented with 5% sterile glucose) in culture bottles. The culture bottles were incubated at 35^0C for 48 hours. One ml of the aliquots was inoculated into each sterile plates of TSA and PCA all in replicates. The contents of the Petri plates were mixed thoroughly to ensure optimum dispersion of the inocula in the media and allowed to set.

To detect possible hemolytic effect, One ml aliquot of each sample was inoculated into sterile plates and seeded with sterile Blood Agar (BA) in replicates. Plates of TSA and BA were incubated at 35^0C for 5 days while PCA plates were incubated at 35^0C for 48 hours. The resultant distinct colonies were enumerated and the cultural characteristics were also recorded. Pure cultures were obtained and stored in TSA slants, which served as stock for further analysis during the period of the study. The final results represent an average of three determinations and negative controls were set to confirm the sterility of the media used.

PH and Osmolarity values of the intravenous products

The PH of the test samples, both visibly defective and visibly normal samples were measured using a Pye – Unicam PH meter model 291 mkz equipped with a glass electrode. The Osmolarity of each test sample was also determined using an advanced Osmometer 3W11. The dial readings were then recorded.

Characterization and identification of the isolates

The bacterial isolates were subjected to a number of biochemical tests, according to the methods of Wosby, (1992); Olutiola et al., (1991) and, Cappuccino and Sherman, (1996) and identified according to Holt et al.,( 2000).

Test for Antibiotic resistance of the Bacterial isolates

All the bacteria isolates were tested for susceptibility to four commercially available antibiotics by Agar dilution susceptibility testing using the methods of Shoemaker et al. (2001) and following the recommendations of the NCCLS (1997) and Swedish Reference Groups for Antibiotics, SMA in Nord et al. (1987). The antibiotics are: Streptomycin Sulphate B.P. injectable powder, Troge Medial GMBH, Germany; Penicillin procaine B.P. injectable powder, Antibiotice, S.A. Romania; Ampicillin injection powder B.P. Medrel GMBH, Germany and Tetracycline capsules B.P. Global Pharma, India.

The following breakpoint concentrations of the antibiotics were used corresponding to full clinical resistance or susceptibility. Benzylpenicillin, > 8mg/L; Tetracycline, > 16mg/L; Ampicillin, >10mg/L and Streptomycin > 4mg/L.

Overnight culture of each isolates was prepared by aseptically transferring inoculum from pure culture of the isolate to test tubes containing sterile Mueller Hinton Agar (MHA) broth and incubated at 37^0C for 24 hours. MHA was used for testing all of the antimicrobial agents. The medium was prepared by reconstituting 38g of MHA powder in 1 litre of distilled water and sterilized at 121^0C for 15 mins. For each antibiotic, 1 litre of the medium was prepared and the appropriate weight of the
Antibiotic was incorporated aseptically into the molten medium. For Tetracycline 16mg, Ampicillin 10mg, Penicillin 10mg and streptomycin 5mg. The supplemented molten agar was admixed very well, poured and allowed to set. For each isolate, a loop volume of the fresh overnight culture which produced a concentration of approximately $10^4$ - $10^5$ cfu of the isolate was streaked onto the agar surface in replicates. An agar plate without antibiotic was inoculated and included as control. The plates were then incubated at 35°C for 18 hours. The same procedure was employed to test for each antibiotic. The strains were considered resistant if they grew on plates containing the antibiotics. To validate the test, two different brands of each antibiotic were tested against all the bacteria isolates and the result was compared.

**Results**

Thirty two (32) bacterial isolates were isolated with Gram positive, motile, spore forming rods constituting the majority. Gram negative rods were isolated from samples B, B1, C1, D1, E, H, F1, G, K1, L, L1 and F representing 50% or the samples (Table 1). On human Blood Agar, isolates BB2, BIBI, CIB5, DIBI, FB3 and FIBI had 5mm zones of haemolysis. EBI had 2mm, ABI, BBI, CBI, CIB3 and GB2 had 1mm, AB2, AIBI, AIB2, BIBBA, CIB4, DB2, EIBI and GIBI were negative while others were not determined (Table 2). Fig. 1 and 2 show the pH and Osmolarity values of the defective and normal samples of the intravenous infusion products. There were significant reductions in PH and Osmolarity of all the samples. The lowest PH 3.3 was recorded in the defective sample B. The standard osmolarity value of 280 mosmol/l in 5% Glucose infusion was reduced to 245 mosmol/l in defective sample B, while the standard osmolarity value of 555 mosmol/l in 10% Glucose intravenous infusion was reduced to 525 in sample C1. Most of the pathogenic strains of the bacterial contaminants exhibited multiple drug resistance to at least three antibiotics tested. *Acinetobacter* sp. and *Corynebacterium* sp. showed multiple resistances to Tetracycline (T), Ampicillin (A), Penicillin (P), and Streptomycin (S). *Bacillus cereus* was resistant to Penicillin and Streptomycin while *Alkaligen* sp was resistant to Tetracycline (Table 3).
<table>
<thead>
<tr>
<th>PRODUCTS</th>
<th>DEFECTIVE SAMPLE</th>
<th>ISOLATES</th>
<th>BACTERIAL IDENTITY</th>
<th>NORMAL SAMPLE</th>
<th>ISOLATES</th>
<th>BACTERIA</th>
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<tbody>
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<td>AB1</td>
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<td>A1B1</td>
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<td></td>
<td>AB2</td>
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<td></td>
<td>A1B2</td>
<td><em>Bacillus megaterium</em></td>
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<td>C1</td>
<td>C1B3</td>
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<td></td>
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<td><em>Bacillus mycoides</em></td>
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<td>C1B4</td>
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<td></td>
<td>D</td>
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<td><em>Bacillus mycoides</em></td>
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<td>G1B1</td>
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<td>Iβ (1mm)</td>
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Iβ = beta haemolysis; - negative; nd, not determined.
Fig. 1 pH of the visibly defective and visibly normal samples

Fig. 2 Osmolarity values of visibly defective and visibly normal samples
TABLE 3: THE RESISTANCE PROFILE OF ALL THE BACTERIAL ISOLATES FROM STERILE INTRAVENOUS INFUSIONS.

<table>
<thead>
<tr>
<th>BACTERIA ISOLATE</th>
<th>BACTERIAL IDENTITY</th>
<th>ANTIBIOTIC RESISTANCE PROFILE</th>
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<tr>
<td></td>
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<tr>
<td></td>
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</tr>
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<td>AB1</td>
<td>Bacillus subtilis</td>
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<td>AB2</td>
<td>Corynebacterium sp</td>
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<tr>
<td>A1B1</td>
<td>Micrococcus luteus</td>
<td>-</td>
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<td>A1B2</td>
<td>Bacillus megaterium</td>
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<tr>
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<td>Bacillus cereus</td>
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<tr>
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<td>Acinetobacter sp</td>
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<td>Klebsiella aerogenes</td>
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</tr>
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<td>Corynebacterium sp</td>
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<td>B1BBA</td>
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<td>C1B4</td>
<td>Corynebacterium sp</td>
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<td>Pseudomonas</td>
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<td>FB3</td>
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<tr>
<td>L1B1</td>
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- : Susceptible,  R: Resistant
Discussion

Statutory pharmaceutical authorities stated that no living microorganism or their products must be present in sterile pharmaceutical products. From this research, 32 viable bacteria species belonging to 8 Genera were detected. 60% of the samples failed to comply with the test for sterility. The predominant bacterial contaminants include Bacillus Subtilis, Bacillus cereus, Acinetobacter sp, Citrobacter diversus, Pseudomonas sp, Corynebacterium, Klebsiella aerogens, Alkaligens sp and Micrococcus luteus. While spoilage organisms were recovered more from the defective samples, pathogenic strains were recovered from the seemingly normal samples (Table 1).

Though none of the products was expired, it is apparent that the long storage periods allowed the initially undetected viable microbes to multiply and proliferate to the extent of becoming detectable. The longer the storage period, the higher the bacterial counts. Therefore, the closer the manufacturing date the better, and the closer the expiry date, the worse for the drug and the user.

The microorganisms present in a pharmaceutical preparation may induce disease in the consumer without necessarily producing spoilage of the product. There are two possible mechanisms; either infection by the pathogenic organism or through toxins liberated into the product (Ringertz and Ringertz, 1982). The risk of microorganisms producing an infection is dependent on the species, dose administered route of administration and susceptibility of the host. However, irrespective of the inoculum density, as much as the products are administered directly into the blood circulation, the presence of any microorganism or their product is crucial. It should also be noted that an organism does not need to proliferate in the product in order to induce disease, it just needs to survive (Hugo and Russell, 1992). Acute systemic infections and death have resulted from the use of intravenous infusions contaminated with microorganisms. The organisms most frequently causing septicemia are Candida, Staphylococcus, Pseudomonas, Klebsiella, Alkaligens and Enterobacter (Felts et al., 1972; Allen, 1981). In this research, Klebsiella aerogens, Alkaligens sp and Pseudomonas sp were recovered from the visibly normal samples. This result therefore lend credence to the earlier findings. In addition to bacteremia and Septicemia, these Gram negative bacteria are capable of liberating endotoxin in the sterile intravenous infusions during metabolism or autolysis. Absorption and dissemination by the blood of endotoxins of Gram negative bacteria can be accompanied by severe clinical symptoms such as low blood fibrinogen level, hypotension, acute shock and death. Furthermore, haemolysis of Red blood cells may result form administration of these products as a consequence of the pathogenic contaminants (Table 2). The PH of blood is 7.4 it is demanded that parenteral intravenous infusion must be in this range. 5% Dextrose infusion has PH range between 4.5 and 5. As a result of growth and metabolic activities of the contaminants there were corresponding reductions in pH of the products owing to productions of acids. Bacillus spp constituted the highest proportion whether in defective or normal samples. Bacillus subtilis and Bacillus cereus were predominant in the products. Since these mesophilic organisms are mainly responsible for flat sour spoilage of most products, their high occurrence and detection in the samples showing normal and defective appearance may have led to the low pH and absence of any visible manifestation of defects due to their ability to form acid without gas. The growth of the mesophyles may also have been favoured by indiscriminate storage of the products at temperatures ranging between 25 and 40°C in the retail outlets. By the same token, as a result of metabolism of the nutrients, the 5% dextrose solutions were rendered hypotonic. There was a corresponding reduction in Osmolarity as the PH reduced (Fig.1 and 2). The blood plasma Osmolarity is 306 mosmolL-1. Five percent (5%) dextrose infusions are isotonic solutions having Osmolarity of 280 mosmolL-1 while 10% dextrose infusions are hypertonic solutions of Osmolarity 555 mosmolL-1. The Osmolarity was reduced to 250 in A, 245, in B, 480 in C, 482 in D, 265 in A1, 260 in B1, 525 in C1 and 530 in D1 (Fig. 2). Intravenous administration of hypotonic solutions as in samples A, A1, B, B1 and K1 will cause swelling of erythrocytes and haemolysis of blood cells (Turco and King, 1974).
Most of the bacteria isolates exhibited multiple resistance to four commercial antibiotics which represents first line drugs that are commonly at hand for the treatment of most bacteria infections (Table 3). The isolation of multiple drug resistant *Acinetobacter* sp, *Klebsiella aerogenes* and *Alkaligenes* sp, lend credence to previous work of Towner (1997) who claimed that direct exposure of patients to contaminated food, medicaments and fluids were responsible for serious out breaks of infection with a common source of multiple resistant bacteria often caused by *Acinetobacter* and *Pseudomonas* sp. The catalytic function of beta – lactamase enzymes is the primary cause of bacteria resistance to beta – lactam antibiotics. *Bacillus subtilis, Bacillus cereus* and *Bacillus mycoides* isolated in this study were resistant to Ampicillin and Penicillin. Most species of *Bacillus* produces beta – lactamase, an enzyme that destroys beta – lactam antibiotics. This explains why the isolates were resistant to Ampicillin and Penicillin.

The apparent occurrence of multiple resistant pathogenic bacteria especially in the visibly normal samples, coupled with significant reductions on pH and Osmolarity suggests that these products are potential health hazards. The manifestation of such hazards is highly probable, especially in developing countries where “commercially sterile” products are often assumed to be actually sterile and are therefore consumed or administered without adequate precaution. These factory produced pharmaceutical may constitute reservoir for disseminating potentially dangerous antibiotic resistance to the community. Consequently, morbidity, mortality and cost of health care will increase owing to treatment failures.

The presence of any form of microorganism in intravenous fluids is clearly a threat to life. Therefore there is the need for the appropriate regulatory body to intensify effort at ensuring that adequate standards are adhered to at both the manufacturing level and the retail points.
References


Climate Change, Communal Conflicts and Human Security in Nigeria

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Abstract

Climate change is increasingly becoming the most important political issue and the toughest challenge for mankind in the 21st century. As a result, the world had gone through series of climate epochs, which include the ice age, and consequently, the ice recessions among others. Climate change alone poses a daunting challenge. The effects are already being felt today and are projected to intensify as climate change worsens. Specifically this paper addresses the nature of communal civil violent conflicts in Nigeria, the extent to which continuous climate change has contributed to the scenario, the patterns of the climatically induced violent conflicts, the major actors and the policy implications of the conflict in the country. It argues that climate change increasingly undermines human security in the present day, and will increasingly do so in the future, by reducing access to, and the quality of, natural resources that are important to sustain livelihoods. The paper observes that in light of their wide applicability, human security approaches may be appropriate for the study of environment-related conflict, and to develop interventions for conflict-sensitive climate change adaptation. This paper tracks how the overlays and intersections of climate change, conflict and human security create an arc of tension in Nigeria. It suggests that Nigeria needs to consider the potential of climate change to fuel violence as the country figures out how to adapt. Although inadequate analysis has clouded the picture of how climate change will affect Nigeria’s environment and resource base, and experts are divided over the precise causal links between climatic shifts and violence, there is broad agreement that without intelligent, even-handed responses, the impacts of climate change could compound the risks of conflict. This paper then discusses ways to improve research on the climate change conflict connection and outlines broad policy suggestions for dealing with this potential problem.
Introduction

Climate change is increasingly becoming the most important political issue and the toughest challenge for mankind in the 21st century. The impact caused by climate change on earth is unique in that it affects all territories and people alike, without acknowledging political barriers or boundaries of any kind. Damage caused in a particular part of the globe can have far-reaching repercussions for other distant and even unrelated areas. The climate change phenomenon has radically altered the way humans relate to nature. The complexity of the situation makes it imperative to create mechanisms for cohesive action at a global society level. Such cohesiveness may at first seem “artificial”, given the urgent need to provide systemic answers to this global concern, but it could also be viewed as an incentive for building new bridges and relationships between societies, resulting in the creation of a new paradigm for human development (Lumerman, et al 2011).

Climate change is increasingly been called a ‘security’ problem, and there has been speculation that climate change may increase the risk of violent conflict. Climate change increasingly undermines human security in the present day, and will increasingly do so in the future, by reducing access to, and the quality of, natural resources that are important to sustain livelihoods. Climate change is also likely to undermine the capacity of states to provide the opportunities and services that help people to sustain their livelihoods.

The intense exploitation of natural resources (most of it unsustainable) has increased economic inequality and resulted in abject poverty in the midst of plenty. In the absence of a compelling unifying socially inclusive vision for the whole country this inequality has nourished discontent and increased vulnerability to conflict. Internal migration has become a national security concern. Though the number of people that are currently internally displaced cannot be confirmed, it is clear that internal migration as a result of resource scarcity, climate change effects and unemployment will increase (Mshelia, 2012).

It is now clear that most adverse climatic and environmental impacts that occur today are manifestations of man’s inadvertent modifications to climate on local and to a limited extent, regional scale in some activities of the distant past. Natural and human induced global environmental change belongs to the class of risk with high probability of occurrence and damage potential but in such a remote future that for the time being no one is willing to perceive the threat. Although the probability of occurrence and the damage potential are well known and clear, there is always a time lag between trigger and consequence which create a fallacious impression of security (German Advisory Council on Global Change, 1998).

As can be observed from above, climate change and its consequences present a great threat to humanity, hence this paper aims to assess the efficacy of the Nigerian governments’ response to it. Throughout this paper, we apply an inclusive understanding of conflict, incorporating not only state-based (interstate and intrastate) conflicts, but also non-state conflicts (one-sided and communal). The paper gives detailed overview of the challenges and the effects of climatic change on conflict and human security in Nigeria. The last section therefore proffers suggestions on reducing the impacts of climate change, by using a comprehensive, cross-sector and interdisciplinary approach.

Problem Statement

The effects of climate change are manifesting themselves more and more often. The world is witnessing rising temperatures, more severe droughts as well as extreme weather events like floods and hurricanes. In Nigeria, climate change impacts have ravaged most of the northern states, gradually turning the entire region into an arid zone or desert. The southern part of the country has to deal with severe coastal and soil erosion. This has undermined the economic asset base, destroying human settlements and livelihoods (Brodziak et al, 2011).
These environmental changes are compounded by a deterioration of security especially in the north of Nigeria where civil and religious unrest is manifesting itself and has assumed a deadly dimension through serial bombings. While the situation remains to be fully explained, the conflict is most likely fuelled by widespread poverty, high unemployment, hunger and general social discontent. At the same time, in parts of the south we witness communal clashes over farming land and a struggle for control over depleting natural resources.

The Central Bank of Nigeria (CBN) estimates that Nigerian agriculture, which is mostly rain-fed, accounts for 42% of GDP and employs about 60% of the workforce. The 2007 Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) estimated that 25% of Africa’s population already experience high levels of water stress and that by 2050, up to 600 million Africans will be at risk. Nigeria's agricultural sector, and most of the hydro-power it depends on, is reliant on rain and this makes not just this sector but the entire economy highly sensitive to the vagaries of climate change (Mshelia, 2012).

Some studies have shown that alienated young people who lack resources and economic opportunity are most likely to join rebellion. Jobless youths could deepen the recruitment pool for political violence, as exemplified by the April 2011 post-election violence in Kano and Kaduna. It could also explain some of the Boko Haram phenomenon in Borno and other northern states.

The weak responses by the government could be attributed to an inadequate assessment and general lack of understanding of the linkages between climate change and security. Increasing the knowledge base and governance options of government institutions - and the security services in particular - on the security dimension of climate change is imperative.

Conceptual Framework

The concept of climate change is usually used to describe the increasing warming up of the earth’s temperature and its resultant effects (McKibbin & Wilcoxen, 2002; Gregory, Ingram & Brklacich, 2005). Climate change, according to the Intergovernmental Panel on Climate Change (IPCC, 2007), refers to any change in climate over time, whether due to natural variability or as a result of human activity. Climate change can be defined as ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’. Climate change is now considered a major threat to growth and development in Nigeria.

Climate change may well represent a challenge to international security just as dangerous -and more intractable than the arms race between the United States and the Soviet Union during the Cold War or the proliferation of nuclear weapons among rogue states today (Salehyan, 2008).

A variety of definitions of “conflict” exist, depending on the theoretical approach. However, there are aspects common to most definitions. First, it is important to note that conflict is neither a neutral nor an inherently negative term. The nature of conflict is ambivalent: it is capable of generating creative and positive change as well as destructive consequences when the conflict becomes vicious and/or violent.

