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**Managing Editor's Introduction: Volume 5, No. 3. September 2005**

This edition deals with education and human development issues in Nigeria, Botswana, and Eritria. Prince Ololube investigated student learning difficulties and co-teaching stimulation in creating effective secondary education in Nigeria. In a survey of 300 participants and using multiple statistical procedures, Ololube's study revealed that professionally qualified teachers tend to motivate students and co-teachers more effectively than their academically qualified counterparts.

Dr. Nana Boaduo realized that most research graduate students in the University of Botswana did not possess enough knowledge to process tons and tons of information available to them after an investigation in order to prepare scientific research reports. Dr. Boaduo therefore, in consultation with his graduate students, prepared a framework for methodological choice and application in research studies. Graduate students and seasoned researchers will find the paper useful.

Longe, Chete and Chete propose the creation of partnerships and learning alliances between industry and educational enterprises as one way to find solutions to many obstacles that the IT industry faces. Problems like limited budget, lengthy curriculum review cycles, rapid obsolescence of software and hardware, etc., could be resolved through student internships, educators consulting, industry/academia exchange programs and research grants and contracts.

The FGN/EEC adult education program in Kwara state of Nigeria was assessed by Sydney Osuji and Bolanle Simeo-Fayomi. Using the Adult Education Achievement Questionnaire, data was collected from all 260 participants of the program. Descriptive statistical techniques of frequency counts and percentages were utilized to obtain findings that indicated the program accorded with educational needs and interests of the clientele.

Leo Ogbonyomi investigated the media of information dissemination in the rural areas of selected local governments in three Nigerian States of Kano, Kaduna and Katsina. He found that majority of the people sampled needed to develop and enhance their daily activities through adequate information dissemination routes such as public libraries, transistor radio sets, and other media centers.

The use of advance organizers as an effective learning strategy in teaching Yoruba concepts was discussed by Odejobi and Adesina of Obafemi Awolowo University, Ile-Ife, Nigeria. 231 junior school certificate Yoruba students participated in the study. After analyzing the pretest and posttest results of the experimental and control groups, there was a significant

difference indicating that advance organizer learning facilitated the learning of Yoruba concepts.

Some indigenous science practices with the attendant implication for science education among some Nigerian women engaged the research attention of Dr. Kehinde Alebiosu. She studied 320 skilled and unskilled women and 85 high school science teachers drawn from different parts of Ogun State of Nigeria. Many of the studied indigenous practices were found to have modern day scientific undertones and should therefore be further studied and blended with school science concepts.

Olubadewo and Ogwu studied the influence of parents' socio-economic status on students' academic achievement and came to the conclusion that parents' SES influenced academic performance in the study area. The implication of their finding for the planning of universal basic education program in Nigeria is discussed.

Dr. Ravinder Rena discussed the problems associated with financing education in Eritrea. The author observed that Eritrea is only politically fourteen years old and as such she is still faced with numerous educational and socio-economic problems. The proposes many possible solution to these problems.

David A. Adewuyi, Ph.D.  
Managing Editor.

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## **Academia and the Information Technology Industry: An X-Ray of Potentials for Increased Partnership**

**Olumide Longe, Fidelis Chete, Francis, O. Chete**

### **Abstract**

It has long been considered the responsibility of our educational system to provide graduates with the background and skills necessary to be successful in their chosen fields of endeavor. For this reason, when employers recruit graduates, they look for graduates from institutions with curriculums that utilizes new technology and emphasise current practices in the field. As a result of the rapidity with which technological changes are taking place in the IT industry, IT educators are finding many obstacles to fulfilling this responsibility. These obstacles include limited budgets, lengthy curriculum review cycles, obsolescence of hardware, software, proliferation of new course topics, obsolescence of educator's skills and of course difficulty of recruiting qualified teaching staff. This paper proposes solutions to these problems through the creation of partnerships and learning alliances between industry and education. Several possible partnerships are described. These include student internships, educators internships/consulting, industry/academia exchange program, staff training and updating, hardware/software resource sharing, mentoring, research grants and contracts.

### **1.0 Introduction**

That an excellent collaboration between industry and academia is absolutely indispensable for a rapid advancement of the principles and practice of Information technology and a panacea for the sharp negative differences between employer's expectation and the performance of IT practitioners is not an understatement. Empirical evidence reveals that fewer than 20 percent of computing professionals in the US's financial services industry have any formal academic background or training in computing systems. Over the past decade, project managers ignored fresh computing-discipline graduates, instead hiring crash-course training-center or liberal-arts college graduates with a couple of years experience in the industry. These managers held the view that recent computing graduates needed to go through long company-sponsored training programs and apprenticeships before they could perform useful work (Venkat, 2004)

The situation is not so different in our nation. Mushroom computer training centers, awarding diplomas and certificates in computing and computing operations spring up daily

to expand existing computing programs or start new ones. These programs came in many forms, partly to address the allegedly increased demand for computing professionals. The academia and computing professional association, however, failed in its educational mission as neither has so much express concern about the enormous impact and attendant problems caused by mushrooming computing academic programs. The fallout from this trend included a curriculum irrelevant to overall industry needs and a lack of pragmatic and enforceable curriculum standards, quality control, resources, and an identity for the discipline itself.

### **Technological Changes and Its Effects**

Advancements in computer technology and IT in particular in recent years have brought new challenges and opportunities to industry and academia. Since change is one of the few constants in technology, the industry/business/academic relationship must be revisited often (Heiat et al, 1995). It has long been considered the responsibility of our educational system to provide graduates with the background and skills necessary to be successful in their chosen fields of employment. For that reason, when employers do recruit graduates, they look to institutions with a curriculum that utilizes new technology and emphasizes current practices. Due to rapidity with which technological changes are taking place, IT educators are finding many obstacles to fulfilling this responsibility.

According to Doris (2003), historically, the degree requirements that were in effect at the time a student entered college are the same requirements that must be met four, five, or even more years later when the student is ready to graduate. Although this policy was initially designed to protect students who might never graduate due to ever changing requirements, it also means that students who are majoring in a technology-oriented discipline may be graduating with skills that are obsolete by the time they complete the stated requirements for graduation. It is therefore wise to suggest that the viability and usefulness of IT professionals, especially graduates from various institutions will depend greatly on the symbiotic relationship between industry and academia. Therefore, possible areas for partnership must be identified as platforms on which industry and academia can collaborate to the benefit of practitioners as well as those involved in the consumption of IT services and products.

## **2.0 Issues in Collaboration**

The origin of research is likely to shape the relationship between a university and an industry partner. Where research arises out of identifying a problem and the need to develop a solution, it is likely to lead to contract research or consultancy. In this case, a company may approach a university or researcher with a problem. It may also be researcher-initiated, where a researcher knows of a problem faced by industry and suggests ways to tackle it (Jayne, 2003). Consultancies usually involve the application of existing knowledge or expertise. They are usually charged at commercial rates, and do not involve the creation of intellectual property in which the university would have an interest. Contract research, on the other hand, usually involves the creation of new knowledge. Therefore, a university would be likely to acquire an interest in any emerging intellectual property and may also bring background intellectual property to the project.

Cripps et al (1999) talking about some critical issues in collaboration highlighted the following issues as important in a collaborative arrangement.

- focus of companies on the completion of work and the outcomes of research;
- level of commitment of senior researchers in providing leadership;
- relationship between researchers and the institution's research/legal office;
- importance of the parties having shared understanding of the objectives of the research;
- time required for relationships to develop and the relative success of longer term relationships; and
- university research/legal offices not always being seen as helpful during the contract negotiation phase.

According to another report, researchers in engineering, biosciences and physical sciences undertake more contract research than others, so that researchers in other fields may have difficulty winning contract research work. In addition a "faculty culture" in which academics question the value of industry-based research could pose a barrier to collaboration (Turpin et al, 1999).

## **2.1 Intellectual Property Concerns**

Interviews with both university commercialisation officers and industry representatives revealed that intellectual property was a key concern. One interviewee stated that IP was "the most complex issue, and has the potential to slow things down. Universities can be overly

cautious, after some bad experiences, about being 'ripped off', and can be over zealous in negotiations." Some universities wanted joint ownership of IP even when the company paid for the research completely. Problems of disclosure were another concern. Some universities were more receptive to commercialisation and more flexible, in terms of dealing with the ownership and exploitation of IP, than others Cripps et al (1999). A number of companies believed universities frequently had unrealistic ideas about the value of university IP, and lacked understanding of the industry in which their firm operated

There is usually an opposing interests between companies that needed to maintain confidentiality, and researchers who wished to publish research findings. Academics tend to want to patent concepts early, whereas industry tends to patent late to create a longer period of protection. One company representative summed this up: Academics are driven by the need to publish/write papers. Sometimes, they make the report to the commercial partner and then publish the results very shortly afterwards - before you've had the chance to work on the results. This can strain relations.