Derived from the Latin conligere, “to fight”, the term “conflict” indicates a confrontation between several actors with incompatible or competitive interests or goals. A conflict can be manifest – visible through evident actions or latent. Conflict constitutes a dynamic process in which these components have an influence on each other. According to this model, conflict starts with a contradiction, regarding the parties’ interests and needs or their relationship, followed by the actors developing hostile attitudes and conflictual behaviour (Ramsbotham, et al, 2005).
Climatic Change, Conflict and Human Security: The Interface

The way climate change can and does undermine human security varies across the world because entitlements to natural resources and services vary across space, and the social determinants of adaptive capacity are similarly varied. While the focus of human security is the individual, the processes that undermine or strengthen human security are often external to the locality of communities where individuals reside. The risk to national security may be both a cause and a consequence of human insecurity.

Brown and Crawford (2008) aptly point out that the security threat posed by climate change is increasingly becoming a topical issue. They emphasised that it is currently given unprecedented attention, which indicates that there is a significant shift in the way key political actors and policymakers at the domestic and international levels perceive and discuss the subject. Brown and Crawford note that two reasons are advanced for this. First, it is now becoming increasingly clear that future climate change threatens to undermine development and to aggravate existing drivers of conflict. Second, the ‘securitisation’ of the climate change debate is more political. Relevant state and non-state actors or stakeholders are now taking it upon themselves to ensure that climate change concerns become a matter of high politics so that countries can formulate and implement sound policies aimed at mitigating such concerns. Securitisation is ‘constituted by the inter-subjective establishment of an existential threat within any sector (military, political, economic, societal and environmental) with a saliency sufficient to have substantial political effects’.

So, human security is a function of multiple processes operating across space, over time, and at multiple scales. This makes researching the ways in which climate change may affect human security a daunting task, which is not helped by the difficulty of ascertaining whether there are indeed any existing environmental changes that can be attributed to climate change (Allen & Lord, 2004).

The exact linkages between climate, conflict and national security remain contested, but most researchers agree that some conflict already has happened and will happen as a result of insecurity. However, while the connection between human insecurity and an increased risk of violent conflict seems reasonably strong, this is not by any means to suggest that: (a) the presence of widespread human insecurity, even when coupled with every other possible risk factor, means violence is more likely than not; (b) over history the majority of directly violent acts that have caused trauma and death have been committed by the poor; (c) the forms of structural violence (Galtung, 1969) that are the major cause of morbidity and mortality emanate from the decisions and actions of the poor; and (d) violent conflicts in developing countries are entirely local and caused exclusively by endogenous factors. It does suggest, however, that under certain circumstances, at the same time as it negatively affects human security, climate change may also increase the risk of violent conflict.

Links between climate stresses and manifest or overt conflict are highly controversial and often challenged. Climate variations may be a contributory factor or a trigger, but they are unlikely to explain the presence of conflict. Recent research in the region, such as that of Djiré et al. (2010), has suggested links between conflict and water scarcity or access to water. However, they also observed cooperative responses to scarcity. Climatic change (and variability), in combination with other environmental change and wider dynamics in society, places stresses on people and their livelihoods, potentially sowing (or at least watering) the seeds of conflict at different scales. That conflict might be latent in terms of distrust and frustration, or become increasingly manifest.

Climate change processes lead to changes in the biophysical life support system including land surface (vegetation), water resources, soil and atmosphere which constitute the elements that support the long term sustainability of life on earth. It also affects the social and economic structure and framework, and by implication survival, of people. The debate on climatic change and variability as it is now concentrates more on likely global and regional futuristc occurrences which may be triggered off by the climatic anomalies of the past and present (Omojola and Fasona, 2005).
Recently, the linkages between climate change and security have become a matter of public discourse. Most discussions have centered on how to effectively harness natural resources management, including renewable energy, to promote security and the need to increase energy access to reduce conflicts. The government's economic blueprint, the Vision 20:2020, aptly recognises this:

*Over the next decade, climate change is expected to assume greater significance and influence over the actions of the international community and between the key actors in the global landscape. The potential for climate change to bring about damaging and irrecoverable effects on infrastructure, food production and water supplies, in addition to precipitating natural resource conflicts makes it a critical challenge that must be effectively responded to by any economy seeking sustainable growth in the years leading up to 2020.*

Until recently, the effects of man’s activities on climate variation was perceived as negligible and so climate was generally taken for granted and there was little thought that the climate could be a problem with severe impacts but today, because climate and environmental change affects the very basis of human existence the connection between environmental changes and human security has become very strong (Ojo, 1987).

There is growing international interest in the linkages between climate variability/change and conflict. However, only a relatively limited body of research evidence exists to date on this theme. Barnett and Adger (2007) suggest that climate change may lead to increased risks of violent conflict because of reductions in human security either due to the direct impact of climate change on the ability of states to secure a population’s livelihoods and human security, or indirectly due to reduced access to natural resources on which livelihoods depend. Decades of research on wider issues of conflict underline the complexity of conflict generation and provide a clear warning against making environmentally-deterministic assumptions. Many contextual factors are important for situations of conflict to develop, such as policy bias in favour of one group over another, changing political and governance structures during governance reform and decentralisation processes, political uncertainty, opportunism and corruption (Benjaminsen and Ba, 2009).

Climate change as observed by Cooper (1997) presents a serious threat to sustainable development and certainly impedes its efforts to reduce pervasive poverty, create jobs, enhance access to sustainable energy and improve the well-being of its citizens. The impacts described are capable of further undermining the ability of government and society to respond adequately to disasters, leading to lower economic opportunities and thereby heightening the risk of conflicts that ultimately threaten national security.

From a systemic perspective, the effects of climate change, such as the rise of sea levels, increased resource scarcity, and the intensification of natural disasters – combined with political and economic instability, migration, social fragmentation and an inappropriate response from the government – might become catalysts for conflict (Smith and Vivekananda, 2009).

The physical effects of climate change, such as hurricanes, droughts, floods, extreme hydrometeorological phenomena, forest fires and heat waves, directly affect the quality of life and increase people’s vulnerability. For example, a flood can represent the loss of houses, livelihoods, crops and/or livestock for many families, who will have to allocate resources in order to return to their normal life. Such a reduction in the quality of life can accelerate conflict and result in either a collaborative or adversarial response from society.

The risks of climate change to social systems are as much about the characteristics of those systems as it is about changes in environmental systems (Barnett & Adger, 2007). The extent to which global warming constitutes a threat to human security is determined by the affected society’s level of vulnerability. The IPCC (2007) explained vulnerability as ‘the degree to which a system is susceptible
to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.

As observed by Buhaug et al (2008), the issue of climate change and armed conflict is characterized by two paradoxes that have passed by largely unnoticed by the above-mentioned contributors. First, the many processes associated with global warming, which have truly started to appear only over the last fifteen years, have occurred during a time when we have witnessed a dramatic reduction in the frequency and severity of armed conflict. While we should not conclude about current and future links based on this simplistic comparison, the opposing trends nonetheless deserve some consideration. Second, the empirical foundation for a general relationship between resource scarcity and armed conflict is indicative at best, and numerous questions regarding the proposed causal association remain to be answered. Several single-case analyses suggest that resource scarcity contribute to outbreak of organized violence, though always in interaction with exogenous conflict-promoting factors. The statistical literature, in contrast, has failed to converge on any significant and robust association between resource scarcity and civil war (Buhaug, et al, 2008).

Climate change is considered as presenting a security challenge ‘more complex that the Cold War’. It is now also conventional wisdom that climate change has already, and will continue to affect human security (including ecological sustainability), which may result in human rights abuses, and intra and interstate conflict and wars. The AU regards climate change as a threat to the continent’s future well-being. Notwithstanding this, climate change has not been institutionalised as a security issue, nor has climate security, which is a more comprehensive definition of the issue. Climate security addresses and implements measures to reduce the impact of greenhouse gas emissions on humans and the environment and to achieve sustainable development. The US Department of Defense's Quadrennial Defense Review (QDR) has listed climate change as a critical threat to national security stating that it “could have significant geopolitical impacts around the world, contributing to poverty, environmental degradations and further weakening of fragile governments (Mshelia, 2012).

The effects of climate change on conflict can also be measured by considering the longer term processes (or ‘slow-onset’ changes) that lead to conflict – such as land degradation, changes in climate suitability and fresh water resources per capita – and sudden or shortterm triggers (‘quick-onset’ changes) – such as floods – that increase the probability for conflict.

A lack of legitimate and functioning conflict resolution tools and mechanisms may contribute to human insecurity and conflicts, by reducing the ability of communities to deal with their own vulnerabilities and the threat of conflict itself. Suhrke (1993) makes a distinction between climate change conflict minimalists, who see climate change as one of many interacting drivers of conflict, and maximalists, who see climate change-driven environmental deterioration as a direct cause of conflict over diminishing resources (often water resources or productive land). While environmental changes in the form of long-term variations in climate may play a role in “setting the stage” for conflict, the causal relationship is highly complex and the role of policy is crucial in the emergence of conflict. One of the key characteristics of development policy since the 1950s has been agricultural intensification, expansion and modernisation (Cooper, 1997; Bloch and Foltz, 1999).

In sum, climate change may increase the risk of armed conflict only under certain conditions and interaction with several socio-political factors. At least five social effects of climate change – whether due to a dwindling resource base, intensification of natural disasters, rising sea level, or a combination of the three – have been suggested as crucial intermediating catalysts of organized violence. First, increasing scarcity of renewable resources in subsistence-economy societies may cause unemployment, loss of livelihood, and loss of economic activity (Ohlsson, 2003), thus decreasing state income (Homer-Dixon, 1999). Second, increasing resource competition in heterogeneous societies may attract opportunistic elites who intensify social cleavages – particularly ethnic identities and make the population more vulnerable to radicalization (Kahl, 2006). Third, reduced state income may hinder
public goods delivery, reduce political legitimacy, and give rise to political challengers (Homer-Dixon, 1999). Fourth, efforts to adjust to a changing climate or to remove the causes global warming may have inadvertent side effects that could spur tension and conflict. Additionally, the high-profile climate change issue may serve as a scapegoat or rallying point for actors with hidden agendas (Goldstone, 2001; Salehyan, 2008). Lastly, worsened environmental conditions may force people to migrate in large masses, thereby increasing environmental stress in the receiving area and increase the potential for radicalization and ethnic hatreds)

Climatic Change, Conflict and Human Security in Nigeria

Nigeria has had its fair share of conflicts over resources: the continual clash over grazing routes between farmers and herders; communal conflicts over productive farmlands and agitation over the control of oil resources. In the absence of empirical studies it is, however, difficult to directly attribute such events to climate change. Nevertheless, climate impacts have exacerbated some of those conflicts, thereby increasing the risks.

In the past, the descriptions of the climate of Nigeria, and indeed North Eastern Nigeria have been rather simplistic due to paucity of data, but with the availability of data manipulation techniques, it is possible to discuss more fundamental features of the climate. Such is necessary at this point in time as recent droughts, water shortages, fauna and flora depletion have highlighted how important it is to understand weather phenomena and how they affect human security (Oguntuyinbo, 1982).

Climate change aside, Nigerians have experienced social, economic, political, environmental and cultural hardships, caused by and resulting in interstate and intrastate conflicts, environmental degradation, poor governance, economic uncertainty, inequality and a myriad of other global, national and local reasons. Human security’s wider applicability and broader focus may address this complexity, which is exacerbated by the effects of climate change, and by the uncertainty around the future impacts of climate change.

The earth’s constant warming and heating has affected many parts of Nigeria, especially those in the Northern fringes of the country, who are located far away from the cooling effect of the sea along the coastline down the south. As a result of this, the region has been experiencing continuous climate change characterized by reduction in rainfall, increase in the rate of dryness and heat. The north eastern Nigeria which was mainly a Sudan Savannah is increasingly becoming an arid environment at a very fast receding rate, estimated at about 0.6 kilometer per year occasioned by fast depletion in the amount of surface water, flora and fauna resource on the land. Land cover changes are indeed important index of climate change in Nigeria and other countries.

In the case of northeast axis of Nigeria, one may not generalize from the above studies that onset of communal violent conflicts in that zone is mainly as a result of rebellion against the government or the need by some rebel groups to take control of extractable, movable and export oriented materials to sustain a fight as it is the case in some resource rich countries in West Africa. The northern Nigerian case may be a bit different also from the point of view of the actors in the conflict, who are mainly arable peasants and the herdsmen, in which case the involvement of the state is at the stage of dispute settlement rather than on the onset of violence. The task ahead which this article intends to address is a systematic identification and analysis of cases from that zone with an aim of fitting the scenario into an existing standard theoretical orientation in environment and conflict nexus (Obioha, 2008).

With particular reference to North East, violent conflicts that have taken place there over the years could be described according to scope, stake, actors and location as the case may be. The conflict situation is likely to continue in a progressive manner due to the increasing downsouth march of the Sahara desert through the Sahelian zone of the northeast Nigeria is leading to opening up of
more agrarian land to grazing, which usually marks the beginning of hostile contact between the arable agriculturists and the pastoralists.

However, what is important to us in this paper is identification of the types that are environmentally induced in the northeast fringes of Nigeria. In North East Nigeria, there are many conflicts, which are environmentally induced. These are conflicts over grazing land, over cattle, over water points and over cultivable land. While there are conflicts over grazing land and over cattle amongst pastoral people, there are also conflicts over cultivable land amongst peasant farmers within the same ethnic group and also between ethnic groups. Such conflicts amongst pastoralists are common and widespread in Nigeria.

Different cases and examples of violent conflict over land resources in north eastern Nigeria in the recent time include those that have been occurring in different states of that region of Nigeria. The particular worrying situation is the ongoing conflict between the Jukuns and the Tivs, and related tensions between other groups, in the central states of Benue, Taraba and Nasarawa. This conflict culminated in the killing of more than 200 civilians by the military in Benue in October 2001. The case of Tiv-Jukun crises is deep rooted in the issue of traditional homelands, which is deep in Nigerian culture and it is a typical case of between two sedentary cultivator groups from different ethnic groups.

Many parts of central and northeastern Nigeria have recorded many violent disputes between indigenous farming communities and nomads in recent years, due to increasing desertification and consequent population pressure over land in the country’s northern fringes which forces grazers away from their original abode. As a result, many pastoral people have started pushing southwards in search of grazing land, accounting to a large extent for the conflict between Tivs and the pastoral Hausa-Fulani people in June 2001. Also in March 2003, many people were killed when a group of heavily armed men attacked the town of Dumne, Bornu state in northeastern Nigeria. The attackers, thought to be nomadic herdsmen from neighbouring Chad, attacked the rural town (Obioha, 2008).

The various emerging conflict types in the northeast Nigeria fit into the analysis of Homer-Dixon (1991), where he distinguished Simple Scarcity, Group Identify and Relative Deprivation Conflicts. Simple Scarcity Conflicts are explained and predicted by general structural theories. These are conflicts where actors rationally calculate their interests in a zero-sum or negative-sum situation such as might arise from resource scarcity. As a result of this they become land shortage and unable to practice what is their subsistence occupation, and on the extreme they are made poor because of their inadequate land or landlessness (Obioha and Odumosu, 2001).

The evidence from the foregoing discourse indicates that in the North East Nigeria, like most parts of the northern axis of the country, environmental scarcity occasioned by lowering amount of rainfall has caused tremendous damage to human life through incessant conflict in the quest for scramble and domination of scarce existing land resources. Rivers have almost dried up and vegetation scanty and bare in many instances. This phenomenon affects every aspect of agricultural activity, but the magnitude of negative effect on animal husbandry is greater than in any other sector. The quest for greener pasture by the herdsmen usually brings them in contact with sedentary population who are involved in crop production. In most cases, this contact results to invasion of the cropland of the sedentary group by the livestock of the migratory group.

**What Need To Be Done**

Based on the observations in this paper, we suggest that there is a need for systematic, comparative and cross-scale research to enhance understanding of the connections between climate change, human security and violence. This includes understanding the ways in which it may affect environmental changes in localities, the extent to which people are susceptible to damage from those changes, and their capacities to avoid or adapt to them so that their livelihoods can be sustained and their needs and values can continue to be satisfied. It also requires understanding the ways in which
people may respond if climate change undermines livelihoods, as one outcome might be an increased propensity for people to engage in violence as an alternative livelihood strategy.

The discourse on climate security must integrate governance of the economy with policymakers’ need to prioritize among managing limited resources affected by climate change, strengthening governance, building resilience for the fragile economic base for the poor, diversifying means of livelihood, and initiating a new economic regime that factors in peoples’ aspirations to raise their standard of living, and optimizing the demographic dividends.

We suggest that research on climate change and its potential effects on human security has many parallels with research on the risks and causes of violent conflict. Bearing this in mind, and informed by the discussion thus far, we now propose three key areas of research on climate insecurity, some of the important issues associated with each aim, and suggest some places where such research might profitably focus.

A key aim of research to enhance understanding of climate insecurity should be to assess the vulnerability of people’s livelihoods to climate change. Studies of this kind are not new, but given that there are many low-income and resource dependent communities in the developing world such studies need to be far more numerous, both for reasons of enhanced understanding of the relative significance of factors that structure vulnerability, and to inform policies to reduce vulnerability to climate change.

In proffering solutions, the government must exhibit exceptional political will by factoring the challenges of climate change, thus far absent in its response, into the insurrection in the Delta, disaffection in the North, and ethnic violence in the Middle Belt. For any solution that addresses these complexities to be viable, it must sustainably mobilize resources that can support the implementation of plans and strategies.

In light of the current problems, the government should utilize existing platforms at the national and regional level to mobilize resources and further develop institutional capacity to implement a national agenda that integrates climate-related security concerns into the strategic and policy framework.

Mack (2002) calls on conflict scholars to engage policymakers and to inform public debates about important global issues. Climate change has recently become one of the most high-profile issues facing the global community, as recently evidenced by the selection of Al Gore and the Intergovernmental Panel on Climate Change for the Nobel Peace Prize. In granting the award, the Norwegian Nobel Committee remarked that climate change ‘may induce large-scale migration and lead to greater competition for the Earth’s resources. Such changes will place particularly heavy burdens on the world’s most vulnerable countries. There may be increased danger of violent conflicts and wars, within and between states.’ Because of the international focus on the issue, research on the climate change–conflict connection is likely to capture the attention of global leaders, and careful policy advice is critical for coping with the challenges that climate change will pose.

It is absolutely vital that developing countries improve their capacity to meet the basic needs of their citizens; on this front, developed states must help. International assistance to foster development and adaptive capacity can fill the void when developing countries lack the necessary skills and resources. Doing so does not necessarily conflict with the goal of preserving the environment, and, as Sachs (2005) points out, many of the most effective solutions are not very costly to adopt.

It is now widely accepted that there is an urgent need for the government to support the creation of jobs for the teeming youths, particularly in the rural areas. This will reduce internal migration and rapid urbanization and thus the risk of urban insurgency. To guarantee the security of every citizen will entail the full development of the human capital potential of the country, which for Nigeria must be leveraged as a matter of economic priority.
The Nigerian government (federal, state and local governments of the six states of the north-eastern zone) in partnership with environmental groups should undertake a capacity-building programme for local people to help them contribute to safeguarding the lake. Local communities should be empowered to protect both the shoreline of the lake and the adjacent areas by preserving or maintaining natural vegetation by planting new trees or replacing dead ones. Tree planting is one of the most effective ways of controlling climate change because the growing of trees halts erosion and degradation, protects water resources, and reduces carbon emissions. Nigeria is a significant contributor to global carbon dioxide emissions, particularly through gas flaring by its oil industry. The federal government, in addition to supporting international conventions aimed at controlling carbon emission, should start cutting back on carbon dioxide emissions by effectively enforcing stringent legislation aimed at ending gas flaring in the country. This is in addition to investing in the development of other potential sources of clean energy such as wind power and solar energy to reduce reliance on hydrocarbon fuels such as petroleum products, coal and fuel woods that contribute to carbon emissions. Also, the federal government should fast track the establishment of a national climate change commission. Such a commission should be tasked with, among other things, the responsibility of conducting extensive research on the subject of climate change; producing regional-based and seasonal climate forecasts (including short, medium and long-term forecasts); working with the local people to identify context-specific climate challenges as well as adaptive capacities in various communities, which can be strengthened and possibly replicated where and when necessary; developing an early warning system and mechanism for detecting emerging environmental trends and disasters; and advising governments, agencies, organizations, communities and individuals on possible climate shocks and mitigative measures that can be adopted.

Promoting early-warning systems and policies for adapting to climate changes, including a conflict sensitive approach to environmental conflicts. Early-warning systems combine the rapid transmission of data with alarm-activation mechanisms for a population previously trained to react to certain events. A successful implementation of similar systems in different regions around the world should be used as a model for Nigeria.

Policies to improve the adaptive capacity of states to deal with global warming and better governance can significantly reduce the likelihood of armed conflict. If climate change and resource scarcity lead to warfare, then the lack of ingenuity and proper planning – at the local, national, and international levels – is to blame. We should all be concerned about the effects of climate change and take the necessary, if difficult, steps to improve the environment and mitigate the adverse consequences of a warming world. However, before jumping to conclusions about state failure and mass warfare, we must carefully consider the complex relationship between resources and violence.

Conclusion
Climate change has many probable consequences for our physical environment and each of these has a variety of potential consequences for man’s livelihood. The scope of these challenges to human societies adds to the urgency of the climate change debate. There is hardly a single facet of our daily life that does not have some latent effect on our ability to deal with climate change (Buhaug, et al, 2008). This paper has argued that climate change undermines human security in the present day, and will increasingly do so in the future. It does this by reducing people’s access to natural resources that are important to sustain their livelihoods. Climate change is also likely to undermine the capacity of states to provide the opportunities and services that help people to sustain their livelihoods, and which help to maintain and build peace. In certain circumstances, these direct and indirect impacts of climate change on human security and the state may in turn increase the risk of violent conflict. It seems evident that climate change poses risk to human insecurity principally through its potentially negative effects on people’s well-being.
Increasing the knowledge and understanding of the security implications of climate change is important for the sustainable development of any country, particularly for those most vulnerable to climate change. The effects of climate change, if not properly managed, could therefore be expected to lead to deaths in those areas of high physical vulnerability or have a dense population that has low community resilience and weak governance structure.

In conclusion, research on the connection between climate change and conflict promises to be a significant ‘growth area’ in social science and is likely to promote further dialogue with natural scientists as well as policymakers.
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Is Synchronized MRP/CRP (SMCRP) A Useful Tool in ERP Systems? : A Research in Different Manufacturing Environments

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Abstract
This paper statistically shows that manufacturing characteristics and fabrication uncertainties have significant effects on the usefulness of a Synchronized MRP/CRP (SMCRP) system. To solve capacity problems and to avoid so many adjustments in planned orders, research works focus on finite capacity MRP (FCMRP) algorithms which consider manufacturing resource capacity and material requirements simultaneously instead of traditional MRP systems. In order to prevent scheduling orders to past due, the algorithms result in earliness or tardiness of orders. However, in a competitive environment, both from inventory holding costs and customer loyalty point of view, these early and tardy orders should have an acceptable number level. These FCMRP algorithms work according to some assumptions which are not convenient for all type of manufacture. Their particular procedures have limitations or cannot work well if there are products with high BOM levels, or multi-stage production is carried out. Furthermore, real world rules or situations may differ from rule of an academic thumb in case of an uncertainty. A SMCRP algorithm is developed on a commercial software and the utility of this algorithm on the variability of mentioned factors in different manufacturing environments is tested through a research.

Keywords: Finite capacity MRP, synchronized scheduling, manufacturing environments, uncertainty
1. Introduction

Industrial production types that differ by their manufacturing environments are Make to Stock (MTS), Make to Order (MTO), Assemble to Order (ATO) and Engineer to Order (ETO). Higgins et al. [9] defines the differences between these environments by the customer decoupling point as shown in Figure 1. This point defines the production based on forecasts and based on customer orders. Every production type have different planning basis. In a MTS environment production planning and scheduling based on forecasts. ATO environment uses forecasts and backlog and MTO environment uses backlog and orders while in an ETO environment production planning and scheduling based on only customer orders. Although every production type have different planning basis, they have all the same Material Requirements Planning (MRP) and Capacity Requirements Planning (CRP) processes. Traditional MRP systems do not consider the capacity constraints while determining planned order release date [17]. In other words they assume that there is infinite capacity [18,4,1]. Afterwards CRP systems calculate capacity requirements using MRP outputs [19]. This paradox lead to various problems on meeting orders on time. So it becomes very difficult for companies to perform these requirements plans. Shop floor control (SFC) systems are implemented to remedy the capacity problem. Various works like

![Figure 1. Customer order decoupling point](image-url)

simulation-based [15], and agent-based [5,7] are researched, but as Taal and Wortmann [16] claim that what these systems do is tackling with the consequences of the MRP outputs which are the problem resource already. To solve the conflict between MRP and CRP, finite capacity MRP (FCMRP) systems are developed. In a FCMRP system, capacity problems are tried to be prevented by synchronized scheduling of MRP and finite capacity. Billington et al. [3] present a comprehensive review of previous works deal with linear and integer programming approaches to capacity constraint MRP systems. Even though all these approaches find optimal results they are difficult to use and understand by the planners. Chen and Ji [6] design a mixed integer model for advanced planning and scheduling that aims to minimize production idle time and penalty costs. The model is solved in a commercial software which gives the start and finish times of jobs on related machines. The model ignores lot sizing effect and it is emphasized that since the problem is NP-hard, meta-heuristics should be used in order to generate better schedules. Wuttipornpun and Yenradee [20] classify researches on FCMRP area into two categories. They describe the mathematical works as optimization approaches and the simulation ones as heuristic approaches. In their work they focus on the excess load on bottleneck work centers. The FCMRP algorithm that they propose, tries to distribute that excess load to eligible work centers using a heuristic. Then the algorithm ends with a revision process. The distribution of excess load causes some conflicts on the release and due times of components which belong to same BOM level. So these times are revised. However, if there are so many operations performed in bottleneck work centers that are in the same BOM level, the release and due times cannot be revised very well. The algorithm has
three options. First option is scheduling option; release or due date scheduling. Second option is priority-based rearrangement option; earliest due date or earliest release date priority.

Third option is shifting option in case of an excess load; shifting forward (F) or backward (B) to only the bottleneck work centers, shifting backward to only the non-bottleneck work centers while shifting forward and shifting backward to the bottleneck work centers and shifting forward and shifting backward to all work centers. These options are evaluated whether they are efficient on the performance measures, namely, number of tardy orders, total tardiness, total overtime, and flow time. Finally the algorithm in six different scenarios is compared with traditional MRP and conventional FCMRP (F and FB scheduling systems) algorithms. Hastings et al. [8] briefly summarize how traditional MRP logic cause scheduling workloads on past due.

They try a forward load to finite capacity technique in order to overcome this problem which may leads due dates to be missed and may cause so much tardy orders in case of an intensive demand period. Taal and Wortmann [16] suggest that the capacity problem should be eliminated at MRP stage by a planning method for simultaneous capacity and material planning. This method is fully controlled by the planner via reducing lot size, lead times and exchanging operations. The weakness of this method is, in case of a material infeasibility material requirements are moved to a future date, so higher BOM levels should be rescheduled. If many BOM levels have to be rescheduled, this may require too much time and many adjustments. On the contrary of algorithms that start from planning material requirements afterwards balancing capacity, Pandey et al. [13] propose an algorithm which firstly generates a capacity-based production schedule and then produces an appropriate material requirement plan according to that capacity-based schedule output. While producing the material requirements two methods which are forward and backward and two algorithms that are branch and bottom-up can be used. The algorithm is superior when compared with traditional MRP algorithm.

2. Synchronized MRP/CRP (SMCRP)

In order to define the differences between traditional MRP and SMCRP logic briefly and shortly, an example for two products is illustrated in Figure 2. According to given operation data as shown in Table 1, it is assumed that due dates for product A and B are day 6 and day 7 respectively, also there are 3 work centers which are operated 8 hours a day and all operations take 1 day.

![Figure 2.Product structures of products A and B](image)

Table 1.Operation data for products and components

<table>
<thead>
<tr>
<th>Products/Components</th>
<th>C</th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>E</th>
<th>F(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>oad (Day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In traditional MRP, requirement dates are determined by the logic of infinite capacity, which is shown in Figure 3a for this example. Although, first operations of components D, E and F (D(1), E(1), F(1)) are overlapped with another operation at the same time according to backward scheduling, earliest due date method and scheduling from the lowest BOM level to the highest ones, MRP assumes there is another work center that these overlapped operations can be processed. And if there are n overlapped operation, then there are n more work centers. This assumption cause to excess loads as shown in Figure 3b when generating load profiles obtained from MRP order release and due date outputs. On the other hand, SMCRP checks the finite capacity while assigning due dates and release dates. Figure 4a illustrates this scheduling logic which leads smoother loads on the work centers as shown in Figure 4b. In order to present the difference clearly, the same backward scheduling technique as in the traditional MRP is used, but in conventional FCMRP systems forward and forward-backward techniques can be used. Because think of in Figure 4a it may be another operation for a particular order between Day1 and Day2, so D(1) operation can not be schedule between these dates on M3. Then it is shifted between Day3 and Day4 which effects D (2) and D (3). They all are shifted to a future period which causes the tardiness of order A. Related algorithms try to solve this problem by focusing on these bottleneck work centers, exchanging eligible operations, using safety stocks, overtime, adjusting lot sizes, starting firstly from finite capacity planning stage or optimizing with mathematical approaches as mentioned in introduction section. However, the additional adjustments on the schedules that SMCRP tool generates, requires updating or running the schedule so many times in a day and in case of an emergency or uncertainty, makes the tool useless many times [12]. This leads to research the applicability of these systems in terms of manufacturing characteristics, especially in multi-stage systems [11] and fabrication uncertainties.
3. Planning Restrictions

In SCMRP system, like in all other requirements planning systems (MRP, FCMRP), there are some factors that restrict the planning process. Major of them are emphasized in following.

3.1. Priority rules

Six basic priority rules are used in scheduling jobs to process at a work center [19].

3.1.1. Order slack
This rule addresses the problem of work remaining. The job with the least slack is called for processing. Slack is calculated by subtracting the set up and run times from the remaining time.

3.1.2. Slack per operation
Since it is difficult to complete jobs with many operations that are scheduled through many work centers, a variant of order slack is developed. Slack per operation is obtained by dividing the slack by the number of remaining operations, and taking next job with the smallest value.

3.1.3. Critical ratio (CR)
Critical ratios of jobs indicate their situation on schedule. The CR is the rule base of the remaining time and work time ratio, and it is calculated with expression (1). The rule is to always process that job with the smallest critical ratio next.

\[
CR = \frac{\text{Due date} - \text{Present time}}{\text{Lead time remaining}} \quad \text{(set up, run, move and queue)}
\]

3.1.4. Shortest operation next
This rule maximizes the number of shop orders that go through a work center and minimizes the number waiting in queue. It ignores all due date information as well as all information about work remaining.

3.1.5. Min. slack operation time (MINSOP)
This rule is a variant of slack time that divides slack time by the number of remaining operations, again sequencing jobs in order of the smallest value first.

3.1.6. Dynamic due date
Management actions such as MPS changes, planned lead time adjustments, and bill of materials modifications, likewise, variations in shop conditions such as unexpected scrap and unplanned transactions can create the need to reschedule manufacturing orders and to revise priorities given to the shop. Shop floor works according to these priority rules, but the planning process generally works based on due dates or release dates priorities. Also, these rules change in case of management actions or fabrication uncertainties. Shop floor changes its current priority, but the planning priority do not change. This leads to rearrangements and tardiness of orders. Compatibility of scheduling priorities both in planning and shop floor stage or reflecting the manufacturing priorities to the planning process is still an open research area.

3.2. Approximation to job-shop production
In a job-shop production different components are operated in different work centers. A complex structure like in Figure 5 effects the SCMRP schedule negatively.
3.3. Run time

In some cases, SMCRP run takes hours or even a day. However, customers want immediately response to their queries. The ATP process often occurs as a telephone interview, and the planner is expected to check and reply about the order quantity and date within minutes. Long run times forces customer patience, they demand practical solutions.

4. A Research in Different Manufacturing Environments

The research is performed on three different manufacturing company producing sheet protectors, switching devices and pharmaceutical products respectively [2]. Their manufacturing characteristics are shown in Table 2.

Table 2. Manufacturing characteristics of researched companies

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>Comp. 1</th>
<th>Comp. 2</th>
<th>Comp. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfg. environment</td>
<td>MTO</td>
<td>MTS</td>
<td>MTS</td>
</tr>
<tr>
<td>BOM Level</td>
<td>2</td>
<td>n</td>
<td>1</td>
</tr>
<tr>
<td>Product diversity</td>
<td>low</td>
<td>hi</td>
<td>hi</td>
</tr>
<tr>
<td>Mfg. stage</td>
<td>T</td>
<td>multi</td>
<td>single</td>
</tr>
<tr>
<td>GE</td>
<td>ge</td>
<td>stu</td>
<td>stu</td>
</tr>
</tbody>
</table>

In order to research the applicability of SMCRP system in terms of the manufacturing characteristics and fabrication uncertainties, some experimental cases are carried out by the help of 10 scenarios. For this purpose, a SMCRP algorithm is developed in a commercial software. The interface of this software’s SMCRP tool is shown in Figure 6.

It is designed to plan according to customer orders for MTO environments at the top and according to Master Production Scheduling (MPS) for MTS environments at the middle. However the algorithm that is used in this software works just based on backward scheduling technique checking the available capacity meantime, as the same logic with Figure 4. It leaves the orders with past release date problem to the planner.
Firstly, orders for the beginning are created with assuming no overtime and no previous order. For Company 1 (Sheet protector manufacturer), two sheet protector orders in different colors with same due dates June 28 and same order quantity 10,000 saved to the system as firm orders (The current date is assumed May 1). The earliest release date for the components is May 18 which makes the beginning scenario feasible. For Company 2 (Switching device manufacturer) MPS for two orders NH fuse and fuse base between Week19 and Week22 is saved with the quantities 240 and 120 respectively. The feasibility of the MPS is checked then by the SMCRP. The earliest release date of the components is April26 which is a past due. So, the MPS is revised and checked again.

![Figure 6. The interface of the SCMRP tool used in the research](image)

At the end of this trial-end-error process, the feasible MPS (With the earliest release date of the components is May 3) is created between Week20 and Week27 with the half of the previous quantities. Company 3 (pharmaceutical products manufacturer) is a continuous production system. Manufacturing lead times are high because of the set up time or disinfection which takes between 1 to 2 days. Machines or boilers are performed for one type of products in a single stage production, so there are no bottlenecks in manufacturing. MPS for this company is created for 4 orders: syrup, cream, pill and powder for syrup between Week27 and Week30 with the quantities 100, 200, 300 and 400 boxes respectively. The feasible MPS is obtained in first trial. After the beginning scenario, the effectiveness of SMCRP is researched by 10 more scenarios on the performance measures of number of tardy orders, maximum tardiness days, and run times of SMCRP. Run time is also an important measure since it is time consuming and every new run may change the schedule on the shop floor which is an undesired situation. Scenario 1 represents new orders with close due dates to previous ones (ones in beginning scenario) which cause bottlenecks on work centers or cause tardiness of orders. Manufacturing characteristics of firms have effects on this scenario’s performance. Scenario 2 is an Available to Promise (ATP) process [10, 21] which means trying to promise due dates and quantities to customer for his order (by the help of the SMCRP in this example). The remaining scenarios are about fabrication uncertainties: Scenario 3 represents a shortage in shop floor because of a quality problem. This situation leads to revising the plan by new SMCRP runs. Scenario 4 represents material shortage case. The SMCRP plan can be feasible from the capacity point of view but be infeasible from the material point of view that leads orders to be late. Scenario 5 and Scenario 6 causes the same problem with representing scraps and machine breakdowns respectively. Finally, Scenario 7 results in changing priority rules for components that waits on work centers or in final assembly line because of emergency orders.
The emergency of orders happens generally in some promised orders caused by tardiness or another reasons or in economic crisis circumstances to accelerate cash flow. Actually in real world, more than one scenario can be happen in a planning horizon. So, some combinations of uncertainty scenarios, which are last 3 scenarios, are also researched.

Table 3 shows the data regarding the results of the scenarios on performance measures.

Table 3. Results of the scenarios on performance measures

<table>
<thead>
<tr>
<th>Performance measures</th>
<th>No. of tardy jobs</th>
<th>Max tardiness (days)</th>
<th>Run Times</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3</td>
<td>1  2  3</td>
<td>1  2  3</td>
</tr>
<tr>
<td>Companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 1</td>
<td>2  2  2</td>
<td>48 50 24</td>
<td>1  1  1</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>0  0  0</td>
<td>0  0  0</td>
<td>3  10  4</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>4  5  3</td>
<td>10 25 5</td>
<td>3  8  1</td>
</tr>
<tr>
<td>Scenario 4</td>
<td>8  10 4</td>
<td>15 20 8</td>
<td>6  12  6</td>
</tr>
<tr>
<td>Scenario 5</td>
<td>4  6  2</td>
<td>3  7  4</td>
<td>3  5  2</td>
</tr>
<tr>
<td>Scenario 6</td>
<td>5  7  3</td>
<td>5  8  4</td>
<td>4  7  1</td>
</tr>
<tr>
<td>Scenario 7</td>
<td>7  9  8</td>
<td>8  20 10</td>
<td>8  25  20</td>
</tr>
<tr>
<td>Scenario 3x4</td>
<td>12 13 7</td>
<td>25 40 18</td>
<td>13 20  9</td>
</tr>
<tr>
<td>Scenario 5x6</td>
<td>9  12 5</td>
<td>7  15 9</td>
<td>5  13  7</td>
</tr>
<tr>
<td>Scenario 3x4x5x6</td>
<td>17 21 12</td>
<td>32 55 27</td>
<td>25 33 16</td>
</tr>
</tbody>
</table>

After scenarios are created and are run on SMCRP tool, one-way ANOVA is used to statistically analyze the effectiveness of them on performance measures. Table 4 shows that the scenarios are significant at a significance level of 0.05. Also, according to Tukey’s-b clusters scenarios with the best performances are determined for performance measures which are scenario2, scenario1 and scenario3 for tardy orders, scenario2, scenario5 and scenario6 for max tardiness and scenario1, scenario5 and scenario3 for run times. If a scenario cause an order to be rejected than SMCRP tool is assumed useless in that case. So, scenario3x4, scenario5x6 and scenario3x4x5x6 are not evaluated on performance measures, they are assumed as circumstances that SMCRP is not useful. Other scenarios are analyzed and graphed from manufacturing characteristics view by the most significance ones on performance measures as illustrated in Figure7a, Figure7b and Figure7c. The graphs shows that number of tardy orders, max tardiness and run times increases as BOM-level and manufacturing stage increases for the sample companies. The same situation is also valid for product diversity. Also in a MTO with low product diversity SMCRP tool has better performance then in a MTS environment with high product diversity.
Table 4. ANOVA Result

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tardyorders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>616,300</td>
<td>9</td>
<td>68,478</td>
<td>10.986</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>124,667</td>
<td>20</td>
<td>6,233</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>740,967</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxtardiness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>5302,533</td>
<td>9</td>
<td>589,170</td>
<td>7.645</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1541,333</td>
<td>20</td>
<td>77,067</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6843,867</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runtime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1512,533</td>
<td>9</td>
<td>168,059</td>
<td>6.786</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>495,333</td>
<td>20</td>
<td>24,767</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2007,867</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 7a. Change on tardy orders according to manufacturing characteristics
5. Conclusions

The applicability of synchronized MRP/CRP (SMCRP) is researched from the view of manufacturing characteristics and fabrication uncertainties. Three different manufacturing companies are selected with different manufacturing characteristics. Ten scenarios that are faced in real world and mostly regarding uncertainties are created. These scenarios are run on a commercial software’s SMCRP tool. Then the results are analyzed statistically on performance measures which show the effectiveness of the tool by tardy orders, maximum tardiness and run times. Tardy orders, max tardiness and run time increases as BOM level of products and manufacturing stage increases. Also better results are obtained in a MTO environment with low product diversity then in a MTS environment with high product diversity. So, it is clear that SMCRP tool is most appropriate for the companies that have products with low BOM level, lower manufacturing stages, and lower product
diversity. SMCRP is a growing research area for real time and intelligent scheduling. It is more reliable than traditional MRP, but its applicability and utility changes according to manufacturing characteristics. Although currently some commercial ERP packages have advanced planning optimization (APO) or intelligent business objects (BO) tools for efficient scheduling, the uncertainties can not reflected to planning stage now.