## **2.2 Related Works**

Cripps *et al* (1999) also highlighted the existence of incentives for researchers to undertake collaborative work with industry and the availability of services to support these endeavours saying too much control and excessive internal levies on fees earned can be disincentives to researchers to build external commercial relationships. Incentives could include reductions in teaching and research loads and policies about outside earnings. The report also suggested universities recognise that consultancy could lead to more significant contract research, and adjust policies accordingly.

Industry partners generally found contract negotiations with institution's long, multi-layered and complex. They recommended development of standard contracts and manuals outlining procedures for routine contract research services. They also highlighted the absence from most universities of a central referral point with current knowledge about the competencies of its researchers and recommended the establishment of databases concerning university competencies and key customers

## **3.0 Possible Areas for Research Collaboration**

Venkaet (2004) opined that Today's computing profession offers four broad employment categories:

- design and manufacture of computer hardware;
- development of system software, embedded systems, and general-purpose software such as database servers, toolkits, and application frameworks;
- applications development with minimal programming, using configurable and interoperable third-party commercial off-the-shelf components; and
- application implementation using packaged software such as enterprise resource planning systems.

Only employers for the first two categories seem to attach significance to formal academic degrees in the computing discipline. The third category employs more people than the others. The fourth category demands both computing technical skills and a deeper understanding of each application domain's business processes. In addition to programming expertise, employers expect future computing-discipline graduates to master many other skills, including systems engineering and end-to-end system architecture and its elements: security, performance, scalability, availability, reliability, supportability, manageability, and maintainability.

Programming services will emerge as a commodity item, with most programming outsourced to the lowest bidder for economic reasons. The market's current development toolkits and frameworks already sport high-level abstractions that even some smart high school students can use to develop simple yet useful applications. Thus, an industry renaissance in favor of developing functionally extensible applications has led developers to design applications based on an architectural framework with built-in extensibility points. These designs allow the implementation of new functionality without writing any code. Functionally extensible systems lie somewhere between approaches like parameterized and aspect-oriented programming and enterprise resource planning systems. This trend will further lessen the need for people with no skills beyond programming.

We present below, 7 partnership opportunities adapted from Doris (2003). We x-ray these items in the light of current opportunities for collaboration between academia and industry as related to the peculiarities of Nigerian higher institutions. T

### **3.1 Curriculum Advisory Committees**

Earlier we mentioned the need for curriculums to be updated. For example, the present curriculum for Computer Science programs in Nigerian polytechnics was last reviewed in 1991. In a field where changes are the other of the day, this is quite alarming. Of what relevance is a curriculum that concentrated on programming languages like Cobol,



FORTRAN, and BASIC etc to a generation of object oriented programmers? The industry, professional bodies and other employers of labour must be brought into the issue of curriculum development. Which software packages, programming languages, systems methodologies should be taught? What hardware should be used? Each institution must determine the needs of the community it serves. That is, what are the needs of the major recruiters of her graduates? According to Doris (2003). Rather than work in a vacuum, The Nigerian Universities Commission (NUC), the National Board for Technical Education (NBTE) and the Nigerian Colleges of Education Commission should determine what computer hardware, software, and applications are being used in the organisations that hire graduates from our institutions.

An excellent way to accomplish this is through the formation of an advisory committee which is made up of alumni, MIS Managers, and recruiters. The individuals selected should be in a position to know the needs of their organizations, as well as having a feel for the direction that the computer industry is moving. As the IT industry progresses, there will be demand for high quality output from employable graduates who can understand and solve real problems and initiate practical solutions. The responsibility for supplying this expertise rests primarily with academia, while industry provides an active advisory and support role.

### **3.2 Student Internships/Industrial Attachments**

The term internship is used to describe all programs where students' work part-time in a position related to their chosen career while continuing to make progress toward their degree/diploma/certificate objective. Student internships are not new, but they are often not maximized by the academia or the industry (Wagner, 1995). Benefits to organizations that open their doors to students on internship include the following:

- (1) It provides a ready source of "skilled" applicants
- (2) It is an opportunity to test employees without a long-term commitment
- (3) It is a relatively inexpensive source of labor,

According to Lum (1994) employers in the U.S.A are hiring four out of every five of their college interns full-time after graduation. The benefits are not limited to employers.

Internships also provide benefits to the university. These are:

- (1) An internship provides a real world test of the academic program
- (2) A supplement to classroom learning
- (3) Access by the student to expensive resources
- (4) A ready market for the product (graduate) of the university, and
- (5) A motivated student because classroom learning becomes more relevant.

### **3.3 Opportunity to experiment with real life projects**

To achieve its set objectives, teaching has to be systematically administered such that all participants involved in the teaching and learning process can fully benefit. Teaching methods therefore are the various techniques employed by teachers in order to pass knowledge across to students under tutelage. One teaching method that best aids learning is the project method. Here a plan or idea is carried out. It is a natural life-like learning activity involving the investigation and solving of problems by an individual or a group. The period needed for project method of teaching varies from few weeks to a whole term or even longer depending on the type and number of projects. This is easily accomplished using the 4-months, 6-months or one-year industrial attachment period as applicable to colleges of education (teaching practice), polytechnics, universities and other training institutions in Nigeria (Oriahi, 2004).

It is important to note that every project should be scrutinized for suitable qualities and characteristics before being assigned to students. This is the responsibility of supervisors and foremen in the industrial setting. Apart from the fact that the project should provide, a valuable learning exercise, it should have bearing on the, course of lesson being taught in the class. Industrial attachments, teaching practice, hospital clinical, farm settlement apprenticeship etc are the best forms of the project method. This environment naturally arouses spontaneous interest and curiosity, they bring real activity and life to the work and the students can see the progress they are making. Students also learn to depend upon themselves, develop a sense of responsibility and initiative; learn to persevere, to respect the opinion of others and to cooperate with one another. Eventually, it leads to discovery and exploration. As far as IT is concerned, it expose the students to IT applications currently employed in industrial and organizational processes.

### **3.4 Exchange Program between Academia and the Industry.**

Few opportunities exist for academics to spend their sabbatical working in the industry to solve real problems. This has led to the problems of keeping the Nigerian higher education sector abreast of current trends so as to teach students how to use the latest IT applications. Industry personnel should also be able to come on leave to impart knowledge on students and staff in the institutions. By so doing, the academic system will attract seasoned industry professionals who have gained practical insight by working on the field. Regardless of the duration of the internship, the employer and university both enjoy benefits from the

program. The employer gains from the expertise of the faculty member, while the faculty member gains insight into the use and application of some of the latest computer technology.

### **3.5 Networking for Collaboration**

Many companies have donated computer equipment that they no longer need to academic institutions. Although this is still a possibility, there is a high probability that any equipment being offered as a donation is already obsolete and will not be of any major benefit to an academic institution either. Another way in which access to needed hardware/software can be provided to institutions by industries is via networks. Since most companies are now using networks to communicate with different entities within their organization, the MIS Department in institutions can be established as a node on company's network.

Security of industrial and organization information and data is a concern here, hence the necessity to limit access by the institutions to certain hours of the day so that the ongoing operation of the company is not impacted. In addition, care must be taken by the company to assure that access is controlled and limited to only those areas previously agreed upon. With proper controls, valuable resources can be shared with an academic institution with virtually no extra cost to the company.

### **3.6 Mentoring**

Mentoring programs usually focus on attracting a diversity of students to technical majors such as engineering, computer science, information systems and the sciences. Either a representative from industry, a faculty member or graduate student will team up with and assist female and minority students in particular who may have difficulty with prerequisite subjects such as mathematics. Successful mentoring programs lead to the selection of technical majors by these students and facilitate their successful completion and eventual employment. The company that sponsors the mentor benefits by increasing the pool of potential employees and the individual student benefits by enhancing their employability by improving their education.

### **3.7 Research Grants and Contracts**

Many corporations see funding academic research and development efforts in the area of technology and science as a valuable way to invest in the future. Donations may be in the form of money, computer hardware/software, or even employee time. Relationships with

industry have eased the financial burden of many universities which in the past were not able to conduct intense research due to the limited availability of government funding. Institutions are building opportunities for faculty and staffs that will provide the knowledge needed to help students quickly acclimate into the work force with computer literacy, knowledge about software applications, programming and operating systems. The corporations benefit by gaining access to the best students for potential hire and to innovations that lead to new products. Thus, collaboration between faculty, principal investigators, national laboratories, non-profit research centers and industry researchers can be mutually beneficial.

#### **4.0 Conclusion**

Research collaboration enables students to work on "real life" projects, often at the leading edge of their field. The experiences working with industry can help provide them with a range of generic skills and qualities, which will assist in their future employment. The strategy here is to develop an entrepreneurial culture and facilitate the application and commercialisation of intellectual property created in our institutions. Successful collaborations between industry and academia are beneficial to all involved. For the researcher, there is an opportunity to engage in real world problems and diversify both the research and funding of research.

Contracting out research enables companies to reduce their infrastructure costs and concentrate on their core business. In some cases, the specialised expertise required to solve a problem may not exist in the company, and analytical equipment not readily available. Higher institutions are a source of both. The above suggestions are only some of the ways in which organisations and academia can partner to overcome some of their problems and achieve their objectives. It should be noted that the benefits that can be attained far exceed any costs that may be involved in the implementation of these suggestions.