Acknowledgement

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Financial Aid Provided to Small and Medium Entrepreneurs in Malaysia: The Malaysian Indian Dilemma

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Abstract

Malaysian Indians are a group of Malaysians largely descended from those who migrated from southern India during the British colonization of Malaya. Prior to British colonization, Tamils had been conspicuous in the archipelago much earlier, especially since the period of the powerful South India kingdom of the Cholas in the 11th century. By that time, Tamils were among the most important trading peoples of maritime Asia. Malaysian Indian entrepreneurs have contributed a lot to the Malaysian economy throughout the years. This paper discusses about the loan facilities given to them by the government and non-government organisations, the problems faced by these entrepreneurs and the solution to the problems. Although the Indians in Malaysia have achieved some progress in the social economic field, the progress can be deemed insignificant in comparison to that achieved by the other ethnic communities.

Indian Malaysian Entrepreneurs, Loan facilities, Problems and Recommendation
Definition of Entrepreneurship

Entrepreneurship is a process of innovation and new venture creation through four major dimensions – individual, organizational, environmental and process. The entrepreneurship process is aided by collaborative networks in government, education and institutions. Functional definition of entrepreneurs offers the following definition:

“Entrepreneurs are individuals who actively form or lead their own business and nurture them for growth and prosperity”.

The Evolution of Entrepreneurship Theory

“An entrepreneur is a person who undertakes to do a job” Richard Cantillon (1755). The term entrepreneur is a French word first coined by Richard Cantillon. In Malaysia the term “usahawan” is used for entrepreneur. Entrepreneurship involves not only the process that leads to the setting up of a business entity but also the expansion and development of an on going concern. The study of entrepreneurship is concerned with the entrepreneurial behavior, the dynamics of business set up and expansion and development. Adam Smith (1776) - An entrepreneur is a person who acts as agent in transforming demand into supply. Jean Babtiste Say (1803) - An entrepreneur is a person who shifts resources from an area of low productivity to high productivity. John Stuart Mill (1848) - An entrepreneur is a prime mover in the private enterprise. The entrepreneur is the fourth factor of production after land, labor and capital. Carl Menger (1871) - The entrepreneur acts as an economic agent who transforms resources into products and services. The entrepreneur transforms and gives added value. Joseph Aloysius Schumpeter (1934) - An entrepreneur is an innovator. The economy moves through leaps and bounds and the prime mover is the entrepreneur through the process of creative destruction. Alfred Marshall (1936) - The process of entrepreneurship or business development is incremental or evolutionary. It evolves from sole proprietorship to a public company. Ibnu Khaldun (Abdul Rahman Mohamed Khaldun) - The entrepreneur is seen as a knowledgeable individual and is instrumental in the development of a city-state where enterprise will emerge. David McClelland - The entrepreneur is a person with a high need for achievement. This need for achievement is directly related to the process of entrepreneurship.

The Importance of Entrepreneurship to Malaysian Economy

Entrepreneurship is the symbol of business steadfastness and achievement. Entrepreneurial revolution is critical to economic growth. Entrepreneurship may affect our future in many ways:

- Innovative creation of opportunity. Example: Portable phones linked to faxes and laptop will turn cars, train, and airport terminal into offices.
- Entrepreneurship not only affect our lives through innovation but represent the working future for many of us due to lays off by large organization and shrinking of job opportunities for graduates.
- Entrepreneurship is synonymous to creation of new venture and small businesses. SMIs have been important contributors to local economic growth.
- The entrepreneurial SMIs provide services that the large corporation has neglected or lack of economy of scale for the large corporation to serve.
- Contribution of SMIs to Malaysian Economy - In Malaysia the SMIs employed 90% of the total labor force in manufacturing sector and contributed to about 26% of total value added in the sector.

Brief History of Malaysian Indians

Malaysian Indians are a group of Malaysians largely descended from those who migrated from southern India during the British colonization of Malaya. Prior to British colonization, Tamils had been conspicuous in the archipelago much earlier, especially since the period of the powerful South
India kingdom of the Cholas in the 11th century. By that time, Tamils were among the most important trading peoples of maritime Asia.

There is evidence of the existence of Indianized kingdoms such as Gangga Negara, Old Kedah, Srivijaya since approximately 1500 years ago. Early contact between the kingdoms of Tamilakkam and the Malay peninsula had been very close during the regimes of the Pallava Kings (from the 4th to the 9th Century C.E.) and Chola kings (from the 9th to the 13th Century C.E.). The trade relations the Tamil merchants had with the ports of Malaya led to the emergence of Indianized kingdoms like Kadaram (Old Kedah) and Langkasugam. Furthermore, Chola king Rajendra Chola I sent an expedition to Kadaram (Sri Vijaya) during the 11th century conquering that country on behalf of one of its rulers who sought his protection and to have established him on the throne. The Cholas had a powerful merchant and naval fleet in the Indian Ocean and the Bay of Bengal. Three kinds of craft are distinguished by the author of the Periplus – light coasting boats for local traffic, larger vessels of a more complicated structure and greater carrying capacity, and lastly the big ocean-going vessels that made the voyages to Malaya, Sumatra, and the Ganges.

British acquisition of Penang, Melaka and Singapore - the Straits Settlements from 1786 to 1824 started a steady inflow of Indian labourers, traders, sepoys and convicts engaged in construction, commercial agriculture, defence and commerce. But large scale migration of Indians from the subcontinent to Malaysia followed the extension of British formal rule to the West coast Malay states from the 1870s onwards as British brought the Indians as workers to work in the rubber plantations. The overwhelming majority of migrants from India were ethnic Tamil and from British Presidency of Madras. In 1947 they represented approximately 85 per cent of the total Indian population in Malaya and Singapore. Other South Indians, mainly Telugus, Kannadigas and Malayalees, formed a further 14 per cent in 1947, and the remainder of the Indian community was accounted for by North Indians, principally Punjabis, Bengalis, Gujaratis, and Sindhis.

The Indian population in pre-independent Malaya and Singapore was predominantly adult males who were single with family back in India and Sri Lanka. Hence the population fluctuated frequently with the immigration and exodus of people. As early as 1901 the Indian population in the Straits Settlements and the Federated Malay States was approximately 120,000. By 1931 there were 640,000 Indians in Malaya and Singapore and interestingly they even outnumbered the native Malays in the state of Selangor that year. The population was virtually stagnant until 1947 due to many leaving for Burma during the Japanese occupation as recruits for the Indian National Army and "Indentured Japanese labors" for the Death Railway. At the time of Independence in 1957 it stood at a little over 820,000. In this last year Indians accounted for approximately 8 to 12 per cent of the total population of Malaysia (in the range 1.8 to 2.5 million) and 8 per cent in Singapore (250,000). There has also been a significant influx of Indian nationals into Singapore and Malaysia in recent years to work in construction, engineering, restaurants, IT and finance with many taking up permanent residence in Singapore where they account for nearly a quarter of the Singapore population.
## Percentage of Malaysian Indian Population, 1957-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Malaysian</th>
<th>Malaysian Indians</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>6,278,758</td>
<td>707,108</td>
<td>11.26</td>
</tr>
<tr>
<td>1970</td>
<td>9,181,674</td>
<td>981,449</td>
<td>10.96</td>
</tr>
<tr>
<td>1980</td>
<td>11,426,613</td>
<td>1,171,135</td>
<td>10.25</td>
</tr>
<tr>
<td>1991</td>
<td>14,308,413</td>
<td>1,376,733</td>
<td>9.62</td>
</tr>
<tr>
<td>2000</td>
<td>21,889,916</td>
<td>1,680,132</td>
<td>7.68</td>
</tr>
<tr>
<td>2004</td>
<td>24,125,300</td>
<td>1,820,900</td>
<td>7.55</td>
</tr>
<tr>
<td>2005</td>
<td>24,360,000</td>
<td>1,830,000</td>
<td>7.50</td>
</tr>
<tr>
<td>2007</td>
<td>27,173,600</td>
<td>1,883,900</td>
<td>6.93</td>
</tr>
</tbody>
</table>


### The Malaysian India Enterpreneurs Today

Malaysian entrepreneurs has contributes a lot since its independence. They are involved in manufacturing, agriculture, fishing, construction, wholesale, retail trade, repair of motor vehicles, hotels and restaurants, transport, storage and communication, real estate and business activities, education, health, and other community, social and personal activities. From the table below it is stated that 7.8% of malaysian indian are involved in Business related activities. Their business activities include textile, traditional health products, restaurants, clinics, accounting and law firms, retailers, mechanic shops, education, real estate businesses, etc.
### Percentage Distributed of Employed Persons by Industry

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>Total Malaysian</th>
<th>Malaysian Indians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Hunting and Forestry</td>
<td>11.8</td>
<td>6.4</td>
</tr>
<tr>
<td>Fishing</td>
<td>1.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Mining and Quarrying</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Electricity, Gas and Water supply</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Construction</td>
<td>8.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Wholesale, Retail trade, Repair of motor vehicles, Personal and Household goods</td>
<td>17</td>
<td>13.3</td>
</tr>
<tr>
<td>Hotels and Restaurants</td>
<td>7.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Transport, Storage and Communication</td>
<td>5.7</td>
<td>9.7</td>
</tr>
<tr>
<td>Financial Intermediation</td>
<td>2.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Real Estate, Renting and Business activities</td>
<td>5.2</td>
<td>7.8</td>
</tr>
<tr>
<td>Public administration and Defence</td>
<td>7.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Education</td>
<td>6.4</td>
<td>5.2</td>
</tr>
<tr>
<td>Health and Social work</td>
<td>2.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Other Community, Social and Personal service activities</td>
<td>2.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Private Household with employed persons</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Extra-Territorial organisation and bodies</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>


From the table below, 9.6% of Malaysian Indians are self-employed. This means that out of 17.8% of total Malaysians, 9.6% Indian Malaysians own their own business. This means that Malaysian Indian entrepreneurs play an important role in the Malaysian economy.
Distribution of Employed Persons by Employment Status

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Total</th>
<th>Malaysian</th>
<th>Malay Indian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employer</td>
<td>4.2</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Employee</td>
<td>72.7</td>
<td>84.8</td>
<td></td>
</tr>
<tr>
<td>Self-Employment</td>
<td>17.8</td>
<td>9.6</td>
<td></td>
</tr>
<tr>
<td>Unpaid Family worker</td>
<td>5.3</td>
<td>1.9</td>
<td></td>
</tr>
</tbody>
</table>


Business Loans and Facilities in Malaysia

There are various facilities and financial instruments that Malaysian Indians can benefit from – some of these are designed specifically for the Indians living in this country. They include:

Amanah Ikhtiar Malaysia

The AIM loan facility consists of the rural Micro-credit program and the Urban Micro-credit program. As of April 2010, AIM has given out RM9.4 million in loans to 2,054 Indians in 14 States. Some 937 Indians have gained from the Rural Micro-credit Program, amounting to RM6.3 million. Another 1,117 Indians have received RM3.1 million in loans under the Urban Micro-credit Program.

This program is for Malaysian Indians aged from 18 to 45 years of age. With a simple business plan, one can apply for SPUMI loans, which consists of the SPUMI Micro Loan, ranging from RM500 to RM10,000; and the SPUMI Micro-Medium Loan from RM10,000 to RM30,000. The repayment periods span from 3-5 years with an annual fixed interest rate of 4%. In the last 2 years, a total of RM12.7 million have been given out to 1,660 Indian recipients, 39% of whom were women.

Tekun

The Tabung Ekonomi Kumpulan Usaha Niaga (TEKUN) coordinates the Skim Pembangunan Usahawanan Musa India (SPUMI). SPUMI scheme handled by TEKUN has approved a total of RM12.7 mil to 1,660 entrepreneurs from 2008 till Apr 2010.

SME Bank

SME bank has 10 funds open to all races of which SPEDI is dedicated to help Indian businesses. Today, it has approved RM0.47 mil to 15 Indian businesses. Between 2007 and 2009, SME Banks have also approved RM43 mil for 34 Indian entrepreneurs.

Agrobank

Between Jan-Jul 2010, Indian applicants for Agrobank products constituted only 3.7% of the total applications, or 492 of which 120 were approved. This accounted for 4.3%. Modal Usahawan 1 Malaysia Dana Mikro Enterprise (Bank Negara Malaysia) (MUS1M MEF) To provide credit facilities to all micro entrepreneurs involved in economic activities related to agricultural and agro-based
industry that cover all activities in the production, processing, services, marketing and consumerism needs under the BNM’s fund.

The applicant should be a Malaysian citizen, aged 21-60 years old upon application, full-time/part-time micro entrepreneur. Project/business has operated for more than 1 year, Obtained license / permit / rental agreement of land/premise and other approval from the local authorities. The loan/financing limit up to RM50,000 and Loan Financing Period Up to 60 months. The terms of Guarantee are required for New applicants less than 12 months doing business/dealing with Agrobank and loan exceeding RM20,000. Credit Enhancer Scheme (Enhancer) assist entrepreneurs who have viable projects but lack the collateral to obtain the required. The applicant should be Malaysians, Individuals or group of individuals, Malaysian-controlled or Malaysian-owned businesses and Businesses classified as SME.

Bank Simpanan Nasional

In the case of BSN, over the same period there were 688 applications which constitute 5.9%, and of these 224 were approved which accounts for 5.3% of the total loans given out. The applicant should be Malaysian citizens aged 21-60 years old, Owns a valid business registration and/or business license, Business/company has been operating at least 6 months, Without guarantor or with guarantor who earns a salary of RM2,000 per month (for individual/sole ownership applications). Guarantor comprises of all business partners (if applicable).

The products includes TemaNiaga (conventional loan), TemanMesra (conventional loan) and TemaNiaga-I (Islamic financing). The features of these products include Loan/Financing Amount: RM5,000-RM50,000, Loan/Financing Period: 1-5 years, Business Sectors: Manufacturing, Servicing and Retailing/Wholesaling

Malaysian Association of Indian Women Enterpreneurs and Professionals

WiE, was founded on 15th September 2007, with a Pro-tem Committee of 15. The first year focussed on formation, and networking activities and the fruition of WiE as a formal and registered organisation. It is the aspiration of WiE to harness the strengths of successful Indian business people so as to raise Indian equity levels, strengthen ties with Government Bodies and Agencies, channel information on available Government grants, funding facilities and subsidies and carry out training and development programmes. With the vision of seeing more Indian women flourishing in business, WiE hopes to continuously educate and nurture small business owners and inculcate the indomitable competitive spirit so vital for resilience in the dynamic and risky business environment.

Under the Pro-tem Committee a number of activities have been held since 2007, including networking sessions and personal development seminars. Most of the activities conducted were geared towards self-improvement of women such as enhancing communication skills and image makeovers. From the business perspective programmes have been organised on basic entrepreneurial skills, basic business management, control and planning, awareness of tax planning & management, proper accounting and record keeping, rudiments of writing business plans and sourcing of business start up funds.

Gramin based Microcredit Funding for Single mothers/ladies

Gramin based Microcredit Funding for Single mothers/ladies - Tech Outreach, a NGO is able to provide the above funding (RM2,000) to deserving candidates to assist single mothers, single ladies inneed and abused women with financial assistance. It works on the samebasis as the Gramin funding. Basically the funding is to start abusiness or accelerate an existing business and pay back on a
weekly basis, about RM20 - RM30 without any interest. Deserving ladies would be called in for an interview and assistance would be given.

**Tabung Amal NAWEM**

TAN was set up in August 2000 with the aim of fulfilling NAWEM's social obligations by assisting the needy and less fortunate women in our society through the granting of funds and seed money to start new business. The principal objective of TAN is to enable economically challenged women to be financially independent through entrepreneurial endeavours.

**Malaysian Industrial Development Finance Berhad (MIDF)**

Spanning over five decades of contributing to the country’s economic growth, Malaysian Industrial Development Finance Berhad (MIDF) today has strengthened its foothold in many segments of the financial services industry. MIDF was incorporated on 30 March 1960 mainly for the purpose of ensuring access to financing for manufacturing-based small-and-medium enterprises (SMEs) as part of Malaysia’s strategy to expedite the industrial sector development. From boasting the status as Malaysia’s maiden development finance institution, MIDF has over the years transformed into a diversified group.

**Bank Kerjasama Rakyat Malaysia Berhad**

Bank Rakyat is its members’ Choice Bank for all its product and service offerings are the best compared with those provided by other competing financial institutions. Since membership in Bank Rakyat is very significant and this vision generates the tagline: “Bank Rakyat Your Choice Bank” the fund provided include Rural Economy Financing Scheme and Youth Business Scheme

**Bank Negara Malaysia - SME Funds**

Established on 26 January 1959 under the Central Bank of Malaysia Act 1958 (CBA 1958). The CBA 1958 has been repealed by the Central Bank of Malaysia Act 2009 which became effective on 25 November 2009. It is a statutory body wholly owned by the Government of Malaysia with the paid-up capital progressively increased, currently at RM100 million. The Bank reports to the Minister of Finance, Malaysia and keeps the Minister informed of matters pertaining to monetary and financial sector policies. The fund provided includes SME Assistance Facility, SME Modernization Facility, Fund for Small and Medium Industries 2 and New Entrepreneur Fund 2.

**Small Debt Resolution Scheme (SDRS)**

To provide assistance to viable small and medium scale enterprises (SMEs) that are constrained by non-performing loans/financing (NPL/NPF) and distressed SMEs with performing loans/financing under multiple participating financial institutions (PFIs), by facilitating restructuring or rescheduling and where appropriate, providing new financing. The participating financial institutions / Implementing Ministry / Agency include all commercial banks and Islamic banks, Bank Kerjasama Rakyat Malaysia Berhad (Bank Rakyat), Bank Pembangunan Malaysia Berhad, Bank Pertanian Malaysia Berhad (Agrobank), Bank Perusahaan Kecil & Sederhana Malaysia Berhad (SME Bank), Export-Import Bank of Malaysia Berhad (EXIM Bank). The scheme involves those applications for restructuring or rescheduling that are submitted under SDRS to PFIs for their consideration. In the event these applications are declined by the PFIs, a dedicated committee, i.e. the Small Debt Resolution Committee (SDRC) established by Bank Negara Malaysia will then undertake an independent assessment on the viability of the business and may propose restructuring or rescheduling if eligible, and new financing, where necessary. New financing will be sourced from existing SME funds and schemes established by Bank Negara Malaysia.
Credit Guarantee Corporation (CGC)

The objective of CGC is to assist Small & Medium scale Enterprises particularly those without collateral or with inadequate collateral to obtain credit facilities from financial institutions by providing guarantee cover on such facilities. The CGC formulates and manages viable credit guarantee schemes with the participation of its partners (lending institutions), which has over 2,600 branches throughout Malaysia. In line with the Government’s effort to assist SMIs, which form the base for industrial development, CGC is now classified as a Development Financial Institution. There is now a CGC branch in every state, except Perlis. Information on its services is also available through iGuarantee. iGuarantee is the e-business venture of the Credit Guarantee Corporation (CGC) to provide a one-stop web services portal at which business loan application can be made.

CGC was established with the objective to assist Small and Medium Scale Enterprises (SMEs) without or with inadequate collateral to access credit facilities from financial institutions. As part of the continuous effort by CGC to help the small and medium scale industries achieve their objectives, CGC has proactively explored an innovative avenue to extend its assistance and support to the entrepreneurs.

Problems Faced By Malaysian Indian Entrepreneurs

Despite the financial aid which is given by the government and non government organisation, the percentage of loan given to the malaysian indian entrepreneurs are far too little than their other counterparts. This is due to lack of awareness, lack of information and less publicity provided to these entrepreneurs.

Although the Malaysian Indian businesses contribute to the economy at large, these businesses still face significant challenges. These challenges are faced at every stage of business processes ranging from getting the premises, application for licenses and permits, start up capital, loan for operation and knowledge of know-how.

Access to friendly information regarding application process is highly inadequate. It is coordinated through Yayasan Social Strategic which ill equipped to reach Malaysian Indian micro businesses. This hierarchical procedures and processes significantly delay the application process and increases the waiting time which these businesses can ill-afford.

Requirements for the loans are too high especially for any businesses. Indeed, the high interest charges imposed for the loans as well as the delays deter businesses from getting their loans on time. There is serious mismatch between the micro-business credit time of less than 30 days and the processing time for loans which exceeds 6 months. The loans application cycle is synchronized with the business cycles for it’s to be useful.

The funds get exhausted really fast and it does not serve the purpose of nurturing the real needs of micro businesses over a longer term. The funds must be designed, funded and operated as a sustainable and long term project and not as a ad hoc initiative.

In certain cases, the owners have excellent business ideas but yet lack skills and training. In this aspect, training of prospective businessmen with regards to businesses is important. MARA has been quite successful in training owners. The same can be extended to Malaysian Indians as well.

Recommendation

To achieve the IMalaysia dream, the following recommendations are should be implemented to reduce the economic imbalance among the Malaysian Indians:
For Micro entrepreneurs

**Micro Loan Delivery System**: Micro loans to be disbursed through BSN, License Money Lenders, Tekun and selected NGOs for a faster delivery services. Currently accessibility and processing time is the problem.

**Government Loan Guarantees Scheme**: Currently, CGC is only applicable to small and medium businesses. Government should extend the guarantee scheme to facilitate the micro business to obtain loans from the banks. This will also prevent these businessmen from falling pray to loan sharks.

**Loan Criteria**: The requirement for the loan to be relaxed and introduction of more innovative payback schemes is necessary. For instance, emulating the proposed micro schemes of Nobel laureate, Dr. Mohd Yunus of Bangladesh is important. More importantly, priority in given loans to business women must also be set. Likewise, despite ALONG’s negative image, ALONG is more successful in attracting micro business for loans due to their fast delivery system. As such, the current systems need to be revised especially in terms of information, processing time, and methods of application.

**Permanent Micro Loan Scheme**: Micro-Loan should not be limited for an allocated amount. Like PTPTN, micro loans should be made available for those who want to start a business. It should be continuously given to ensure the success of the businesses and it should be a pay back scheme. Micro business companies are 87% of the entire count of companies incorporated in Malaysia in 2008.

**Loan Convert Grant upon Taxation**: Micro Business needs to be given incentives for showing good performance. The reward awarding scheme will ensure and cultivate more organized businesses and responsible business owners. For instance, for loan applications, tax exemptions should be considered so as to reduce the burden of the businesses.

**Indian Micro Business Government Training**: An allocation of RM5mil per year on training the owners of micro business is important. Training plus loans should come hand in hand, so that relevant and potential micro business can be selected. Upon successful completion of the training, the owners could be assessed for loans. This will ensure business sustainability as well as better loan recovery. The training should include issues on business law and legislation, company setup processes, banking requirements, labor law, taxation, management, marketing, purchasing, customer relation, customer service and others that is relevant for the operations of micro businesses. This training had to be continuous and can be conducted on part-time basis, as night classes or weekend classes and.

**Low Interest Loan 4%**: The current interest rate for micro loans should be reviewed and a lower rate is needed. Indeed, the practice of up front payments until the next cycle of loan payments needs review as well.

**Credit Base Re-Loan System**: Micro businesses should be assisted in a stage based loan systems. For instance, micro businesses can be given a loan of RM2500 at the first stage and as they repay the loans, they can be assisted for a much higher loan facilities e.g. RM5000. The table below depicts the concept.
Micro Loan for Home Based Business: Malaysian Indian community has not fully tapped the home based business as it is hard for them to get loans from commercial banks or the government. Loans should also be disbursed for ladies, single mothers and housewives who intend to start home based businesses. The criteria should be lighten up to attract more ladies to be involved in home base business activities which include traditional business also.

Micro-Business Information Dissemination Centre: Due to the lack of effective information dissemination, society at large feels that their interest is left out in the process of development. In RM10, centers to disseminate information regarding loan facilities, and other opportunities provided by the government should be intensified. A one stop center to facilitate this process is required in strategic locations so that the facilities and information can reach the Indian society at large. In addition, temples and Indian NGOs should be tapped to push information closer to the target groups. This is like SBA (Small Business Administration) in USA, consist businessmen or retired staffs. SME Corp is in effective in counseling micro business.

For Small and Medium enterprenuers

Franchise Business Boost: There is an urgent need to expand the franchise business schemes to Malaysian Indians. A realistic target is to create 50 Franchise Malaysian Indian Franchise Businesses to be created with 100 Local Indian Business Franchise in next 5 years. Currently, PNB through PNS have been working on a similar concept. It is recommended that the Franchise programs that are currently allocated only for Bumiputeras to be open for Malaysian Indians as well. Since, the Malaysian Indians involve in different types of business, the expansion of franchise concept to Indian business generally will create more spillovers to the economy between 2011-2016, and more Malaysian Indian businesses on a franchise concept should be created.

Advancing Franchising at Global Scale: Malaysian Indian businesses in Malaysia are not getting enough help, expertise or know-how in franchising their business on a global scale. Nevertheless, currently, a number of Malaysian Indian businesses have great potential to be franchised that can eventually benefit the nation as a whole. With adequate planning in RM10, this could be the beginnings of a building a global franchise presence. Therefore, it is recommended that in RM10, 100 new Malaysian Indian franchise businesses be assisted under various programs like PNS and others. Currently, Indians do not have the awareness and incentives to move forward in this direction. The incentive can be delivered in the form of Consultation, Grants, Loans and Franchise Development Training. Hence, 10% of the funds allocated for National Franchise program should be assigned to Malaysian Indian businesses.

Vendor Development Program: GLCs and MNCs, among others, train and develop vendors under the vendor development programs. This in return has created successful local businesses. It is recommended that 100 Indians per year to be trained under a similar scheme. This will ultimately create more business spillover for the nation.

Business Opportunities from GLCs: RM10 could also be the beginning for Malaysian Indians to get business from GLCs. In order to increase the equity of Malaysian Indians, it is recommended that 10% of contract value be set aside for Malaysian Indian businesses/vendors/contractors. This is more feasible, both politically and economically, to correct the economic imbalance than just having contracts on an Ali-Baba mode.

Local Workers Training Scheme for Small Business: Indian businesses could use this scheme to training more local workers and reduce dependency on foreign workers. Small business can seek funds from government to pay for the training and apprentice of local workers. The training could be conducted by government or private centers. The current scenario does not provide continuous supply of workforce to local businesses. For instance, Malaysian Indian restaurant owners face a
dilemma in recruiting local workers and are highly dependent on foreign workforce. Indeed, the current programs are largely temporary and fail to provide a long term solution.

**Wage Subside 5 years:** Currently, the small businesses that face shortage of workers are forced to pay high wage for the recruitment of locals or to be highly dependent on foreign workers. Small businesses usually resort to recruiting foreign workers since they are unable to pay higher wages. More incentives in a form of wage subsidies or tax incentives should be given to small businesses which recruit local workers.

**Technology Incentives:** Pillar industries for the Malaysian Indian Economy are: (1) Food/service, (2) Metal/Precious Metal, (3) Transport/Logistic, (4) Newsstand/Printing and (5) Retail/Textile. These industries are labour intensive and modernize; the government has to provide loans and incentives. Currently, the incentive programs under various ministries are hard to come by for Malaysian Indian businesses that are not savvy and not too well organized. Hence, it is recommended that a special allocation is given for technological and equipment improvement specifically for these pillar industries. The grants and incentives should include technology consultation activities, training and equipment upgrading and the like. For instance, restaurant owners could implement the POS systems to enhance the management quality.

**Indian Women Participation in Businesses:** Malaysian Indian women are left behind compared to their counterparts in other races. It is recommended that the government create at least 500 new enterprises for Malaysian Indian women. A Special Program or Scheme could be developed under the Ministry of Women Affairs and Community Development to boost awareness and to provide training, grants/loans as well as supervision. The industry of interest should include marketing services, beauty, training, food/service, green technology, small scale manufacturing activities, human resource services, cottage industries and others.

**Home Based Business Boost:** Creating 1000 home based businesses under various programs specifically for Women (Example, housewives, single mothers and the disabled). A specific program by relevant ministry (e.g. Ministry of Women Affairs and Community Development) is needed at each level. The home-based businesses must be supported by grants, training, supervision and facilitation. The Chinese model of such program can be absorbed in this case. Industries such as food/service, catering, crafts, bakery, internet-based business, florist and telemarketing should be encouraged. Additionally, the Ministry should also create more awareness programs on the issues of home-based businesses.

**Graduate Business Community:** Young entrepreneurs are the engine of growth of the economy. Likewise, it is also a tool to reduce unemployment among graduates. It is recommended that the government assist and support the Malaysian Indian graduates to start up new businesses in areas like financial services, healthcare, consultation services, R&D related services, and others. A target of assisting 1000 new Malaysian Indian graduates in these new businesses not common for Indians is important. The program should be specifically tailored towards graduates who are less than 35 years old who successfully undergoes training and consultation. They should be given loan facilities not less than RM500K to start and to develop their businesses. Additionally, during the training, the graduates need to be paid living allowances not less than RM1500/month and this should be part of the loan. The loan should be flexible enough to be converted to grant of equal amount, upon paying taxes within 25 years of operation.

**Traditional Cultural and Art Businesses:** In the RM10, it is important to develop and catalyze the traditional businesses. RM10 should also promote and cultivate new enterprises that are related to cultural and traditional-based business or services. These businesses include Dance Academy, Cultural sports, Cultural craft, Musical Equipment Manufacturing, Cultural Skill Training Centre, Sculpture, Theater Shows and Jewelry manufacturing. These industries are important for tourism and it is a unique attraction for Malaysia. Currently, most of the supplies are imported from
India and in will be an added advantage if Malaysia were to develop these industries. The programs to develop these industries should specific and parked under the Ministry of Heritage and Culture. The programs should include training, study scholarships (India), consultation as well as loans/grants.

**Permanent Business Loan:** Small business should be able to excess permanent loan programs. Currently SME Corp do have few products for small business but it is on reimbursement terms. This type of scheme might not work for capital challenge owners. So government has to setup a moderate term business loan for small businesses with relatively short processing hours like 2 weeks. Loan facilities are the fertilizer for the growth of small enterprise in any country.

**Conclusion**

Malaysian Indians are still trailing behind other races in terms of economic success. To reduce the development gap between races in Malaysia, which is the most important element of racial unity, the government has to be proactive. According to the 1Malaysia slogan, “Masyarakat Didahulukan, Pencapaian Diutamakan”, if unity were to be achieved, the Malaysian Plan should reflect appropriately the needs of all races. Socio-economic imbalance is experienced by all races and it is important to correct the imbalance regardless of race. Without these changes, the trust of the society in the 1Malaysia concept and the government’s motives will still be questioned and will not significantly engender national unity.
Reference


www.myindians.com/Resources/Business/mainarticle.aspx

Epistemic Controversy in Analysing the Theories of Reliabilism and the Generality, Clairvoyant and the Evil Demon Problems

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Abstract
This paper examined how epistemology can advance Goldman’s project of developing reliabilism as a theory of epistemic justification. The consideration consisted in providing a critical examination of Goldman’s analysis of the compatibility and relevance of theories in the psychology of perception to epistemology. The paper argued that an attempt to replace the justification condition in the traditional analysis of knowledge, as justified true belief with the notion of the reliability of belief-forming process, engendered some epistemological problems. The method of critical and conceptual analysis was employed while Alvan Goldman, Marshall Swain and D.M. Amstrong’s articulations of reliabilism provided the background to the discussion. The paper showed that for such an epistemological project to be heuristically adequate, an epistemic justification understood as justified true belief arising from reliable belief-forming process must be capable of accounting for *a priori* or conceptual knowledge. Anything short of this would narrow the range of human knowledge.

**Keywords:** reliabilism, epistemic, belief, justification, clairvoyant.
1. Introduction

Discussion on reliabilism as a causal theory of perception is fairly modern. We shall examine a series of objections levied against reliabilism under three broad categories namely, the generality problem, the clairvoyant problem and the evil demon problem. The discussion shows that neither of the reliable process theory as defended by Alvin Goldman, and the reliable indicator theory as championed by Marshall Swain and D.M. Armstrong, can provide adequate defence of a causal theory of perception. This confirms the need for an alternative causal theory of perception. The crucial question is whether perceptible properties are real properties of physical objects. The traditional philosophical problem of perception was to justify perceptual beliefs about objective qualities in the light of the ways objects appear and the nature of objects. According to Alvin Goldman H. (1981) we must rule out the view that sees the relation between ways things appear and their objective properties as determinable a priori or conceptually. Scientific accounts of perception would be epistemologically irrelevant if there were a conceptual or logical, rather than an empirical or contingent, connection between the qualities of objects and the ways they appear in normal conditions.

The crux of Goldman’s assertion in the above passage is that, in order to formulate beliefs about sequences of appearances, we require references to the realm of physical objects and their properties. In his opinion, the view that beliefs about subjectively relative appearances cannot serve the function of being the foundation of empirical beliefs regarding objective qualities results from a confusion between relations that are causal and conceptual and those that are justificatory. The question now is where can we locate the traditional epistemological project of providing an account of epistemic justification? R. Audi (1983) maintains that any causal theory is going to have a hard time explaining a priori or conceptual knowledge. This is based on the supposition that the descriptive branch of epistemology simply abandons this traditional task. Our task in this paper is to examine how the descriptive branch of epistemology can advance Goldman’s project of developing a reliabilist account of epistemic justification. This is based on Goldman’s examination of the compatibility and relevance of theories in the psychology of perception.

According to Alvin Goldman H. (1981) such talk of physical data and neural inference may suggest that contemporary psychology of perception fills the role that epistemologist used to play from their armchairs, namely that of relating perceptual data to beliefs about physical objects in the environment. Certainly psychologists do attempt to perform a task which was crucial also for the traditional enterprise of epistemology: to separate subjective from objective factors in the generation of perceptual beliefs.

In the above passage, Goldman highlights the importance of epistemological reliabilism which includes the possibility of maintaining a fully realist metaphysical framework, preserving our intuition that physical objects are genuinely independent, which is indifferent in their real properties to changes in our theories. Furthermore, it allows us to dispense with the suspect notion of necessary connections not reducible to implications or entailments, the study of which would set epistemology off from other areas of inquiry. Lastly, it allows us to explain the self-justification of beliefs about ways things appear and the justification of beliefs about physical properties according to the same model.

Reliabilism as a theory attempts to provide solution to the problem of justifying our perceptual experience. The theory as defended by Alvin Goldman H. (1981), M. Swain (1981) and D.M. Armstrong (1973) is an externalist conception of justified belief in which the source of justification is external to the person’s subjective conception of the situation, reliabilists focus on the causal process by which a particular belief is formed.

Reliabilism as an externalist epistemological theory originally is an alternative solution to Gettier’s problems (Gettier E.L 1963). It is an attempt to replace the justification condition in the traditional analysis of knowledge as justiﬁed true belief with the notion of the reliability of belief
forming process. Reliabilism advances an argument to show that the counter-examples given by Gettier in his paper point to fundamental problems in the internalist conception of justified true belief. This development has prompted some philosophers to investigate theories concerning the nature of epistemic justification. Alvin Goldman H. (1981) and M. Swain (1981) conceive reliabilism as a theory of justified belief itself. In which case, to be justified, a belief must be formed as the result of reliable processes. Reliabilists uphold the view that knowledge or justification is not to be understood in terms of reasons justifying a belief but as beliefs produced by reliable process. Such processes according, to Goldman H. (1981) include standard perceptual processes, remembering, good reasoning and introspection. Unreliable processes include visual suspects, wishful thinking, confused reasoning and hasty generalization.

Reliabilism considers perception as a type of reliable belief-forming process. In this sense, a process is reliable if it can produce true belief under the right sort of circumstance. In other-words, a reliable process that tends to produce true beliefs. Thus, reliably-formed beliefs are likely to be true, and hence likely to be justified.

2. Kinds of Reliabilism

There are two important kinds of reliabilism. They are reliable process theory and reliable indicator theory. Reliable process theory holds that a belief is an instance of knowledge, or is justified, if the belief is a result of a reliable belief-forming process. Reliability of belief formation is not something that one can determine just upon reflecting on one’s own mind. Goldman H. (1993), for instance, argues that the determination of reliability of a process requires some amount of empirical investigation. This is the sense in which the justification is external rather than internal. Goldman’s initial version of the reliable process theory of epistemic justification is as given below:

‘If S’s believing p at t results from a reliable cognitive belief-forming process, then S’s belief in p at t is justified’.What the above formulation means is that the justificational status of a belief is a function of the reliability of the process or processes that cause it where reliability consists in the tendency of process to produce beliefs that are true rather than false. Perception, memory, remembering, reasoning, as earlier on mentioned, are examples of reliable processes. Goldman H. (1993) outlines three conditions for perceptual knowledge:

1) The belief must be the result of a reliable process.
2) Given the agent’s relevant alternatives, there must be no perceptual equivalents that could lead the agent to have false belief.
3) The actual belief must be true.