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**Olumide Longe,**

Department of Statistics & Computer Science  
The Federal Polytechnic, Auchi, Nigeria.

[olubabs@excite.com](mailto:olubabs@excite.com)

**Fidelis Chete**

Department of Computer Science  
University of Benin , Benin City, Nigeria

[odichet@yahoo.com](mailto:odichet@yahoo.com)

**Francis, O. Chete**

Department of Statistics & Computer Science  
The Federal Polytechnic, Auchi, Nigeria.

[olubabs@excite.com](mailto:olubabs@excite.com)

**An Assessment Of The Federal Government Of Nigeria/ European Economic Community (Fgn/Eec) Sponsored Adult Literacy Programme In Kwara State Of Nigeria: 1991-1995**

**Dr Sydney Nwanakponna Osuji  
Mrs Bolanle Clara Simeon-Fayomi**

**Abstract**

This study assessed the FGN/EEC Adult Education programme in Kwara State, objectives of which included examining the successes, constraints and factors that facilitated achievements. All 260 staff of the programme constituted the subjects. Data were collected with an instrument termed "Adult Education Achievement Questionnaire" (AEAQ), and from official records on the programme. The data were analysed using the descriptive statistical techniques of frequency counts and percentages. The findings include attainment of literacy by the participants; the identified constraints of effective learners' participation, availability of teaching materials, adequate funding and committed well trained personnel. In conclusion, the programme accorded with the educational needs and interest of the adults resulting in successful achievements.

**Statement of the Problem**

The problem of illiteracy in Nigeria has been very intractable (Omolewa, 1988), despite different literacy campaigns launched in the country since the 1940s. Although the national literacy rate has recently risen to 65.4% (UNDP, 2003), yet that of the Northern part including the Kwara State is found to be lower than in the Southern part. This disparity was caused by the suspicion with which the Northern part, being predominantly Muslims, viewed the Christian missionary and the western education offerings. The menace of illiteracy could never be over emphasized hence every effort should be geared towards its eradication. In the National Policy on education (NPE, 1981) it is declared among other things that "*an intensive nation-wide mass literacy will be launched as a matter of priority*". According to Faure et al (1972), when illiteracy is an aspect of underdevelopment, literacy training should form an integral part of any development undertaking.

The FGN/EEC Middle belt sponsored Programme was a rural development outfit, which started in February 1991. The overall aim of the Programme was the improvement of the standard of living and the quality of life of the people through interlinked components of Adult Education, Primary Health Care, Population Activities, small Scale Enterprises, and Basic Rural Infrastructure. The problem of this study was to assess specifically the literacy programme of the Adult Education Component.

**Major Research Questions**

1. Did the programme make any positive contributions to the literacy level of the beneficiaries?

2. Did the achievements relate to the objectives of the programme?
3. Did the identified constraints affect achievement of the objectives of the programmes?

### **Methodology**

Quantitative-statistical analyses: Descriptive Research Method. The data were collected through

### **Population**

All the 302 staff of the Adult Education Component in Kwara State constituted the subjects for the study. The total population was used because the number was thought manageable. Therefore there was no need for using a sample. The population included the Programme Coordinator, the Adult Education Coordinator, the Programme manager, the Project Manager, the Project Secretary, Adult Education Agencies' Coordinators, Area Officers, Adult/Mass Education Trainers, Adult Education and Non-Formal Education Trained Field Officers, as contained in the organogram.

### **Limitations of the Study**

As a result of the States and the Local Government Areas creation exercise with consequent boundary adjustments, the initial Concentration Area could not be used. Also as the overall aim of the whole package was the improvement of the standard of living and the quality of life of the people, this study could not ascertain the impact of the peoples' literacy skills on their standard of living.

### **The Findings**

1. The study made positive contributions to the literacy level of the clientele, that is, the literacy level of the participants was increased. For instance, the 246 (100%) respondents indicated that literacy was offered. On the basic literacy level achievement, 172 (69.9%) affirmed success while only 74 (30.1%) responded otherwise. Also, on evaluation of achievement 165 (67.1%) rated it as Good, 58 (23.6%) rated it as Average while the rest 23 (9.3%) rated it as Excellent. On the whole, all the respondents (100%) affirmed that the programme was successful in its literacy achievement.

2. The main objective of the study was the development of adult literacy among the people; hence it was attractive to the illiterate farmers and traders. The answer to research question 2 is that the achievement is highly related to the main objective of the programme, which is literacy attainment. The overall objective of the Middle Belt Programme was the improvement of the standard of living and the quality of life of the people. Specifically, the main aim of the adult education component was the development of adult literacy and adult education in general. The illiterate farmers and traders were attracted to the programme because they saw it as an opportunity to attain literacy which Bhola (1994) observes is a social process that brings respect and social status. Consequently, the programme was positively evaluated as having achieved increasing literacy level in order to improve the living standard of the people. Thus, the achievement was highly related to the objectives of the programme.
  
3. The identified constraints included Students' absenteeism and insufficient remuneration. As a matter of fact, absenteeism can never be ruled out in any adult education programme, especially literacy classes, because the clientele usually have emergency domestic problems that come their way. On insufficient remuneration, it is usual for any participant in any programme to complain of insufficient remuneration. Of course there is need for good remuneration. But the identified constraints did not affect achievement of the objectives of the programme. The factors of adequate funding, committed well trained personnel, availability of appropriate teaching aids and effective learners' participation worked in concert to counteract any negative effects of the identified constraints.

### **Conclusion**

1. Illiterate farmers, traders and employees conceive adult literacy programme as being attractive. Consequently, the programme accorded with the educational needs and interests of the clientele resulting in high achievement.
2. The factors of training and retraining of staff, adequate procurement of reading materials, adequate funding and availability of committed well trained personnel are very crucial for achievement of objectives in a literacy programme.

### **Recommendations for Study of Related Problems**

1. Another Study should be conducted on the post-literacy attainment of the people.
2. Similar studies should be done to cover other aspects of the Middle Belt Programme.

### **Revision of The Research Methodology**

The methodology should be revised by using the beneficiaries of the programme.



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**Dr Sydney Nwanakponna OSUJI And Mrs Bolanle Clara SIMEON-FAYOMI**

**Department of Continuing Education  
Obafemi Awolowo University  
Ile-Ife, Osun State  
NIGERIA**

**All correspondence on this paper should be directed to this E-mail:  
[synosuji@yahoo.com](mailto:synosuji@yahoo.com), [snosuji@oauife.edu.ng](mailto:snosuji@oauife.edu.ng)**

## **Benchmarking the Motivational Competencies of Academically Qualified Teachers and Professionally Qualified teachers in Nigerian Secondary Schools**

**Nwachukwu Prince Ololube**

### **Abstract**

Little attention has been paid to student learning difficulties and co-teachers stimulating themselves in creating effective secondary schooling in Nigeria. Also, her education industry has been recorded as one of the least in stimulating national development. Researchers have attributed this to the employment of non-professional teachers in the teaching and learning processes. Besides, we recognise that the intimidating work environment has been insinuated to suggest a sense of helplessness in school effectiveness and improvement in Nigeria. However, this current study, therefore, benchmarks the fundamental role played between academically qualified teachers with their counterparts who are professionally qualified teachers in motivating students and co-teachers to attain educational objectives. Multiple statistical procedures were employed—Mean Point Value, T-test of Significance, Cross Tabulation and ANOVA to obtain a stronger validity to the study (N-300). The survey revealed that professionally qualified teachers tend to motivate students and co-teachers effectively than teachers who are academically qualified do.

**Keywords:** Motivational competencies, Academically qualified teachers, Professionally qualified teachers, Students academic Achievement, Nigerian secondary schools.

### **Introduction**

The importance of being able to explain and predict students and co-teachers outcomes has led to a number of studies on teachers' motivational competencies (e.g., Marshall 1987; Mercer & Fisher 1998; Hardre & Reeves 2003; Niederhauser 1998) as a part of a larger effort to ensure school effectiveness and improvement (e.g., Scheerens & Creemers 1989; Creemers 1994b, 1994c; Scheerens 1994, 2000). However, most of such findings and conclusions resulting from research have often provided evidences from the West, not only in the UK, USA, Canada and Australia but other parts of the West such as Finland, Germany, France, Sweden and so on. Though it took a decade or more to manifest in the West according to Barber and White (1997). This body of research has now had a major impact on educational policies at national, local and school levels in the West. My search of the literature shows that little evidences exist for African secondary school in general and Nigeria in particular.

However, while carrying out their job assignments, teachers often find that there are negative outcomes (e.g., inability to motivate students and co-teachers) that instigate information search and where these derivations originate. According to the OECD (1989) the slow recruitment of qualified teachers, inability to recruit the right calibre of teachers and the lack of motivation for in-service training activities in most developing countries are some of the reasons for this unhealthy development. In Nigeria, teachers who are academically

qualified and those that are professionally qualified are engaged to carry out instructional process. By academically qualified teachers, I mean teachers who have academic training as a result of enrolment into an educational institution and obtain qualifications such as HND, B.Sc., B.A, M.A, M.Sc., and so on. While professionally qualified teachers, are teachers who get professional training that gives them professional knowledge, skills, techniques, aptitude as different from the general education. They hold for example B.Sc. Ed, B.A Ed, B. Ed, M. Ed, and so on. Therefore, this study has sought to benchmark the two categories of teachers found in Nigerian secondary schools, which will produce remedies that might be taken to prevent these unenthusiastic consequences of teachers' motivational ability.

Simply put, benchmarking means improving one's self by learning from others. Fitz-Enz (1993) view benchmarking as an organised method of collecting data that can be used to improve effectiveness. According to Wisniewski (2001), benchmarking is best thought of as a structured and focused approach to comparing with others how one provides services and the performance levels one has achieved. For him the purpose of such comparison is to enable one identifies where and how one can do better, by finding and implementing better practices and performance where it is found. In any case, benchmarking does not mean copying what other people do; it is a learning process, challenging existing ways of working and identifying step-by-step changes that can close the gap between current performance and best practice. Therefore, benchmarking in education is simply about making comparisons about educational phenomenon and learning the lessons those comparisons throw up. It is a continuous process of measuring performance and seeking fresh approaches to bring about effectiveness and improvement in performance.

### **Research objectives**

Since this study is a part of a wider study that embraces teachers teaching competencies and how it affects school effectiveness and quality improvement, I explicitly sought to learn from other research on teachers' motivational competencies and apply its lessons to policy on, for example, failing schools in Nigeria. I will also identifying 'best practices' of academically and professionally qualified teachers, which are to form benchmark of emulation to enhance teachers' motivational competencies. Specifically, this study is designed to:

- Theoretically and empirically benchmark how teachers' motivational competencies improve students and co-teachers ability to achieve educational objectives.
- Evaluate the extent to which academically qualified teachers and professionally teachers demonstrate effective familiarity with co-teachers

- Assess the extent to which academically qualified teachers and professionally teachers encourage co-teachers to work effectively
- Establish the extent to which academically qualified teachers and professionally teachers use rewards and punishment wisely
- Explore how academically qualified teachers and professionally teachers guide co-teachers on how to plan and carry out their job effectively
- Investigate academically qualified teachers and professionally teachers interaction process competence and how it affects students learning ability

This study is addressed to those involved in educational planning, principals and teachers, especially parents and administrators who participate in policy making about school effectiveness and improvement in Nigeria. The findings of this study may have implication for other developing countries. It is also hoped that the academic community will find this empirical study an added input into the school effectiveness and improvement literature at least from the perspective of a developing country.

### **Theoretical Discussions**

#### Motivation as a Strategy for Teaching and Learning

Schools have much to learn by examining the informal pedagogy of everyday life; the *principles* of good teaching are no different for school than for home and community. When true teaching is found in schools, it observes the same principles that good teaching exhibit in informal setting (Tharp & Gallimore 1998, p. 93). Whereas, some researchers (e.g., Creemers 1994b; Creemers 1994c) is of the view that quality teaching is found in the school, this is because it is presumed that teaching and learning go on well in the school environment. In addition, it is equally acknowledged that good teaching are supposed to be carried out by highly qualified teachers who can motivate students to learn under diverse condition (Hardre & Reeves 2003). Therefore, motivation in this context is seen as one of the qualities of achieving good teaching and learning.

The phrase “student’s motivation to learn” has to some degree different meaning. Hermine Marshall defines it as the meaningfulness, value, and benefits of academic tasks to the learner regardless of whether or not they are intrinsically interesting (Marshall 1987, pp. 135-150). While Carole Ames remarks that motivation to learn is characterized by long-term quality involvement in learning and commitment to the process of learning (Ames 1990, pp. 409-421). However, student motivation naturally has to do with students’ desire to participate in the learning process. But it also concerns the reasons or goals that underlie

their involvement or non-involvement in academic activities. Although students may be equally motivated to perform task, though, the sources of their motivation may differ (Lumsden 1994). Students who are intrinsically motivated undertake an activity for its own sake, for the enjoyment it provides, the learning it permits, or the feelings of accomplishment it evokes. Extrinsically motivated students perform in order to obtain some reward or avoid some punishment external to the activity itself such as grades, stickers, or teacher approval (Lepper 1988, pp. 289-309).

Anyway, students are primarily intrinsically motivated towards learning than extrinsically oriented toward learning. A growing body of evidence suggests that intrinsically motivated students tend to employ strategies that demand more effort and that enable them to process information more deeply (Beare, Caldwell & Millikan 1989, pp. 42-61; Lepper 1988, pp. 289-309). Condry and Chambers (1978, pp. 61-84) also found that when students were confronted with complex intellectual tasks, those with an intrinsic orientation use more logical information-gathering and decision-making strategies than do students who are extrinsically oriented. Furthermore, students with an intrinsic orientation also tend to prefer tasks that are moderately challenging, whereas extrinsically oriented students gravitate toward tasks that are low in degree of difficulty. Extrinsically oriented students are inclined to put forth the minimal amount of effort necessary to get the maximal reward (Lepper 1988, pp. 289-309). Although every educational activity cannot, and perhaps should not, be intrinsically motivating, these findings suggest when teachers can capitalize on existing intrinsic motivation (Harris 1991).

The question remains that what factors influence the development of students' motivation? According to Brophy (in Lumsden 1994), motivation to learn is a competence acquired through general experience but stimulated most directly through modeling, communication of expectations, and direct instruction or socialization by especially parents and teachers. For example, when children are raised in homes that nurture a sense of self-worth, competence, autonomy, and self-efficacy, they will be more suitable to accept the risks inherent in learning (Beare, Caldwell & Millikan 1989). Equally, when children do not view themselves as basically competent and able, their freedom to engage in academically challenging pursuits and capacity to tolerate and cope with failure are greatly diminished. The sources to which children attribute their successes and failures have important implications for how they approach and cope with learning situations (Ibid).

In Hardre and Reeve's study, "*A Motivational Model of Rural Students' Intentions to Persist In, Versus Drop Out, of High School*" it was found that there are large differences in

teachers' beliefs about, and orientations toward, motivating students. Beliefs ranged from a strong bias toward student and family responsibility for effort at school, through a moderate view, to the belief that a large burden of the responsibility for promoting students' motivation falls to teachers and schools. Asked how they identified whether students were motivated in class, some teachers had difficulty saying, and more admitted that they often lacked effective strategies for promoting students' motivation. Large majority of teachers see students' motivation as impressionable believing that they actually could make a difference, and they actively tried to intervene for students' lack of motivation when they see it (Hardre & Reeve 2003, pp. 347-356).

However, these beliefs teachers themselves have about teaching and learning and the nature of the expectations they hold for students also exert a powerful influence (Raffini 1993). According to Deborah Stipek, students are expected to learn if their teachers expect them to learn (Stipek 1988). Although, school wide goals, policies, and procedures also interact with classroom climate and practices to affirm or alter students' increasingly complex learning-related attitudes and beliefs, and developmental changes comprise one more strand of teachers' motivational competencies (Ames 1990, pp. 409-421).

Students are not the only ones that need motivation to go on with their exertion; teachers stimulating themselves are also essential for effective schooling. Teacher-to-teacher interactions are powerful factor in student's motivation process. Because as co-teachers interact and tell each other the problem they encounter in their various class, they tend to discuss and make useful suggestion to each other on how to handle situations in their instruction processes. For example, co-teachers review is an intentional process of gathering information and evidence about the effectiveness of the teaching and learning process on the educational environment and how positive they encourage fellow teachers in carrying out their teaching job effectively (see Stiggins 1986, pp. 51-58; Stiggins & Duke 1990; Dunkin 1997, pp. 37-51). The purposes include providing assurance that students are able to achieve what the courses requires them to achieve and to improve teaching practices. Co-teachers offer the capacity to critically review and improve enhanced teaching through the exchange of ideas. To resort to and providing constructive critical co-teachers feedback about teaching because quality teaching is regarded as a fundamental aspect of the academic role expected of teachers. Also, co-teachers are a valuable source of formative feedback on whether goals are achieved (Koch & Burghardt 2002; Niederhauser 1998).

### **Promoting Motivation to Learn in Schools**

Obviously motivation is a critical issue in education; it is seen as an essential component of teaching. For this reason it is prospective to address students' motivational needs. Hardre

and Reeve (2003) and Austin, Dwyer and Freebody (2003) identified three important elements in student's motivation to learn—the learning environment, classroom instruction, and interpersonal interaction. Some motivational elements at all of these levels are generally within the teacher's control, and all of these can positively or negatively influence students' academic inspiration. First, teachers can motivate by features of the environmental design, which includes their indirect effort to motivate students by arranging the classroom-learning environment in ways that promote or reduce students' motivation. Second, teachers can motivate students by using instructional strategies, which include features of their instruction (e.g., scope, sequence, materials, media, interactions) that are intended to facilitate students' motivational characteristics, such as attention, interest, engagement, effort, value, and competence perceptions. Third, teachers can motivate students by using motivating strategies, which include direct efforts to motivate individuals or groups of students (e.g., activate or remediate their current motivation), are highly adaptive based on specialized student needs and circumstances. Motivating strategies are individualized and arise out of the teacher's specific beliefs and perceptions of individual students' motivational states and traits. As well, in motivational terms, teachers use language to help students initiate and regulate (manage) their class-related activities. When teachers use informational, flexible language, teachers nurture students' own initiative, helping them find reasons to act because they want to, rather than because the teacher says so.