It is not enough to define justification merely in terms of having been caused by a reliable process. Let us consider an imagined case as put forward by Donald M. Borchert (1999). This can be summarized as follows: Suppose Mary has excellent memory but has been led to believe otherwise by a normally reliable authority. On a given occasion, she seems to remember a childhood event and comes to believe that this event occurred, despite the contrary evidence. Then, even though the belief is produced by a reliable process (memory), justification is lacking.

The above hypothetical case shows that Mary ought to have resisted believing at the face of contrary evidence. This shows that reliable belief production is not sufficient for epistemic justification. Let us see whether the reliable indicator theory will overcome this problem.

Reliable indicator theory holds that a belief is an instance of knowledge, or is justified, if the belief is a reliable indication of some fact or state of affairs. D.M. Amstrong (1973) defends this theory by citing the example of the ringing of a door bell as a reliable sign that someone is at the door. Another similar example is that the sound of bubbles of water on the fire is an indication that the water has reached a boiling point. D.M. Amstrong (1973), M. Swain (1981) and Grice Plantinga (1961) also
compare the reliability of belief-forming process to the reliability of a thermometer indicating the temperature of a room.

3. Problem Associated with Moral Facts.

The anti-realists challenge the realist to explain the diversity of theoretical conceptions and the difficulty of their resolution within the relevant tradition of inquiry. In response to this challenge, Boyd adopts theories of epistemic contact and error, which reflect the best available current theories of the moral values in question. Epistemic contact accounts for the epistemologically significant causal relations between inquirers and the supposed theory-independent subject matter of the tradition. The theory of error accounts for the observed diversity of theoretical conceptions and the difficulty in resolving the theoretical disputes. These theories are then linked with a larger account of the metaphysics, epistemology, semantics, methodology and historical development of the various relevant areas of inquiry including those of anti-realist of comparable scope (Rawls 1971).

The problem with Boyd’s defence of moral realism as indicated above is that the moral properties to which epistemic access is demonstrated might be partly conventional or socially constructed. If this is the case, then it follows that Boyd’s use of theories of epistemic contact and of error is not successful. The question is by which method can we gain an epistemic access of the sort that Boyd has stated above? In this case, the realist resorts to Rawls’ method of wide-reflective equilibrium technique will not help (Boyd 1988). This is because such procedure proceeds by negotiating between conflicting presuppositions and so cannot be a discovery procedure, but at best a constructive one. Boyd (like any other realists) is not comfortable with this objection. Boyd (1988) argues further that wide divergence of moral concept or opinions between traditions or cultures need not indicate the absence of shared causally fixed referents for moral terms. The example of scientific practice is cited in which scientific realists maintain that some determined intuitions in science are examples of reliability trained judgements. Boyd (1988) concludes that the epistemic role of culturally determined intuitions in ethics can be treated on the same level as scientific model. In other words, since the scientific realists conclude that bivalence fails for some statement involving homeostatic cluster kind properties, and then these permits the moral realists to reason that similar failures of bivalence for some ethical (moral) statements needs not be fatal to moral realism (Kuhn 1970).

The above-mentioned defense of moral realism against cultural relativity arguments seems to commit the fallacy of Tu quoque. Instead of Boyd putting up rationally defensible arguments in support of moral realism, he accuses scientific realism of similar failures. This is not a comfortable defence. However, Boyd seems to have successfully defended the view that some scientific beliefs and methods depend on non-objective features or social conventions. This position has been extensively defended by scholars such as Kuhn (1970). The concern is that moral realists want to show that moral belief and methods are much like scientific belief and methods (objective, empirical and inter-intuitive), and to assimilate moral reasoning to the model of objective, empirical scientific methodology.

In science, theories are decided on the basis of observation, whereas in moral reasoning, intuitions play the same role. The moral realists claim that moral principles and theories are tested by seeing how their consequences conform or disconfirm to our moral intuitions about a given case (Mark Platts 1988). But people’s moral intuition reflects their culture and upbringing. Thus there will be no way to reconcile conflicting moral intuitions. What then plays in morals reasoning, the role played by observation in science? This is another challenge to moral realism.

Mark Platts (1988) defends moral realism not through philosophy of science but from the point of view of how language works. According to Mark Platts (1988), the crucial question is not whether there are moral facts but in the way we use language, whether moral realism is correct. Unlike Boyd
Platts is not holding any theory of a special faculty of intuition. He does not hold that intuitions yield certain knowledge. Rather, he admits intuitionism that is austerely realist such that the application of ethical expressions depends on what they designate and their use. Here, certainty plays no role. What we can get is approximate truth of moral beliefs, for they transcend our present practical comprehension. Using the ‘face’ argument, Mark Platts (1988) demonstrates that our judgement that this is a face is autonomous i.e not inferred from non-moral facts. They are not defined as necessary and sufficient conditions of non-moral facts. In other words, our moral statements are true or false not because they are inferred from non-moral facts.

Furthermore, in his reaction to cultural variability and how to resolve the problem of moral disagreements among diverse traditions, Platts accommodates that there can be conflict in moral reasoning, at least, from his acceptance of the possibility of pluralism of moral values. Platts admits that there are more than one ‘good’ e.g. sincerity, honesty, loyalty, prudence etc. The question then is if intuitionism implies a direct apprehension of the ‘good’ i.e. that there can be only one correct apprehension of one object, how can we reconcile this with Platt’s austere realism? This shows that moral realism has a problem that seems unresolvable particularly from the point of view of diverse irreconcilable theories of intuitions. The realist’s conception of language, for instance holds that the statements we make have truth conditions being straightforward description of aspect of the world and make true or false by facts in the world (Mark Platts 1988). At least, this view is held by realist such as Boyd (1988). However, Platts’s own conception is different from this. He talks of approximate truth of moral beliefs because such belief transcends our present practical comprehension (Platts 1988).

4. Reliabilism as a Causal Theory.

Reliabilism arises as a natural extension and modification of causal theories. The first premise of Goldman’s argument for reliabilism is that the cause of a belief is essential to its justification. He proceeds by considering the range of causes to our beliefs which fall into two categories namely, (i) standard perceptual processes, remembering, good reasoning, introspection etc. The feature of this category is reliability of belief formation; (ii) confused reasoning, wishful thinking, reliance on emotional attachments, guesswork and hasty generalization. (Goldman H. (1978). The feature of this set is unreliability of belief formation. Goldman concludes on the basis of the above premises that only reliable processes involve causes that confer justification on our beliefs. Goldman’s argument is contained in the following passage:

Consider some faulty process of belief formation, i.e. process whose belief outputs would be classed as unjustified. Here are some examples; confused reasoning, wishful thinking, reliance upon emotional attachment, mere hunch or guesswork and hasty generalization. What do the faulty processes have in common? They share the feature of unreliability; they tend to produce error a large proportion of the time. By contrast, which species of belief-forming (or belief sustaining) processes are intuitively justification conferring? They include standard perceptual processes ... what these processes seem to have in common is reliability; the beliefs they produce are generally reliable’ (Goldman H. (1979)

The essence of the above stated argument is to show that justification of an agent’s belief that p is not to be constructed in terms of being able to give reasons for the belief that p.

Goldman’s second argument for reliabilism rests on the premise that there are degrees of justification. This implies that a person holding a particular belief may be more or less justified. The important fact which Goldman is establishing is that degree of reliability is essential to degree of justification (Goldman H. (1979). For instance; a person is more justified to believe that he sees a needle with black thread affixed to it if it is daylight and one is not too far away from it than when one
is day-dreaming and is quite far away from the needle. This, in fact, is the sense in which it is argued that under standard perceptual processes reliabilism implies that there is a high statistical probability that a particular belief will be true.

Goldman adopts Grice H. Plantinga’s causal theory of perception as a case study (Grice H. Plantinga 1961). The argument can be put in this way: Suppose that S sees that there is a vase in front of him. A necessary condition of S’s seeing that there is a vase in front of him is that there is a kind of causal connection between the presence of the vase and S believes that a vase is present. Goldman asserts that:

That our ordinary concept of sight (i.e. knowledge acquired by sight) includes a causal requirement is shown by the fact that if the relevant causal process is absent we would withhold the assertion that so and so saw such and such (Goldman A.H 1978).

Arguing further, Goldman maintains that perceptual knowledge of facts need not be inferential. In this case, what is required is that there is a causal process connecting the presence of the vase with S’s belief. The process may not be a purely perceptual one; it could be memory, reasoning, testimony etc. In what follows, we shall consider in detail some of these causal processes.

5. Types of Causal Processes

Perception is the natural ability to notice something and someone’s belief about what it is like. It is the noticing of something through the sense organs or through the mind. Perceptual processes include seeing, hearing, touching, tasting and smelling (Graham R. L 1999).

Goldman asserts that a percipient does infer facts about physical objects from the state of his brain, or from the stimulation of his sense organs. This is quite contrary to the view expressed by some epistemologists that we directly perceive only sense data and that we infer the existence of physical objects from them (Goldman A.H 1978). Goldman’s reliabilism regards perceptual knowledge of external facts as independent of any inference. This can be illustrated with the vase example (section 4.3.) in which, by perception, one can know that there is a vase on the table without inference. The crux of the matter is Goldman’s insistence that physical objects are the causes of sense data.

Memory consists in the ability to remember things, places, events, experiences etc. of particular kind. There are levels of memory: short and long memories which depend on the ability of person to remember something for a short time or long time. It could also refer to the time during which things happened which can be remembered.

Goldman A.H (1978) argues that remembering, like perceiving, is a causal process. He states that:

“S remembers p at t only if S believes p at an earlier time is a cause of believing p at t.”

This formulation is based on the requirement that a necessary condition of S’s knowing p is that his believing p by a causal chain. Goldman A.H (1993) illustrates the causal theory of perception in the following passage.

‘But in the case of my belief that there appears to be something red there, the fact that there does appear to me something red alone explains my belief. The causal genesis of the appearance, e.g. the fact that I am looking at the thing, that my attention has been drawn to it, etc., enters into the explanation of why it appears, but my belief that it appears can still be explained by the fact of its appearance without appeal to the explanation of that fact.
This passage shows that it is not necessary for a person, that is, the individual whose beliefs are in question, to have cognitive access to how his belief \( p \) is “caused” to know that \( P \). Nevertheless, his belief is caused somehow by a reliable process or an unreliable process. If the true belief \( p \) is caused by a reliable process, then the person knows that

Marshall Swain’s proposal is to serve as improvement on Goldman’s causal theory. The fact remains that while Goldman accounts for knowledge by reference to causal antecedents of the belief that \( p \), Swain accounts for knowledge by reference to the reasons one has for believing that \( p \) (Pappal G.S. and Swain M (eds.) 1978). Swain requires that there be a causal connection of an appropriate type between the state of affair designated by \( p \) and \( S \)’s having of his local reasons for believing that \( p \). Swain’s account differs from Goldman’s in that it is \( S \)’s having his reasons, rather that \( S \)’s believing \( p \), that must be causally connected with the state of affair designated by \( p \). However, what is common to both scholars is their insistence that the question of whether someone knows a certain proposition is, in part, a causal question. They both note the fact that the traditional analysis of knowledge carries the implication of narrowing the range of our knowledge. (Goldman A.H 1978). This is what their causal process requirement has helped to preserve.

Goldman attempts to separate subjective factors in the generation of perceptual beliefs about physical objects in the environment. He clarifies this as follows:

> We can show the justification for beliefs regarding real properties of object’s having these properties fit into the most coherent explanations for the ways they appear under the widest variety of conditions. The best explanations for our having belief about ways things appear appeal to their actually appearing in these ways; the best explanation for their appearing in these ways appeal to their having certain physical properties. We begin the epistemological reconstruction with beliefs about appearances, and, through a series of inferences of the same logical form, construct an initial picture of physical objects, move to physical theory, and then see in the context of that theory how our initial beliefs about objects were caused (Goldman A.H Jan 1981).

In what follows, we shall examine the problems associated with reliabilism as a causal theory of perception.

6. **Problems with Reliabilism**

Scholars (particularly in the internalist school of justified true belief) have raised some fundamental objections to reliabilism as a causal theory of justified true belief. Just before we go into detailed discussion of these objections, it is worthwhile to mention that there are some other categories of scholars who do not believe that the causal approach to the analysis of justified true belief is viable. The major thesis is that ‘causation’ is a non-epistemic consideration, which should not be introduced into the analysis of an epistemic notion. This view shows that the causal ancestry of a person’s belief or of a person’s reasons is simply irrelevant to the question of a person’s having knowledge (Bonjour N 1980 and Feldman R 1993). What is considered relevant in this situation is the evidence a person has, and whether that evidence provides the appropriate kind of support for the belief in question. Another important reason against reliabilism as a causal theory is the fact that even when causal consideration is relevant to knowledge, causal situation is so complex that no one can succeed in accounting for all of the varieties of causal situations. This position is based on the realization of the fact that in the history of philosophy, the concept of causation is as difficult as the concept of knowledge itself. Be that as it may, we shall examine a series of objections levied against reliabilism under three broad categories namely, the generality problem, the clairvoyant problem and the evil demon problem. We shall also discuss a defence against the objections particularly as put forward by Alvin Goldman, D.M. Armstrong and Marshall Swain.
7. The Generality Problem

We have earlier mentioned that reliabilism consists in the view that the justificational status of a belief depends on the reliability of the belief-forming process. According to Goldman A.H (1979),

"the justificational status of a belief is a function of the reliability of the process or processes that cause it, where reliability consists in the tendency of a process to produce beliefs that are true rather than false."

This formulation of reliabilism gives rise to the generality problem- the problem of indeterminacy of the belief forming process. The major proponent of the generality problem is Richard Feldman, who argues that reliabilism appears to provide arbitrary way of determining the relevant belief-forming process type. The implication of this is that the reliable process theory seems incomplete, vague and possibly incoherent (Feldman R 1993). The Generality problem shows that reliabilism carries the implication that any particular belief will be an instance of an indefinite number of belief forming process types. The problem is that some belief-forming process types will be reliable and others not. For example, if vision is a reliable process type, it means that some visual beliefs are justified and some not justified. Feldman contends that this will have the consequence that the same belief is both justified and unjustified for the same person. This cannot be. To this end, the reliabilist will have to avoid describing the relevant process too broadly and too narrowly, otherwise we may not be able to distinguish justified from unjustified beliefs.

Further illustration of the occurrence of the generality problem is that if we rely on perception and memory as relevant causal processes, recent theories about memory show that there are many types of memory namely, iconic, procedural, semantic, short and long term memories etc (Feldman R 1993). The crucial question is whether all of these are reliable processes of the same degree? Or what sort of memory type is favoured by reliabilism?

In a nutshell, the point of Feldman R’s (1993) argument is that since reliability of belief involves statistical probability, determining whether any particular process or belief is reliable requires locating it in a class of process or belief types about which there can be generalization. This further carries the implication that for reliabilism, it appears that any particular process or belief will be an instance of an indefinite number of process or belief types. Given this scenario, reliabilists are required to provide some non-arbitrary way of determining the relevant process type. For example, Goldman’s identification of perception as a relevant causal process has the problem of describing the process too broadly i.e. which type is he referring to? Is it is sense perception operating during the day or during the night? Furthermore, there is a sense in which perception can be described in relation to a percipient’s distance to physical objects. There may be a level of belief that a perceiver accords to a given physical object within two meters and the one within twenty to thirty meters. The same applies to perceptions that one has at night or in darkness. This is the nature of the generality problem, given the reliabilist’s formulation of belief-forming process (es).

To overcome this problem, reliabilists need to provide a means of identifying process type that is neither too broad nor too narrow. It then seems that reliabilists are caught in a dilemma. For instance, if one claims that all beliefs formed through the process of visual perception are reliable (i.e. conceiving reliable process too broadly) one may have problem because many of our visual beliefs are unreliable, given certain conditions e.g. lighting, distance, observer’s state of health etc. If the relevant process is conceived narrowly, it will also carry the risk of infallibility and this will be too arbitrary.

In order to overcome the generality problem, Goldman A. H (1993) makes a distinction between local reliability and global reliability. He defines global reliability as: “The reliability for all or many uses of the process, not just its use in forming the belief in question.” Local reliability is defined as that which: “concerns only the reliability of the process in the context of the belief under assessment.” Goldman (1993) gives as example of global reliability, standard perceptual process of seeing while cases of drunkenness represent local reliability.
In his own suggested solution to the generality problem, William Alston (1995) contends that in determining the appropriate relevant process, only cognitively psychological presentation must be considered. This consists in restricting the number of possible relevant processes to a smaller sample in order to estimate the reliability within a certain range. William Alston’s suggestion is in line with Audi R’s (1986) position that the reliable belief–forming process is not required to be infallible.

Plantinga’s version of reliable indicators theory may not be prone to the generality problem by defining justification in terms of a belief being reliably produced by a properly functioning faculty in an environment of the type for which it was designed (Plantinga A. 1993). His view of reliabilism can be referred to as properly functioning faculty view of reliabilism. In short, from the foregoing considerations, it appears that process reliabilism is indeterminate and thus to make a choice out of the processes will be quite too arbitrary.

8. The Clairvoyant Problem

The clairvoyancy objection was proposed by Lawrence Bonjour (1980) to show that simple reliabilism is not a sufficient condition for epistemic justification or for justified belief. He raises the clairvoyant problem, as counterexample to externalism (Drescke F. 1978). Clairvoyance is the supposed power of seeing and understanding objects and events not directly present to the senses. It may also refer to the ability of a person to see what will happen in the future. The clairvoyant problem is a hypothetical circumstance imagined as being analogue to perceptual situations. The Clairvoyancy objection starts with the assumption that Norman is an imagined reliable Clairvoyant when it comes to beliefs of various sorts. The argument is as follows:

Imagine a reliable clairvoyant who possesses no evidence or reasons of any kind for or against the possibility of such a cognitive power and ask, “Is Norman epistemically justified in believing that the president is in New York City?” (Bonjour N. 1980). Take as an example the belief concerning the whereabouts of the Prime Minister of Canada. Norman suddenly finds himself believing that the Prime Minister is in Victoria, Canada. Norman, however, has no evidence for this belief, but the beliefs the process produces are normally true. This shows that such beliefs by Norman are reliably formed. It further implies that Norman would be justified to hold the beliefs produced by his Clairvoyant power. Lawrence Bonjour N (1980) argues that Norman is clearly not justified to hold the belief, due to lack of evidence against such a process. Norman either does or does not believe that he is a reliable clairvoyant. At least, he has no reason to believe that this is so. If he does, then the belief is unjustified, as it cannot justify his belief about the reliability of his clairvoyance; his belief about the president’s whereabouts is “epistemically irrational and irresponsible and thereby unjustified, since part of one’s epistemic duty is to reflect critically upon one’s beliefs.”

The significance of Bonjour’s argument is that a belief might be reliable and yet not justified (e.g. cases of irrational beliefs). The problem is that if one holds that justified beliefs are rational beliefs, then showing that a belief is irrational would be sufficient to show that it is unjustified. This is a way of showing that there must be an internalist dimension to epistemic justification.

Bonjour concludes that it is accidental that normal has a true belief about the presence of the prime Minister in Victoria.