Conversely, students often fail to reach their full potentials due to low motivation. Some of these factors that affect their motivation may relate to a country's education system in general. Others are institutional and cultural views (Niederhauser 1997, 8). For example, the use of power in schools is seen as important in motivating students which also helps in determining high student achievement: Teachers use this method to influence student's compliance in the classroom (Cheng, Cheung & Tam 2002). However, their investigation was only limited to grade six students. Cheng (1994a, pp. 221-239) defined power base as the use of reward power, coercive power, position power and personal power or professional power in classroom to ensure students compliance. Researchers especially in Africa and Asia see power as a valuable tool for effective teaching and high students' academic achievement (Cheng, Cheung & Tam 2002, pp. 138-155). However, to motivate the unmotivated students, teachers should recognize that even when students use strategies that are ultimately self-defeating such as withholding effort, cheating, procrastination, and so forth, their goal is actually to protect their sense of self-worth (Lumsden 1994; Raffini 1993).

### **Some Basic Principles of Motivation**

Unfortunately, as children grow their passion for learning frequently seems to shrink (Hardre & Reeve 2003, pp. 347-356). Learning is often associated with hard work instead of delight. A large number of students, more than one in four, leave school before graduating. Many more are physically present in the classroom but largely mentally absent; failing to invest themselves fully in the experience of learning (Lumsden 1994). Therefore, the purpose of this section is to determine significant differences that exist between some basic principles of motivation, which are applicable to teaching and learning in some situations and which may well help teachers to encourage students and reduce the dropout rate in our secondary school:

***The environment:*** Teachers who create warm and accepting yet professional atmospheres will promote persistent effort and favourable attitudes toward teaching and learning (Beare, Caldwell, & Millikan 1989, p. 154). This strategy will be successful in children and in adults. Interesting visual aids, such as booklets, posters, or practice equipment, motivate learners by capturing their attention and curiosity (Lepper 1988, pp. 289-309; Stipek 1988). In the same way, strong and lasting memory is connected with the emotional state and experience of the learner. It means that people remember better when the learning is accompanied by strong emotions. When a teacher makes something funny, exciting, happy, loving, or perhaps even a bit frightening, students will learn more readily and the learning will last much longer. Emotions can be created by classroom attitudes, by doing something unexpected or outrageous, by praise, and by many other means. For example, the day a teacher comes to class with a bowl on his head and speak as an alien observer about humans will be a day and lesson students will remember (Harris 1991).

***Incentives for motivating learning:*** Motivation includes privileges and receiving praise from the teacher. The teacher determines an incentive that is likely to motivate an individual at a particular time. In a general learning situation, self-motivation without rewards will not succeed. Students must find satisfaction in learning based on the understanding that the goals are useful to them or, less commonly, based on the pure enjoyment of exploring new things. According to Harris (1991), extrinsic motivators in the form of rewards can help students who do not yet have powerful intrinsic motivation to learn. Rather than criticizing unwanted behavior or answers, reward correct behavior and answers. Harris further suggested that rewards could and should be small and configured to the level of the students. Everyone likes the feeling of achievement and recognition; rewards for good work generate good feelings (Niederhauser 1997).



A number of individuals, predominantly children of certain ages and several adults have little capacity for internal motivation and must be guided and reinforced continually. The use of incentives is based on the principle that learning occurs more effectively when the student experiences feelings of satisfaction. However, caution should be exercised in using peripheral rewards when they are not extremely necessary, because their use may be followed by a decline in internal motivation (Condry & Chambers 1978, pp. 61-84). Correspondingly, students respond with interest and motivation to teachers who appear to be human and caring. According to Harris (1991), such personalizing of the student and teacher relationship helps students see teachers as approachable human beings and not as unfriendly authority figures. The teachers should show that they care about their students by asking about their concerns and goals. For instance, what do they plan to do in the future? What things do they like? Such teachers will be trusted and respected more than the ones who are all business (see, Niederhauser 1997; Lumsden 1994; Austin, Dwyer & Freebody 2003).

***Readiness to learn:*** Schools are or should be about helping students grow. While a variety of approaches may prove successful, success is often measured too narrowly. Too often we inhibit real success by ignoring students' reaction to their own learning (Dillon 2001, pp. 97-98). This is because at times student's readiness to learn comes with time, and teacher's role is to support its development (Ames 1990, pp. 409-421). However, Harris (1991) notes that one of the major keys to motivation is the active involvement of students in their own learning. Standing in front of them and lecturing them is thus a relatively poor method of teaching. It is better to get students involved in activities, group problem solving exercises, helping to decide what to do and the best way to do it, helping the teacher, working with each other, or in some other way getting physically involved in the lesson (Mercer and Fisher 1998). Assigning students homework that involves helping teachers is a step in the right direction to bring out the inner self of students that are ready to learn (Austin, Dwyer & Freebody 2003).

***Instructional material:*** In all-purpose, the best-organized material makes teaching meaningful to the individual. One method of motivation includes relating new tasks to those already known (Niederhauser 1997, p. 8). For example, even before young people were reared in a video environment, it was recognized that memory is often connected to visual images. In the middle ages people who memorized the Bible or Homer would sometimes walk around inside a cathedral and mentally attach certain passages to objects inside, so that remembering the image of a column or statue would provide the needed stimulus to

remember the next hundred lines of text (Harris 1991). On another hand, Maehr and Midgley opined that other ways to relay meaning are to determine whether the students being taught understand the final outcome desired and instruct them is to compare and contrast ideas (Maehr & Midgley 1991, pp. 399-427). (see also, Hight 1963; Stones 1966).

On the whole, none of the method mentioned above will create continual inspiration unless the goals are realistic for the learner. To have learners assist in defining goals increases their probability of understanding those goals and wants to reach them. Nevertheless, students sometimes have unrealistic notions about what they can accomplish. Possibly they do not understand the precision with which a skill must be carried out or have the deepness of understanding to master some instructional materials. To identify realistic goals in any case is an essential part of the professional teacher's vocation; therefore, teachers must be skilled in assessing student's readiness or student's improvement in the direction of stated objectives.

### **Research Methodology**

#### **Research hypothesis**

It is hypothesized that "there are no significant differences between the motivational competencies of teachers who have academic qualification and teachers who have professional teaching qualification."

#### **Research instrument**

Questionnaire was the main instrument used in this study to collect data. Nworgu's (1991, pp. 93-94) characteristics of a good questionnaire were applied in designing the questionnaire. The characteristics are: relevance, consistency, usability, clarity, quantifiability and legibility. The questionnaire was also designed with the help of my faculty members to elicit information from the respondents that will help the researcher gather information on teacher's motivational competencies towards students and co-teachers educational achievements. It equally has face validity because the feedback from my faculty members helped in assessing that the measure apparently reflects the content of the concept in question (Bryman & Cramer 1990, p. 72).

A suitable design was structured along a four-point likert-type scale (summated) of strongly agree (4), agree (3), disagree (2) and strongly disagree (1). A summated rating scale, one type which is called likert-type scale is a set of attitude items, all of which are considered of

approximately equal “attitude value” and to each of which subjects respond with degree of agreement or disagreement (intensity) (Kerlinger 1973, p. 496). Section A of the research questionnaire describes respondents’ background information, they include: gender, age, status, subject’s taught, academic qualification, professional qualification and length of service. While section B comprises of possible motivation competencies. The simplicity of the questionnaire was based on the fact that since different category of people were chosen as my respondents, the need to make the questionnaire as simple as possible was inevitable.

### **Research population**

The research population for this study is drawn from Rivers State (accessible) of Nigeria (target). It is one of the States in the south-south geo-political zone of Nigeria. The population comprises of principals, subject heads and teachers from ten (10) randomly selected secondary schools (see table 1). The reasons for choosing subject heads is that they directly supervise teachers activities as regards teaching and therefore stands a better chances of measuring their teachers’ input and output. The services of the supervisors of education are not left out. Out of the total number of respondents 76 (25.3%) were academically qualified, while 224 (74.7%) were professionally qualified. It was relevant that I choose Rivers State because it is a surrounding I am familiar with and did not find it very difficult to access the chosen respondents with the help of my research assistant. May be this is one of the reasons why the number of responses received was high.

*Table 1: Categories of Respondents and the number of Responses Used*

Categories of Respondents	Number of Responses Used	
Teachers	270	90 %
Principals	10	3.3 %
Supervisors	20	6.7 %
To Number of Responses	300	

### **Procedures**

To arrive at the intended comparative analyses, several sets of statistical analyses were conducted using SPSS version 11.5 of a computer programme: mean point value, standard deviation, variance, t-test of significance and cross tabulation (N-300). One-way-analysis of variance (ANOVA) was employed to test the relationship between variables and respondents’ background information. The t-test of significance was computed to test for statistical significant differences in the variables. It is a statistical significant set at  $p < 0.05$  to assess if the researcher’s level of confidence observed in the sample also exists in the population. For a more simplistic and easy comprehension of the data analysis in this study, cross tabulation was employed because it is one of the simplest and the most frequently used ways of

demonstrating the presence or absence of a relationship (Bryman & Cramer 1990, p. 151; 2001, p. 159).

### Reliability of the Study

A measurement to assess reliability was seen as suitable in this investigation since the respondents more especially teachers had answered the questions because they were directly affected in that the study focused on their motivational competencies which is part of a determinant for their professional competencies. A quantitative analysis of the inquiry was performed using the SPSS version 11.5 of a computer program to statistically test the reliability of the research instrument because in research statistics, when a research instrument has been ascertained of its reliability it now give bases for continuity. In the analysis, the sum variables were used because the reliability is very high compared to a single variable. The reliability estimates for the sum variables were computed by the following:  $(\text{Mean square variance between subjects} - \text{residual variance}) / (\text{mean square variance between subjects})$  (Koponen 1977, p.104; Kautto-Koivula 1993, p.161). Thus, the result from the table below reveal differences in the paired reliability estimates, which is normal. However, the cumulative alpha reliability of (0.84) shows a strong reliability of the research instrument (see Bryman & Cramer 1990, p. 71; 2001, p. 63; Saunders, Lewis & Thornhill 2000, p. 361).

*Table 2: The reliability of paired variables for teachers holding academic and professional qualification*

<b>Variables</b>	<b>Reliability Estimates</b>
<b>TEACHERS' MOTIVATIONAL COMPETENCIES</b>	
1. (a) academic qualification demonstrates familiarity with co-teachers effectively (Exchange ideas) (b) professional qualification demonstrates familiarity with co-teachers effectively (Exchange ideas)	.76*
2. (a) academic qualification encourages co-teachers to work effectively. (b) professional qualification encourages co-teachers to work effectively.	.76*
3. (a) academic qualification use reward and reinforcement wisely. (b) professional qualification use reward and reinforcement wisely.	1.0**
4. (a) academic qualification guide co-teachers on how to plan and	1.0**

carry out their job professionally. (b) professional qualification guide co-teachers on how to plan and carry out their job professionally.	
5. (a) academic qualification interacts with their students respectfully. (b) professional qualification interacts with their students respectfully.	.69*
Cumulative Alpha (Reliability)	.84**

\* accepted as reliable  
\*\* accepted as very reliable

## Results

*The first* set of the statistical analysis for this study started with an analysis of respondent's answers using mean, standard deviation and variance. These three statistical procedures were recorded. The rationale underling these measures are to unearth to what extent teachers influence co-teachers and students to achieve positive outcomes. The empirical findings show that teachers with professional qualification demonstrate better familiarity with co-teachers as such motivate co-teachers to work effectively (m = 3.72, SD = 0.53, and variance 0.28) as against (m = 1.71, SD = 0.77 and variance = 0.59) for academically qualified teachers. On how to encourage co-teachers, the study revealed that the encouragement of co-teachers to work effectively is accepted by the respondents to be enhanced by teachers with professional teaching qualification. This is shown in their mean, standard deviation and variance thus (3.67, 0.52, 0.28 / 1.66, 0.72, 0.53). Whereas, on the application of the wise use of rewards and punishment, the analysis shows that professionally qualified teachers' mean, standard deviation and variance (3.44, 0.56, 0.31) are more than that of teachers with academic qualification (1.83, 0.76, 0.57), which shows that the effective use of rewards and punishment are an essential part of professional teaching. Regarding the guidance of co-teachers to plan and carry out teaching job effectively, teachers with professional teaching qualification (m = 3.71, SD = 0.53, and Variance 0.28) as against teachers with academic qualification (m = 1.77, SD = 0.80 and variance = 0.65) reveals that professionally qualified teachers guide co-teachers on how to plan and carry out their job effectively. The results also reveal that professionally qualified teachers tend to interact with their students effectively more than the academically qualified teachers; they cited approachableness as a factor in professional teaching which they posses more than their counterparts who hold only academic qualification. This is depicted in their mean, standard deviation and variance, thus 3.76, 0.53, and 0.28 against 2.11, 0.92, and 0.85 respectively. (see table 3).

*Table 3: Response on whether motivational competencies of teachers improve their effectiveness*

Competencies (Variables) Items	Trained Teachers (Professionally Qualified)			Untrained Teachers (Academically Qualified)		
	Mean	SD	Variance	Mean	SD	Variance
1	3,72	,53	,28	1,71	,77	,59
2	3,67	,52	,27	1,66	,72	,53
3	3,55	,56	,31	1,83	,76	,57
4	3,71	,53	,28	1,77	,80	,65
5	3,76	,53	,28	2,11	,92	,85
Total	3,68	,53	,28	1,82	,79	,64

The second set of statistical analysis is a t-test analysis of paired sample statistics of respondents' perception of teachers' motivational competencies. The purpose of this is to further verify my analytical information; the t-test analysis is aimed at determining if there are significant differences between respondents' means. As a result, the variables were paired just as it appeared in the questionnaire, hence 1a and b, 2a and b, 3a and b, 4a and b, and 5a and b. The result showed that there are significant differences between academically qualified teachers and professionally qualified teachers in all the variables. SPSS version 11.5 displays it as  $p < 0.000$  significant levels. This does not mean that the probability is 0. It is less than  $p < 0.0005$ . Table 4 shows the highest t-value as  $-23.71$  and the lowest t-value as  $-36.84$ ,  $Df = 299$ ,  $p < 0.000$ , Therefore, the  $H_0$  was rejected (Nworgu 1991, p.155; Marija 1997, p. 230; Bryman & Cramer 2001, p. 108).

*Table 4: Two-tailed test of differences between paired means*

Paired Variables	Paired Mean	SD.	Std. Error mean	T	Df	Significance (2-tailed)
1a and b	-2.01	.98	.057	-35.19	299	.000
2a and b	-2.01	.95	.055	-36.84	299	.000
3a and b	-1.71	.97	.056	-30.48	299	.000
4a and b	-1.94	1.005	.058	-33.39	299	.000
5a and b	-1.12	.82	.047	-23.71	299	.000

Df= N-1  
N=300

The third set of analysis was the use of Cross Tabulation to demonstrate the presence or absence of a relationship. The data were tallied along agree and disagree. The set of pools question that compared the two categories of teachers on the respondents' perceptions in the entire variable tested showed large differences. Not surprisingly, the empirical results revealed that 66.7 % compared to 33.3 %, agree that teachers with professional teaching qualification demonstrate familiarity (exchange ideas) with co-teachers, in contrast to their

counterparts who are teachers with academic qualifications. 75.5 % agrees that professionally qualified teachers show greater effort in encouraging co-teachers to work effectively, in disagreement to 24.5 % for academically qualified teachers. Turning to the wise use of rewards and punishment, the information gathered reveals that 71.8 % agree that trained teachers are more competent on the use of rewards and punishment in motivating students during and after instructional process against 28.2 % for untrained teachers. Asked whether academically qualified teacher or professionally qualified teachers guide co-teachers on how to plan and carry out their job effectively, respondents' answers demonstrate that professionally qualified teachers guide co-teachers on how to plan and carry out their job effectively against their counterpart who are academically qualified. This is shown in their percentage values of 82.2 % compared to 17.8 % respectively. Finally, regarding teachers interaction process competencies, the result revealed that as high as 85.7 % against 14.3 % agree to the fact that trained teachers have a more propensity to effectively interact with their students than their fellow teachers who are academically qualified. The overall cross tabulation result showed that professionally trained teacher are more result oriented than their counterparts who are academically trained.

*The fourth* set of analysis was the use of ANOVA aimed at testing if there are significant differences between the attitudes of the respondents towards teacher's motivational competencies. The analysis showed that the between-group mean square to the within-group mean square is close to 1. (F-ratio 1.83 Df = 299,  $p > 0.27$ ). Thus, there are no significant differences in the opinion of respondents' background information towards academically qualified teachers and professionally qualified teachers in their motivational competencies. The overall ANOVA analyses of all the respondents have strong support for professional development.