Defending reliabilism against the clairvoyant problem, Goldman maintains the fact that simple reliability may not be enough for justified belief. To this end, he requires in addition to the reliability of the process leading to the belief that there not be available a reliable defeating process (Goldman A.H 1978). Simple reliability may be enough in the case of unreflective person, i.e. a person who will never reflect on his powers of perception or memory. If perception, for instance, can give such a person justified belief, then Clairvoyance can do the same for Norman. Let us consider the remaining problem.
9. The “Evil Demon” Problem

The evil demon objection is raised principally to show that reliability is not a necessary condition for justification. The main thrust of this position lies in the conclusion that there is an entire class of beliefs that would count as justified, yet they are not the result of a reliable process. The major premise of this objection consists in an analogy drawn between our normal, standard perceptual processes in which we form perceptual beliefs such as there are tables, oceans, rocks etc. in the world, and the demon world in which we have some reasons for forming same beliefs as the case in the normal world. In which case, if our beliefs are justified in our normal world, they are also justified in the demon world (Borchert D.M 1999). It is concluded that an entire class of beliefs in the demon world would count as justified, yet they are not the result of a reliable process.

Assuming then that a demon makes all our beliefs seem like they are about real objects when in fact they are not. What we take to be the perception of physical objects such as tables, chair, water, sun, stars etc does no involve their affecting our sense organs. Rather, a Cartesian demon has arranged the world such that our sensory experiences were generally veridical, just as they really are in the normal world. The implication of this hypothetical circumstance is that the evil demon problem takes away from reliability theories their necessity. The preceding argument shows that an individual’s belief can be epistemically justified but not produced by a reliable process. As has been shown, it could be through deception by a Cartesian evil demon. The internalist such as Lawrence Bonjour (1980), claims that in a demon world, beliefs may be justified just as in the normal world without reliable belief-production process. What is necessary for justification is the individual’s cognitive access to the evidence which is totally an internal affair. In what follows, we shall examine the reliabilist’s attempt to overcome this problem.

Goldman (1981) tries to circumvent the evil demon problem by introducing a reformulation of reliabilism which he refers to as ‘rule reliabilism’. Rule reliabilism allows reliabilism to be determined only with respect to normal world as against evil demon world. The reformulation of reliabilism raises one serious difficulty which relates to making beliefs produced by reliable processes not present in the normal world unjustified. This appears to be too arbitrary. Goldman needs to provide more convincing reasons for such discrimination.

Goldman supports his position on the evil demon problem further with the example of a community that depends on astrology. The main thrust of the above distinction is that people in the evil demon world only have weakly justified beliefs because, at that level. Perceptual processes are not reliable. However, contemporary internalist such as Lawrence Bonjour (1980) would deny that there is anything weak about the justification enjoyed in the evil demon world. Rather, people in the evil demon world have as much justification as we in the normal world have. This is the basis for the internalist’s conclusion that reliability of production has nothing to do with justification.

In what other way can reliabilism be rescued from the evil demon problem? Let us consider one of such attempts by Goldman in defense of reliabilism. This is known as ‘virtue reliabilism’. The theory claims that a belief is justified if it results from intellectual virtue and unjustified if it results from intellectual vice. This new formulation is based on Goldman’s assumption that we inherit a list of cognitive virtues from our social background (Goldman A. H 1981).

10. Conclusion

The foregone discussions indicate that one major problem with reliabilism is where the traditional epistemological task of providing an account of epistemic justification is to be located. Reliabilists emphasise the descriptive branch which abandons the traditional task of providing justification for both descriptive and normative epistemology. However, the abandoned task is properly assigned to the normative branch. The real conflict between internalism and externalism is that for externalism, a belief’s being justified is partly an empirical matter. One does not necessarily
need to have reasons for holding justified beliefs that are reliably formed. This is the point at which Goldman’s reliabilist project has failed in establishing normative scientific epistemology. One can advance Goldman’s project of developing a reliabilist account of epistemic justification through a proper and correct articulation of naturalized philosophy of mind which is the only epistemological framework that can provide justification for conceptual knowledge.
References


Goldman, A.H. (1981 Jan.). Epistemology and the Psychology of Perception. *American Philosophical Quarterly* V. 18, No.1, 44-48, 80-85. In this paper, Goldman examines the compatibility and relevance of theories in the psychology of perception to epistemology.


Running Head: GSM Consumption Value Scale Development and Validation of Global System Mobile (GSM) Consumption Value Scale in Nigeria

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Abstract  
The specific purpose of this study was the development and validation of Global System Mobile Consumption Value Scale (GSM-CVS) using Nigerian sample. To this end, 40 items were generated from literature and interviews with GSM users, items analysis through pilot study that involved 104 participants led to the dropping of 11 items that loaded below 30 thereby leaving 29 items for the main study. The scale yielded Alpha reliability coefficient of .84. Using accidental and purposive sampling techniques, a total of 763 people from both the northern and southern part of the country participated in the study. Principal Component Analysis (PCA) and Varimax with Kaiser Normalization rotation method yielded 6 factors with eighteen values greater than 1.00. The factors were found to have correlations with one another, while age differences were not found. The overall contribution of the factors was less than 10% with functional value having the greatest effect followed by health value while monetary, social, emotional and safety did not have significant effect on consumption value. In fall, it is established that this scale is a valid measure of GSM consumption value.
Introduction

The global nature of the world we now live in demands efficient and effective communication mode if things must move at the desired rate. Transactions and meetings are now possible without the participants seeing face or sitting at the conference table. Development and large scale usage of modern communication technologies are no longer the exclusive of developed nations; rather, even the less developed nations are actively involved in the communication revolution.

One communication system that has recently come to revolutionize Africa is the Global System for Mobile (GSM), this is a portable digital telephone that makes conversation possible without limitations by time and distance as long as there is network coverage. The advent of the GSM in Nigeria has drastically changed almost every facet of the people’s existence, ranging from commercial to social, educational, behavioural and the value system. There appears to be a rush for everybody to be GSM “compliant”, even people who can hardly afford three square meals still struggle to own a cell phone regardless of the maintenance implication. This phenomenon may be seen as a fulfillment of Town seed (2000) prediction that portable digital communication tolls with undoubtedly lead to fundamental transformations in individual’s perception of self and the world.

Prior to the introduction of GSM in Nigeria in 2001, the telephone system can best be described as grossly inefficient and unappealing. At independence in 1960, the country had 18,724 telephone lines (landline) for a population of 40 million people. Between 1994-1997, the country had 4 telephone mainlines per 1,000 persons (NCC, 2003). The concern over the poor communication system and the need to make the Nigerian economy more investors oriented necessitated the action of the Federal Government to license two GSM providers to bridge the gap in the communication system.

Within a short period of the introduction of GSM in Nigeria, it made a very strong impact in the life of the nation. According to Nigerian Communication Commission-NCC (2005), subscribers to GSM are now 13.3 million people with a projection that by year 2010 the figure would have risen to 40 million people. Ndukwe (2003) reports that Nigeria has one of the highest cell phone impact average revenue per user and as emerged as the fastest growing telecommunication market on the continent of Africa. Ndukwe further states that the country has one-sixth of South Africa’s GDP per capital, but the average Nigerian cell phone owner uses his/her phone five times more than the South African counterpart.

Merril (2004) reports that although the United States has 1000 times Nigeria GDP per capita, yet the revenue earned from an average Nigerian cell phone is twice that of an American user. He further states that Nigerians have one of the highest level of minute’s use of phone, and that in Nigeria, the average cell phone is used 200 minutes per week, compared to a weekly usage of 154 minutes in France, 140 minutes in Japan, 120 minutes in Britain, and 88 minutes in Germany. The phenomenal growth of the GSM market, the high degree of acceptability and usage in Nigeria thus bring the question of the consumption values that Nigerians attach to the mobile phone. However, attempt to give an objective answer to that question leads to another problem, this time, the objective measurement of consumption values of mobile phone in Nigeria. Consequently, this study set out to develop and validate a scale that will objectively measure consumption values of mobile phone users in Nigeria.

Literature is replete with definitions and conceptualization of the word value. Rokeach (1973) defines value as an enduring belief that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of existence or end state of existence. In other words, a value is a belief that is very central and shapes a person’s attitudes and behaviours, it is a standard to guide actions, attitudes, comparisons, evaluation and justification to self and others. In a similar vein, Ugwuegbu (2004) states that most values are conditioned by experience, educational innovation, socialization and cultural change. He is of the opinion that, values evolves
and mature as experience evolve and mature, until they assume a status of “right”, “desirability” or “worthy” and hence become a person’s values.

From the foregoing, the concept of value seems to be more enduring than the related concepts of attitude, motives, preference and interest, and as such the antecedents of an individual’s values are that person’s personality. Jantrania (2002) noted in his work three perspective that are frequently used when discussing the concept of value in the social sciences. These are (a) perspective of human values as end goals, (b) economics and purchasing perspective of value and (c) accounting and finance perspective of value. For the purpose of this paper however, focus is on the perspective of human values as end goals.

In the consumer/marketing psychology literature, several connotations have been used to describe value consumption. In an extensive review by Woodall (2003), the connotations listed include: Customer value, perceived value, consumption value, customer perceived value, consumer value and perceived value for money amongst others. In this paper, consumption value will be seen in the light of Monroe (1990) definition which sees the concept as buyers’ perceptions of value which represents a trade-off between the qualities they perceive in the product relative to the sacrifice they perceive by paying the price.

Two theoretical approaches have been widely used in literature to explain consumption values in human societies; these are the macro research theory and the micro research theory. The Macro Research Theory is sociological in nature; it emphasizes the determination of dominant values in distinct social entities (Kahle and Kennedy, 1989). This theory is premised on the assumption that the society holds values, this means that there is homogeneity within groups. Accordingly, people within the same socio-demographic group such as cultural, nationality, gender, age or racial-ethnic groups share similar if not the same values (Oyserman and Markus, 1993). Also, it is assumed that individuals know their values orientation and are willing to express these (Manyiwa, 2005).

A major flaw with the underlining assumption of this theory is in regarding values as based on collective consciousness while ignoring individuals’ freedom. In other words, the individual is seen as not capable of making decisions on his/her own, rather, he/she has to comply with societal norms (Manyiwa, 2005).

On the other hand, the Micro Research approach, a psychology-oriented perspective takes into account the individuals’ decision-making capacity. Reynolds and Gutman (1988) and Valette-Florence and Rapacchi (1991) consider values as preferences and actions based on internalized influences, the individual perceives such internalized influence to be conducive to the maximization of his or her self-oriented welfare. The micro research approach is based on the means-end theory of Gutman (1982), it focuses on the linkage between the attributes that exist in the product (the means), the consequences for the customer provided by the attributes, and the personal values (the ends) the consequences reinforce. In other words, the individuals and not the society at large are thought of as repository of values.

Commenting on the theory, Manyiwa (2005) says the theory conceptualizes a consumer’s perceptual map, linking the perceived attributes of products and the consumer’s values. This supposedly creates linkages between conceptual categories (product attributes, consequences and values, in effect, a chain links product attributes to the consequences produced by this attributes, and, in turn links these consequences with the values or end goals to which they lead. The linkages are the cognitive connections between the attributes and consequences (Reynolds and Gutman, 1988).

Manyiwa (2005), identifies a number of inconsistencies between means end theory and the associated research methods. The first of such is the inconsistency between the theoretical assumption and the methodology used in determining mean-end structures and values. For instance, Manyiwa criticized studies which were carried out to compare values orientations across nations but started by
assuming that each country involved in the study was homogeneous in terms of values of nationalities. The assumption is inconsistent with the micro perspective, rather, it is similar to the macro approach which considers value as a group’s rather than individual’s concept.

However, both the micro and macro approaches provide insights into the conceptualization of values. Even with differences highlighted in literature, the theories give indications as to the possible directions of future research. Moreover, it appears that both perspectives may find relevance under different situations. For instance, the micro approach may be appropriate in the western world that is more individualistic, whereas, in the other parts of the world, where socialism and collectivism are the order of the day, the macro perspective seems applicable. According to Ugwuegbu (2004), the national value orientation is a social movement, which a society embarks on when it comes to a realization that the present human behavioural tendencies, activities, and actions can not lead that country to a desirable and more prosperous immediate or future national goal.

The foregoing has shown the affinity of Nigerians to their mobile cell phones and the centrality of consumption values in consumer psychology the world over. However, to be able to objectively evaluate the GSM consumption values in Nigeria, a reliable and valid measure will be of paramount importance. To this end, this study focuses on the development and validation of GSM consumption value scale in Nigeria.

Method

Participants

This is a cross-sectional survey that covered both the northern and southern part of Nigeria. A total of 763 people participated in the study using accidental and purposive sampling techniques. Four hundred and eighteen (418) were from the southern part of the country and 345 from the northern part. Overall, 462 (60.6%) of the respondents were males and 301 (39.4%) were females. Three hundred and seventy-three (49.3%) were singles while 383 (50.7%) were married. Age of the respondents ranged from 18 years to 68 years with a mean age of 31.54 and standard deviation of 8.98.

Of the respondents from the south, 253 (60.5%) were males and 168 (39.5%) were females. One hundred and seventy-two (41.2%) were singles and 245 (58.8%) were married. Age range was between 18 years and 68 years with a mean age of 32.98% and standard deviation of 9.15 on the other hand, the respondents from the north were made up of 209 (60.6%) males and 136 (39.4%) females. There were 201 (59.3%) singles and 138 (40.7%) married respondents. Age range was between 18 years to 60 years with a mean of 29.79 and a standard deviation of 7.45.

Development of Measures

Items generation for the GSM Consumption Value Scale (GSM-CVS) was based on two strategies. One, 25 items were generated from literature on previous work on values (Sweeny and Soutar, 2001; Pura, 2004 and Soutar and Sweeny, 2003). Two, items were generated through pilot survey, the researchers asked people to list at least 5 items they considered as consumption values of GSM, this particular exercise yielded 15 additional items, bringing the total number of items to 40.

To determine the adequacy of the items in terms of validity and reliability, a pilot study was conducted using 104 GSM patrons in Ibadan and Lagos, cutting across the four GSM providers (MTN, Globacom, Celtel and Mtel). The pilot study yielded a Cronbach Alpha reliability increased to .84. Thus, 29 items were used in the actual study. The scale was fashioned in the Likert format with 5 point response option ranging from strongly agree, agree, not sure, disagree and strongly disagree. The maximum score obtainable is 145 while the minimum is 29.
**Procedure**

Trained research assistants were used in the collection of data from Ibadan (representing the South) and Markudi (representing the North). The two cities are cosmopolitan in nature and can be considered as melting points for the various ethnic and cultural groupings in Nigeria. They both house two Universities and a number of other tertiary institutions. At the point of administration, participants were assured of absolute confidentiality, pointing out to them that names are not required on the questionnaires. They were also informed that they are not under any form of obligation to participate and that they are free to withdraw at any point they feel like.

A total of 850 questionnaires were administered. Accidental and purposive sampling techniques were employed for participants’ selection; one major inclusion criterion was the ownership of at least one mobile phone. Of the 850 questionnaires only 779 were retrieved at the end of the exercise, while 16 that were improperly filled were not used for the final analysis. In all, a total of 763 were used.

**Result**

The GSM-CVS yielded a Cronbach Alpha reliability of .84. Principal Component Analysis (PCA) with Kaiser Normalization rotation method yielded 6 factors with eigenvalues ranging from 6.85 to 1.25 with cumulative percent variance of 60.08. Items 18, 17, 20, 16, 21 and 19 loaded on factor 1 which was labeled monetary, items 13, 14, 12, 15, 11 and 10 loaded on factor 2 and was labeled social. Furthermore, items 7, 6, 9 and 8 loaded on factor 3 and called emotional, while items 28, 27, 25, 26 and 29 loaded on factor 4 and named health. Items 1, 2, 3, 4 and 5 loaded on factor 5 with the label functional while items 23, 24 and 22 loaded on items 6 and called safety. Cronback Alpha for each of the 6 emerging factor stood at .90, .86, .83, .76, .70 and .76 respectively (See table 1).

Using the Pearson correlation matrix, the result reveals that monetary value correlates positively with social value (r=.33, p<.01), emotional value (r=.26, p<.01) and functional value (r=.23, p<.01). Social value correlates positively with emotional value (r=.47, p<.01) and functional value (r=.31, p<.01) emotional value on the other hand, correlates positively only with functional value (r=.43, p<.01). Health value correlates negatively with safety value (r=.23, p<.01).

Statistical analysis, this time using t-test shows there was no age difference (young versus old) in the GSM consumption values of respondents on each of the 6 factors as indicated below: Monetary t(775) = .76, p>.05, for social t(755) = -1.24, p>.05, Emotional t(760)=-.39, p>.05, health t(747)=-.81, p>.05, Functional t(755)=-1.27, p>.05 and Safety t(758)= -1.37, p>.05. (See table 2). Regression of the 6 factors against the whole scale indicated an F value of 6.13 (p<.05), which explained less than 10% of the variance in overall perceived value (R square .042). From the standardized beta coefficient, the following patterns emerged: (i) functional value has the strongest effect, B=-.124, t-value=-3.02, p<.05. (ii) health value (B=-.08, t-value=-2.00, p<.05). However, monetary, social, emotional, and safety values have no significant contribution on the overall perceived values (see table 3).

**Discussion**

The primary focus of this study was to develop and validate a scale to measure the consumption value of mobile phone users using Nigerian population. Results from the analysis indicated that the scale was both reliable and valid to measure GSM consumption values. The scale as well yielded and valid to measure GSM consumption values. The scale as well yielded 6 factors with eigenvalues of above 1.0 which gives credence to the suitability of the scale in measuring consumption values of mobile phone (Mynard and Josep, 2000; Balogun and Olapegba, 2006). Furthermore, the analysis also revealed that the scale did not a unidimensional instrument measuring consumption values; rather, it has 6 factors as components of consumption values. These values are:
monetary, social, emotional, health, functional and safety values. The factor loadings showed that monetary value was the most heavily loaded, thereby accounting for the largest percentage of variance in the result, while the other five factors accounted for less variance.

The factors were also found to significantly correlate with one another. Specifically, monetary value correlates positively with social value, emotional value and functional value. Social value on the other hand correlates positively with emotional value and functional value, emotional value correlate positively with functional value while health value correlates negatively with safety value. Also, results showed that there were no significant age differences in the overall value consumption on one hand and on each of the factors on the other hand. In other words, both young and old people have similar degree of value for the usage of mobile telephone. This may be due in part to the fact that the mobile telephony system is a relatively new introduction in the Nigerian communication system; other studies may later look at the age implication after the system would have become a relatively permanent feature in the country.

An attempt to evaluate the percentage contribution of each of the factors to the overall consumption value revealed that the overall contribution was less than ten percent meaning that other variables not accounted for could also influence consumption value. However, the individual percentage contribution showed that functional value had the strongest significant effect. The implication of this could be that Nigerians are very much concerned about the practical or technical benefits that they can obtain using mobile phones. This also may explain why despite the high cost of maintaining a GSM line, Nigerians still patronize service companies. This finding may lend credence to the assertion of Ndukwe (2003) that Nigeria has one of the highest cell phone impact average revenue per user and as emerged as the fastest growing telecommunication market on the continent of Africa.

The finding of Elegbeleye (2005) is also a corroboration of the functional utility of mobile phone to Nigerians, he found that the prevalent use of GSM has enhanced interpersonal relationship among Nigerians, this means that the functional value of Nigerians are high and they will pay for what they consider fulfilling.

Health value also had a significant contributory effect and its significance may not be unconnected to the current sustained governmental and non-governmental campaigns on HIV/AIDS coupled with the unsubstantiated reports and assumptions on the impact of radiation from mobile phones on the users. Thus, it becomes important for the users of mobile phone to be made aware of possible negative effect of high doses of radioactive emission if any. Manufacturers of mobile phones could also invest more in research to ascertain the health risks that may be associated with usage of mobile phone and how the risks can be minimized. Government on the other hand should look into the possibility of legislating against the importation of phones which do not meet the minimal level of radioactive emissions.

**Conclusion**

This study has led to the development and actual validation of a scale to measure the consumption values of mobile phone users in Nigeria which can also be adapted for use in other country if culturally validated to suit the setting. It has also shown the direction of the values Nigerians have regarding their mobile phones and that there is no age difference in consumption values of mobile phone users in Nigeria. It is suggested that this work be seen as an initial step in the study of consumption value in Nigeria, thus further research can be carried out to confirm the findings and also to look at some sociodemographic variables that can influence consumption values of mobile phone users.
References


Table 1

Varimax-Rotated Factor Loadings (Component Matrix) for the GSM-CVS

<table>
<thead>
<tr>
<th>Items</th>
<th>Monetary</th>
<th>Social</th>
<th>Emotional</th>
<th>Health</th>
<th>Functional</th>
<th>Safety</th>
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Eigen Values: 6.85, 3.06, 2.72, 1.94, 1.61, 1.25

% of Variance: 23.62, 10.53, 9.38, 6.67, 5.57, 4.31

% Cumulative: 23.62, 34.16, 43.53, 50.21, 55.77, 60.08
### Table 2

**t-test of independent means for all respondents on the 6 factors.**

<table>
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<tr>
<th>Value</th>
<th>Age group</th>
<th>N</th>
<th>Mean 1</th>
<th>Mean 2</th>
<th>S.D. 1</th>
<th>S.D. 2</th>
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<td>17.41</td>
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<td>15.67</td>
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### Table 3

**Summary table of multiple regression analysis showing the main and joint contributions of the 6 factors on the overall cvs measure**

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<th>Value</th>
<th>Beta coefficient</th>
<th>t</th>
<th>P</th>
<th>R 2</th>
<th>R adj.R2</th>
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Salary and Wages and Employee Motivation in Nigeria Service Industry

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Abstract
The thrust of this paper is on salaries and wages and motivation of employee’s in the service industry in Nigeria. The issue of salaries and wages in Nigeria is not a new phenomenon and has attracted wider interest among the employee’s and employers of labour as well. Six hypotheses were tested empirically using data collected through questionnaire administration to 200 respondents. The result of the simple percentage for the first two hypotheses indicates that inflation is on a high side despite salary increase and the productivity level is minimal. The result of the statistical analysis demonstrates that employee’s are unable to perform their social, economic and political roles. However, the paper recommends that there should be a periodic review of salary in Nigeria.

Keywords Salary, Wages, Motivation, Employee, Service Industry, Nigeria.
1.0 Introduction

The issue of salaries and wages cannot be over-emphasized in the contract of employment which is the most important factor that binds together both the employer and the employee. Salaries and wages is the singular element that is crucial in motivating employees to achieve a set-up goal.

So, in any community or country, wages are part of the major factors in the economic and social life of any society. In well developed societies the wages of manual workers total 40 per cent or more of the whole national income. Wage earners form a high percentage of the labour force. Workers and their families depend almost on wages to provide themselves with the necessities of life such as food, clothing, housing and all other basic things of life.

In the developing world or economy today, the persistent strikes or labour unrest is mostly caused by salaries and wages, which do not commensurate with the effort put in by the workers to do their work. The basic problems of wages are the same in every country of the world, but the ways by which they are solved and the method of regulation differs. In some countries wages are often fixed by the employers and workers at individual undertakings, in some cases they are regulated by collective agreements that apply to the whole industries. In countries with comprehensively planned economy the total amount available for wages is fixed centrally in accordance with the national economic programme.

The issue of salaries and wages is of interests to both the workers, employers and state who are the major industrial relations actors, of which they may all have a common interest in increasing the total quality of goods and services produced, from which wages, profits and revenues are obtained but conflicts often arise as to how the proceeds from the goods and services would be shared. Where trade unions are well and highly organized, bargaining over wages with the employers is often very keen.

In order to reduce industrial warfare or conflict to a minimum and in settling their differences by negotiation conciliation, or in the last resort, by arbitration. The more the level of understanding between the workers and the leaders, and also employers and state about wage problem the greater the maintenance of industrial peace.

2.0 Historical Background and Literature Review

Historical Antecedent

The issue of salaries and wages in Nigeria is not what come into being overnight. Lot of struggles has taken place for a major reformation and review of salaries of employees in Nigeria.

The salary review has been undertaken by both the past administration and the present one. In order to have a standardized salary scale structure, boards and commission has been set-up through an act of parliament and military decree.

Kester (2006) emphasizes on wage review and commission as there are lot of commissions that were set-up like Morgan commission of 1964 which concluded that there is machinery for reviewing wages on a continuing basis and that they can not conclude because of the close inter-relationship between wages and other conditions of employment.

The Adebo commission came into being because of the failure of Morgan commission because the employers in the private-sector had each a collective bargaining machinery and mostly revised their wages and salaries since 1964 while the public sector had no such machinery of negotiation. As a result of this, wages and salaries had been stagnant since 1964.

The interim Report of Adebo commission or 1970 was accepted by the Government and the Government issued a statement that employers who had not reviewed their wages and salaries since
1964 to the tune of 1/7d, (16K) per day for daily paid workers and E2i=400) per month for the monthly paid upto a minimum of E500 (#1000) per annum should do so.

The industrial wages Boards was set up by decree No. 1 of 1973 which came into force on October 1, 1974 which gave the Federal Commissioner for labour the prerogative power to perform the function of regulating the wages and other conditions of employment, if he is of the view that wages and considered unreasonably merger or that no adequate machinery exists for the effective regulation of wages or other conditions of employment of those workers.

Another board that was created by decree is the National Wages Board. The power to establish this decree was vested in the Federal Commissioner for labour and the functions of the board include:

1) to examine the application to all unskilled workers of any agreed minimum wage rate in any specified area,
2) to examine from time to time the adequacy of minimum' wage rate for unskilled workers in the light of any recommendations received from the area of minimum wages committees,
3) to consider any matter referred to it by the commissioner with reference to the minimum wage rates of unskilled workers in any area for which an area minimum wages committee has been set up and
4) to report and make recommendations accordingly to the commissioner for labour.

Other commissions have been established which include Udoji commission Philip Aseidu commission during Shagari administration between 1979-1983.

The most recent development about salaries and wages are under the administration of late General Sanni Abacha where he approved of #2,500 minimum wages in the public sector and the last military regime under General Abdulsalami Abubakar who announced the minimum wage of #7,500 per month.

At the inception of Obasanjo administration in May 29, 1999, he inherited this #7,500 minimum wage and he renegotiated with the Nigerian Labour Congress (NLC) that there will be a yearly increment of 25% of the minimum wage which he has not fulfilled. Equally, the Late President Musa Yar’adua signed into law N18000 minimum wage for Nigerian workers.

Before salaries and wages can be accepted to be paid by the employers both in the private and public sector of the economy, there are many factors that determines the wages and these factors are mentioned below:-

1. Ability to pay: The employer or they must have a capacity to pay and this will be based on their profit level. The companies with huge profits are ready to pay more while the one that make loss tend to pay less.
2. Supply and demand for labour:- Wages will always be based on the demand for labour, when the demand is high for labour wages will definitely go up and when the supply for labour is on the increase, pay or wages will reduce.
3. Living wage: This is saying that the wages payable to workers should be able to cater for him and his immediate family reasonably but the argument of the employers is that this should not be the case as wages should be based on employee’s contribution.

Other factors that serve as wages determinant are:
1. Productivity
2. union bargaining power
3. The cost of living
4. The prevailing market rate
5. Job requirements
6. Psychological and sociological factors
7. Geographical location.

Wages are of different types and these are: money wages, real wages and labour costs.

- **Money wages:** These are payments in cash which the workers receive for their work.
- **Real wages:** This is the purchasing power of the money paid to the workers in terms of what they can purchase with the money.
- **Labour costs:** The money wages that the employer pays to his staff, together with any other payments he makes in employing workers are his labour costs and are part of his total costs of production.

Therefore, workers are not merely interested in their pay in money but in the goods and services they can buy with their wages. If there is an increase in money wages but the cost of food, clothing, housing and other necessities rises still more, real wages fall and the workers and their families are worse off which does not motivate toward achieving the set goals. The total value of the wage in money can be calculated by estimating the market value of the payments in kind and adding it to the payments in money.

Salaries are the money paid to the employees monthly whose employment is guaranteed with other benefits attached.

Robinson in his work, 'Civil Service pay in Africa', salaries are the reward for work and should be to enhance recruitment, retain and motivate the employees. Salary systems are adopted to establish objective criteria so that the payment and progression of individual civil servants is determined on the basis of regulations impersonally and fairly applied to all civil servants.

The salary structure and the differentials between various scales are important for three main reasons.

Firstly, they indicate different evaluation placed on the jobs in the different grades which reflects differences in the effort - input or job requirements of posts in different grades.

Secondly, they indicate the gains to be obtained from promotion and motivation.

Thirdly, they create the spread of pay and are therefore important in determining the extent of equality or inequality in the distribution of pay. The issue of salary includes increments and allowances.

Salaries are a form of financial reward that is being calculated either weekly, monthly, or annual basis or it is always associated with white-collar jobs or workers such as office personnel, executives, and professional employee’s. However, salary is a stable stream of income; salaried workers may be required to work beyond the normal hours of the job with additional financial compensation or reward (Ferrell, Hirt and Ferrell, 2008). Ferrell et al. (2008) argued that wages are financial rewards that are based on the number of hours put in by the employee or the corresponding level of output achieved. Salary is also a form of reward or compensation tied to performance that is being used by the organisation to enhance employee motivation as well as achieving organisational goal (Delaney and Huselid, 1996). In a related study, it is found out that a reward and compensation system is based on the expectancy theory, which suggested that employee’s are more likely to be gingered or motivated to a greater performance when they perceive that there is a strong linkage between their performance and the reward they get (Fey and Bjorkman, 2001; Guest, 2002; Mendonca, 2002).
Motivation:-

The perception of W.G. Cluck about motivation is that, it is a set of behaviours that makes a person to act in a specific, goal-directed way. Motivation could that inner state which energizes, channels, and sustains human behaviour to achieve a set up goals. The concept of motivation here is therefore associated with the financial motivation which would be linked up with socio-cultural, legal, political, economic factors that acts as motivational factors to the employees.

The usage of motivation for strategy implementation is that it is of paramount importance for organizational subunits and individuals to be committed towards achieving the set goals of the organization or the development of the economy. The range of option for getting people and organizational subunits to push hard for successful strategy implementation involves creatively using the standard reward - punishment mechanisms - salary praises, bonus, stock options, fringe benefits, promotions (or fear of demotions) assurance of not being "sidelined" and ignored, praise, recognition, constructive criticism, tension, peer pressure, more (or less) responsibility, increased (or decreased) job control and decision making autonomy, the promise of attractive locational assignments and the bonds of group acceptance. The major aim is to inspire employees to do their best and to be winners, giving them in the process a sense of ownership in the strategy and a commitment to make it work.

Mitchell connote motivation with four common characteristics which underlie the definition of motivation

- Motivation is typified as an individual phenomenon. Every person is unique and all the major theories of motivation allow for this uniqueness to be demonstrated in one way or the other.
- Motivation is described, usually, as intentional. Motivation is assumed to be under the workers control, and behaviours that are influenced by motivation, such as effort expended, as seen as choices of action.
- Motivation is multifaceted. The two factors of greatest importance are:
  1. what gets people motivated (arousal), and
  2. the force of an individual to engage in desired behaviour (direction or choice of behaviour).
- The purpose of motivational theories is to predict behaviour. Motivation is not the behaviour itself, and it is not performance. Motivation concerns action and the internal and external forces which influences a persons choice of action.

Mitchell based his conclusion on these characteristics by defining motivation as "the degree to which an individual wants and chooses to engage in certain specified behaviours".

The concept that underlies motivation in that there is a driving force within an individuals that prompts them to make an attempt to achieve some goal in order to fulfill some need or expectation.

The behaviour of people is determined by things that serve as motivators to them.

Their performance is a product of both ability level and motivation

Performance = function (ability x motivation)

Therefore, for an improvement to occur at work in the organization, the manager should and suppose to know the level of motivation of its members. The manager must also encourage staff to direct their efforts (their driving force) towards the accomplishment of stated objectives and goals of the organization as well as that of individual employees.

Mullin in his contribution to motivation, made a three-fold classification for the motivation to work.

Economic rewards:- This includes such things as pay, fringe benefits, pension rights, material goods and security. This is an instrumental orientation to work and concerned with other things.

Intrinsic satisfaction:- This is come by, from the nature of the work itself in the job, and achievement, personal growth and development. This is a personal orientation to work and concerned with oneself.
Social relationships: This is the third classification and deals with such things as friendships, group working, and the desire for affiliation, status and dependency. This is a relational orientation to work and concerned with 'other people'.

2.0 Problem Specification:

The problem of low wages and salaries in a developing economy cannot be overlooked which is causing de-motivation both in the public and private sector of such an economy. This issue of wages and salaries as a motivational factor is associated with other factors like social, economic, political factors, etc such problems include:

Salary increase within the past 20 years starting from Udoji (1975) which identifies the various reasons for salary increase. The salary increase during this period is as a result of three factors namely inflation, low productivity and social influence.

Thus, salary increase within this period appears to have giving little or no reasonable solution in solving the problem of inflation, low productivity and social influence.

Closely related to this is the problem associated with work status. An average worker expects that his status be commensurate with the salary received. Thus where such is not obtainable leads to de-motivation.

Another close problem is that of the political needs of the worker. Specific interests in meeting the political needs had equally given credence to why salary may or may not improve their needs. Political needs goes beyond its ordinary level. It has its implication on the family setting. Thus, a family head whose salary is considered to be inadequate may not consider himself de-motivated, rather, he could take solace in his leadership role in the family.

Closely related to this is the fulfillment for academics in which, a professor whose self-actualization as suggested by A.H. Maslow (1954 & 1970) is met on the job despite his relatively and comparably low level of income.

Another problem is that of technological know how. How readily available is the factory machines to the workers to boost their work morale towards the attainment of the goal setting. Thus salary has not be in line with the quality produced.

The relevance of the problem to economic development is to find ways of reducing the level of inflation, improving productivity and social influence by increasing standard of living of the citizens.

It is to make people have a sense of belongingness politically so that they can contribute -their own quotas toward the development of the economy.

MODEL: Salaries and Wages and Motivation with resultant effects on employees.
Drawing on the above empirical and historical antecedents of salaries and wages in Nigeria, we hypothesize:

Hypothesis 1: Inflation has not been reduced through salary increase.
Hypothesis 2: Productivity level is not increasing as a result of salary increase.
Hypothesis 3: The social status of workers is not achievable as a result of poor salary and wages.
Hypothesis 4: The political ego of workers has not been boosted as a result of poor salary.
Hypothesis 5: The leadership role of workers has not been truncated by inadequate salaries.
Hypothesis 6: Self-actualisation is not realizable because of poor pay package.

3.0 Methodology

One of the service industries was used to get information through the administration of questionnaire. The questionnaire takes the Likert 5 rating scale form from Strongly Agree to Strongly Disagree. 15 questions were asked in all and all the questions were subdivided into 7 headings, namely: inflation, production, social role, political role, leadership role, self-actualization, working environment, and technology. 200 questionnaires were administered while 176 out of the 200 questionnaires were returned representing 88 percent of the respondents.

The method of analysis takes two forms, that is, simple percentage for the first two subheadings - inflation and production while remaining ones will be analyzed through Chi (x²) Square analysis.

4.0 Analysis

The model used in testing the hypothesis and analysing is sample percentage and chi-square (X²) method.

\[ x^2 = \sum \frac{(O-E)^2}{E} \]

Where \( O = \) Observed frequencies
\( E = \) Expected frequencies

Which is the total summation of the square of observed frequencies less the expected frequencies divided by the expected frequencies?

To calculate the table value, there is the need to know the degree of freedom which is obtained through the following:

\[ (R-1)(C-1) \]

Where \( R = \) Row
\( C = \) Column at 5% significant level.
Model Estimation

Questions 1 & 2 are analyzed using simple percentage estimation, also to test the first two hypotheses and the hypothesis that is null shall be accepted if 50% of the respondent disagrees with the statement or otherwise the alternative hypothesis. The other four hypotheses is tested through chi-square $x^2$.

Hypothesis one:
From question one, 4 or 2.3 percent of the respondent strongly agree, 16 or 9.1 per cent agree, 12 or 6.8 per cent were undecided, 80 or 45.5 per cent disagree while 64 or 36.3 per cent strongly disagree with the statement which shows that 144 (80 + 64) or 81.8 per cent of the respondents are saying that inflation has not been reduced through salary increase thereby reducing the purchasing power of the workers. The null hypothesis accepted.

Hypothesis two:
Equally from question two, 64 or 36.4 per cent of the respondents strongly agree with the statement, 68 or 38.6 per cent agrees, 24 or 13.6 per cent were undecided, while 20 or 11.4 per cent disagrees with the statement respectively. The alternative hypothesis is accepted.

Hypothesis three:
The calculated $x^2$ value is 47.64 while table value at 4 degree level of freedom at 5% significant level is 9.488 which show that the calculated $x^2$ is greater than the table value. This means that the social status has not been achieved as a result of poor salary and wages.

Hypothesis four:
The calculated $x^2$ value is 84.99 which is greater than the table value which is 15.507 at 8 to 1 degrees freedom level at 5% significant level. This is to say that the political ego of workers has not been boosted as a result of poor salary and wages.

Hypothesis five:
The calculated $x^2$ value for hypothesis 5 is 40.17 which is higher than the tabulated $x^2$ value of 15.507 at 8 degree freedom level at 5% significant level. The conclusion is that the leadership role of workers has been truncated by inadequate salaries.

Hypothesis six:
The calculated $x^2$ value for hypothesis 6 is 71.6 which is above the tabulated $x^2$ value of 15.507 at 8 degree freedom level at 5% significant level. This indicates that self-actualization is not realizable because of poor pay package.

5.0 Findings
1. The inflationary rate has not reduced despite the fact that salaries and wages have been increased several times rather it is causing more inflation in the economy thereby reducing the purchasing power of the people.
2. The level of productivity is still increasing as a result of salary increase and this level of increase in productivity level is minimal and has no significant effect on the life of the people.
3. The low level of social status that is achieved by the people or employees is a resultant effect of poor salary and wages that has affected them to perform both their social and economic role as at when due.
4. The political ego of workers has not been boosted because poor salary and wages they are receiving has not allowed them to fulfill their political obligations which lead to selling their conscience politically and their votes.

5. It is equally found out that most workers are not able to discharge their leadership role at home because of the inadequacy of salary and wages.

6. Most at times, self-actualization of the workers are not achievable because of poor pay package in the sense that most of them are not able to develop themselves career-wise.

6.0 Conclusion and Recommendation

The fact is that, salary and wages is a motivational factor that will boost the morale of the people, status, and leadership role thereby leading to increase in the productivity level and influencing the economic development of the nation.

It is hereby recommended that the salary and wages being earned by the people should be reviewed in the Nigerian economy to be in consonant with what is obtainable in the developed world. More money should be injected into the economy also so that the industries both in the private and public sector of the economy will be able to expand and pay their workers accordingly.
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