### **Discussion of Results**

The results from the data analyses on co-teachers demonstrating familiarity with their counterparts and co-teachers encouraging each other to work effectively revealed that professionally trained teachers tend to stimulate themselves more than the academically trained teachers. Likewise, professionally qualified teachers are more likely to encourage co-teachers more effectively in their collaborative effort. Collaboration is seen as part of teacher preparation programs. This begins with the understanding that all teachers will be able to work with each other. The argument is that every teacher needs to study teaching techniques, subject area(s), disability, individualization, accommodation and skills for collaboration in the school system to be effective. In addition, they are essential part of effective schooling (Friend and Cook 1996). Also, teacher-to-teacher interactions are powerful instrument in student's motivation processes because as co-teachers interact and

tell each other the problem they encounter in their various classes as they tend to discuss and critically review and develop enhanced teaching through the exchange of ideas, as well as make useful suggestion to each other on how to handle situations in their teaching-learning processes (cf. Stiggins 1986, pp. 51-58; Stiggins & Duke 1990; Dunkin 1997, pp. 37-51).

Equally, the results from this empirical study suggest that teachers with professional qualification motivate their fellow teachers more effectively on how to plan and carry out teaching assignments. The respondents' rating displayed a compatible view with other research studies in the West. A large number of the respondents (82.2 %) observed that even if teachers do their work, they do not do them *well*. To help them do a more effective job, co-teachers give them specific guides to use and plan their job effectively to accomplish objectives. For example, co-teachers bringing their resources—skills, training and perspectives to their job are an effective way of improving themselves. These resources are combined to strengthen teaching and learning opportunities, methods and effectiveness (Suzanne 1997). One advantage that is clearly developed from this relationship according to Dieker and Barnett (1996, pp. 5-7) is that professionally qualified teachers have expertise in many areas and combining these skills makes them more effective in meeting the needs for themselves and their students. Therefore, teacher-to-teacher motivation is an important ingredient for success in schooling; however, additional skills will be needed to realize the goals teachers' set for themselves and their classes.

A plausible explanation for respondents' answers on the use of rewards and punishment during instructional process showed a positive response because the use of power in schools is seen as important in determining high student achievement. Teachers use this method to influence student's compliance in the classroom. This was evident in Cheng, Cheung and Tam (cf. 2002, pp. 138-155) study; however, their investigation was only limited to grade 6 students. Cheng (1994a, pp. 221-239) viewed power base as the use of reward power, coercive power, position power and personal power or professional power in classroom to ensure students compliance (see also Freiberg & Freebody 1995; Austin, Dwyer & Freebody 2003). Power is also accepted by researchers especially in Africa and Asia as a valuable tool for effective teaching and high students' achievement (Cheng, Cheung & Tam 2002, pp. 138-155). This is what Cheng (2000, pp 207-225) called cultural factors. These cultural factors according to Cheng extends to the cultural forces shaping the features of school processes and dominating the effectiveness of education in terms of students' academic achievement.

Interestingly, the result concerning teachers' interaction process competences also showed positive outcome in favour of professionally trained teachers. This is evident in all the



statistical approaches employed in analysing the data obtained for this study. These responses display attitudes that are compatible with school effectiveness and improvement effort. Collins Concise Dictionary defines interaction as to act on or in close relationship with one another; a mutual or reciprocal action. Whereas, Freiberg and Freebody (1995, p. 198) describe classroom interaction as sequences of directives and compliance through which the classroom participants work interactively towards the visible completion of a task through the production of answers. While Austin, Dwyer and Freebody (2003, p. 26) conclude that in this directive-compliance sequence, the teacher gives a directive and selects a student as respondent, the student responds and teacher denotes whether or not the response complies with the directive.

Also, in Amalaha's study (1979) "*children's behavioural problems*" he found out that students manifest cognitive and social problems in school as a result the classroom teacher should be involved in assisting the student in solving them. Due to lack of effective early stimulation, students may show weakness in some areas of their study. Therefore, they need care, respect, acceptance, support and recognition (Beare, Caldwell & Millikan 1989, p. 154). If such a situation arises, teachers need to throw in the towel to have full grasp of the situation and then embark on remedial to alter the effects of lack of stimulation with the help of their co-teachers. On the other hand, some children are problem behavior cases. Problem behavior according to Amalaha (1979, p. 232) is a behavior that is characterized by an inability of the child to meet the demands of the school environment. It may include inability of a child to get along with other children, inability to achieve self-reliance, and inability to adhere to the values prescribed by a system. Many students come to school having developed problem behavior because their parents allow their children to get what they want when they exhibit problem behaviour such as 'temper tantrum.' In such a case, according to Ahamala, the reinforcement of problem behavior results in the repetition of the behavior. The student brings this attitude to school to confront the classroom teacher.

Similarly, according to Stones (1966, p. 383), when students come with specific emotional problem, it is impossible to go into much detail about the emotional problems, which individual students may have. But it is important that teachers realize that they exist and they are able to identify them. Children who are of a nervous temperament, popularly described as '*highly strung*', need sympathetic treatment from their teachers. Teachers' task should not be to reinforce their nervous behavior by giving them attention because of it, but rather to help them to acquire confidence. Such students will need more encouragement than the average students and will react more strongly to failure. Encouragement and

success in their schoolwork, the sympathetic understanding of their teachers, and a friendly cooperative atmosphere in the classroom will help them to develop more confidence.

The question now is that what can the teachers do with the help of their fellow teachers to help? To help students with this problem, according to Amalaha (1979) citing Gibson is to find out what the students *acceptable* interests and capabilities are, and then find a group of the same grade with similar interest for the student to meet socially. To do this is not part of the talk-and-chalk work, but it has to be done to help the students in need of assistance. It helps to give the child a factual knowledge through the assistance of professional teachers. However, Stones (1966, p. 385) advocates that teachers should recommend children to the guidance clinic when it is obvious that the problem is beyond their reach. The guidance clinic of a school is staffed with experts—professional educational psychologists, psychiatrists, and psychiatric social workers. Their duty is to diagnose the difficulties of children referred to them and recommend a course of action.

### **Summary of Major Findings**

Succinctly, the data collected from teachers, principals and supervisors of education, and their subsequent analysis revealed that highly effective school teachers encourage the creativity of students and co-teachers in finding better ways to solve their educational problems. Specifically, the study yielded the following six major findings.

1. Teachers with professional qualification demonstrate better familiarity with co-teachers.
2. Professionally qualified teachers encourage co-teachers to work effectively
3. The use of rewards and punishment wisely tends to be associated to teachers that hold professional teaching qualifications.
4. Professionally qualified teachers effectively guide co-teachers on how to plan and carry out their job professionally.
5. Teachers with professional qualifications interact with their students more positively.
6. There are no significant differences in the opinion of respondents based on their background information.

### **Conclusion and Implication**

However, from the findings summarized in the preceding paragraphs, more than a few conclusions and implications may be drawn. One of the main objectives of this research has

been to outline the complex role of teacher motivational competencies and to explicitly state my stands in developing teaching in the education community from the perspective of a state in a developing country—Nigeria. Contrary to the research hypothesis, there are significant differences between the two categories of teachers used in this study. The current findings show strong support that professionally qualified teachers are inclined to motivate students and co-teachers effectively in the entire variables tested. We can say that using professionally competent teachers in the teaching and learning process may be a very good course of action, not only because the students will enjoy the instructional activities, but because they are valuable factors that will enhance the intellectual growth of both teachers and their students. The plausible explanation of this study lies in the differences the two categories of teachers exhibit. The protection of students and teachers to achieve educational objectives depends not only on professional teachers' expertise and skills, but also to a greater extent on the effective coordination and efficacy of professional teachers. Emphasis on effective teachers' motivational competencies carries more importance in terms of co-teachers' efficacy and students' achievement.

Additionally, to motivate students to learn, teachers should first of all take time to get to know their students individually at the start of the term. Second, is to have students fill out individual plans for resources. Third, at the beginning of each term, teachers should also take their time to explain their approach to their students. This could be accomplished by communicating in simple sentences and by giving brief demonstrations of typical classroom activities. Teachers should not assume, for example, that students accustomed to teacher-centered classrooms would automatically understand the reasoning behind pair work or activities designed to create an interactive learning environment. Fourth, testing different kinds of group activities may help teachers find the right 'mixes' for a special class. Fifth, teachers also should introduce all new activities carefully and explain how they can help students improve their skills. Also, motivation levels are said to drop and anxiety levels go up when students are unsure about how or why they should perform certain tasks. Making positive statements about upcoming activities, moreover, is an excellent way to increase motivation (Niederhauser 1997, p. 8).

Co-teachers' review is a deliberate process of gathering information and substantiation about the effectiveness of the teaching-learning process in the educational environment and how positive they encourage fellow teachers in carrying out their teaching job effectively is very crucial. The purposes include providing assurance that students are able to achieve what the course requires them to achieve and to improve teaching practices (cf., Niederhauser 1997). Co-teachers offer the capacity to critically review and improve enhanced teaching through

the exchange of ideas, guiding and encouraging colleagues. They provide constructive critical co-teachers' feedback about teaching, teaching should be regarded as a fundamental aspect of the academic role expected of teachers: co-teachers are a valuable source of formative feedback on whether goals are achieved. Similarly, Dunkin (cf., 1997, pp.37-51) citing the work of Scriven drew attention to the fact that if a school system institutes a system of assessment in order to encourage professional growth and development of its teachers, it is engaged in formative evaluation. This type of feedback process has yielded positive results.

There are nevertheless some limitations in this research. First are the number of schools that could be included in the study, and the generalizability of the findings. Although I attempted to improve the generalizability of the results by inferring from a multiple case study, it would be difficult to conclude from only ten schools, the Ministry of Education and the Post Primary Schools Board in Rivers State out of the thousands in Nigeria. This may not represent the opinions of other teachers in other parts of the country. As this is the case, it will be inappropriate for one to assume that their opinions represent those of other teachers in Nigeria and outside. However, despite these limitations the current study follows the principles of interpretation research; it is not a certainty to seek generalization from the setting of a population, but rather supplies an understanding of the deeper structure of a phenomenon. Interpretation research according to Kerlinger (1973), takes the results of analysis, makes an inference pertinent to the research relations studied, and draws conclusion about these relations. The researcher, who interprets research results, searches them for their meaning and implications. As a result, I did this in two ways. First, the relations within this research study and the way its data are interpreted. Second, the broader meaning of this research data was sought (see Kerlinger 1973, pp. 234-235). However, additional investigation in this direction will be in order. A new perspective on teachers' motivational competencies, which do not only take into consideration of the unique characteristics of the variables used in this study, but their environmental and cultural derivation is thus recommended.

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**Nwachukwu Prince Ololube**

Department of Applied Sciences of Education

Faculty of Behavioural Sciences

University of Helsinki, Finland.

E-mail(s): [nwachukwu.ololube@helsinki.fi](mailto:nwachukwu.ololube@helsinki.fi), [ololubepriince@yahoo.com](mailto:ololubepriince@yahoo.com)

## **Indigenous Science Practices Among Some Nigerian Women: Implication For Science Education**

**Kehinde A. Alebiosu**

### **Abstract**

The study examined some indigenous science practices among some Nigerian women with implication for science education. Three hundred and twenty skilled and unskilled women and eighty five high school science teachers drawn from various parts of Yoruba land in Ogun State of Nigeria participated in the study. The study revealed the pattern of popularity / commonness of listed indigenous science practices among women. Further more, various high school science concepts that blend with the practices were revealed and pooled together. The implication of the findings for the teaching and learning of science was discussed and useful recommendations were made.

### **Introduction**

The enterprise of Science embraces every attempt of man to explore, interpret and manage the natural world. It is dynamic and essentially concerned with the search and explanation of both regularities and irregularities in nature. It involves the quest for actions and reactions, causes and effects in the environment. The purpose of science is to transform the environment towards improving the general quality of life, thus making the world a better place to live in. Science is primarily concerned with the intellectualization of facts and values in an unbiased manner (Samuel, 1996).

Every traditional society of the world possess one form of science or technology or the other which are employed as indigenous or informal practices geared towards the satisfaction of basic needs. These practices may be useful even in the face of modern science and technological advancements. Therefore instead of rendering them obsolete, they can be refined and sandwiched into the knowledge and techniques of formal science. They will be very useful to teachers and learners in enriching classroom science experiences since they constitute direct experiences with the immediate environment and with the natural world. Howes, Jones & Josenthal (2004) remarked that classroom bound activities of science teaching should make room for practices that help teachers and students to connect more deeply to each other and the rest of the world. From education perspective, science is classified as formal and informal.

Formal science is the training acquired in the formal school system. Learning experiences are structured and organized as body of knowledge and are planned to be acquired in the classroom environment. The knowledge is documented and logical. Ogunniyi (1980) described formal science as the attempt made by human beings to organize their experiences about nature into meaningful system of explanation. This is what Samuel (1996) regarded as unbiased intellectualization of facts and values.

Informal science on the other hand is unstructured knowledge acquired through various means outside the school formal setting. They are the indigenous practices which when considered with the forms, beliefs and values of modern science some contain some elements of science. Most of the practices are native, local and crude and are based on ingenuity and expertise. In Nigeria, training in informal science lack standardized curriculum and entry requirement. There are no planned contents, but the focus is the acquisition of basic skills through abundantly available hands - on- activities. Training is usually through the apprenticeship method and due to illiteracy, the trial and error approach to learning and expertise prevail.

Both formal and informal sciences interact with one another, therefore they are recommended to be blended for fostering science education programmes and for sustaining life in general. In Nigeria, both are practiced at different contexts and their linkage is advocated. This is supported by Mejeha (1992), Animola (1992) and Seweje (2000) among other science educators in Nigeria. However, peradventure the perspective seemed retrogressive considering the present pace of global scientific and technological advancement, the motive is very crucial in orientating learners to perceive science as action taking place daily in the environment and it will be beneficial in fostering classroom learning.

The application of informal scientific knowledge in solving problems in Nigeria has significant economic value and it is particularly beneficial to women. The knowledge being practical and natural is hoped to be of value to science education if linked and articulated with the formal science knowledge. Women have a stake in the realization of this goal because of their close and huge involvement.

Women in Nigeria carry out a number of indigenous science practices ignorantly as they aim at meeting life's challenges and satisfying basic needs. They are involved in these activities because of their peculiar roles and contributions to life sustenance. In the Nigerian traditional society, these activities are indispensable and innumerable. Azikiwe (1999) contended that women are directly responsible for the food consumed by the family, for the health, nutrition and educational needs of members of the family. The education and training of women for status improvement is imperative because of the roles they play in the modeling and shaping of life which has a long lasting implication. Women are the nation builders and historically, culturally and biologically they are linked to life and nature (Shiva 1997). Women demonstrate informal science in diverse ways in the natural world. These activities are hidden or unrecognized but they are sought after for probable articulation with formal science in other to enrich classroom learning experiences.

The immediate challenge is to appraise some indigenous practices among women and explore how they can be sandwiched with classroom learning. Therefore the study sets at



investigating some of the practices and their popularity. It further identifies aspects of the formal science knowledge that blend with these practices. The aim is to sensitize the society and science educators into creating awareness and developing initiatives towards harmonizing and integrating these indigenous activities with documented formal science programmes.

Against this background, the study addressed the following research questions;

1. What women indigenous practices exist in the society and how common are they?
2. What high school science concepts do these practices blend with?

## **Methodology**

### **Research Design**

The research design employed in the study is the descriptive design

### **Subjects**

Subjects for the study consisted of women (skilled and unskilled) who could read and write and high school science teachers. The stratified random sampling technique was used to select a total number of 320 skilled and unskilled women between the ages of 25 – 55years from Yoruba land in Ogun State of Nigeria. The unskilled women were traders and apprehentists while the skilled were middle and low working class category from different organizations.

Science teachers were selected by purposive sampling from 15 selected schools in the area of study. They indicated that they understood the listed indigenous activities. Altogether, 85 male and female teachers of physics, chemistry, biology and agricultural science were used for the study.

### **Instrument**

Two structured questionnaires were developed for the study. The first was titled “Women Indigenous Practice Questionnaire”. The instrument was a set of checklist of women indigenous practices generated from oral interview and direct interactions with some women in the community who are not part of the sample. Altogether, 13 practices were listed and respondents were requested to indicate the prevalence of these practices on a rating scale of very common, fairly common and not common.

The second instrument titled “School Science Concepts in Women Indigenous Practices” consisted of a list of the practices in which a column where school science teachers were to fill in/ insert high school science concepts that blend with these practices was provided. The first draft of the women indigenous practice questionnaire was given to some specialists in science education both at the high school and higher institutions of learning for validation. After the final draft was produced, a test re test reliability of 0.73 was obtained.

### **Data Collection And Analyses**

The researcher administered the instruments in collaboration with science education undergraduate students. Respondents who requested for explanation were guided through the filling of the questionnaire. They were collected immediately from the women. But teachers were allowed to hold unto their copies for few days so that they could peruse the content well in order to provide adequate information. The simple percentage was used to analyse the data.

### Results

The responses of women on women indigenous practices questionnaire were collated and the simple percentage was used to analyse the responses to each of the practices. This is shown on table 1.

**TABLE 1**  
**Rating Of The Prevalence Of Women Indigenous Practices**

INDIGENOUS PRACTICES	VERY COMMON		FAIRLY COMMON		NOT COMMON	
	NO	%	NO	%	NO	%
Local child delivery practices (onset of labour, during delivery & early peuperium period	14	4.57	151	47.19	155	48.44
Local treatment of fracture & wounds	109	34.06	126	39.38		26.56
Treating fever, convulsion, diahearria & other diseases (by cooking of leaves, stems, grasses and other herbs)	168	52.50	132	41.25	85	6.25
Treating measles, chicken pox & other infectious diseases (by use of concoctions)	141	44.06	139	43.44	20	12.05
Food protection against diseases & pests by use of natural products like ashes	11	3.44	148	46.25		50.31
Smoking of food products for preservation	318	99.37		0.63	40	
Food preservation by adding salt	314	98.13	02	1.87		0.00
Production of local additive; locust bean "iru" & melon "ogiri"					161	
Production of "gari" (soaking & frying cassava into flakes), production of pap from maize or other cereals	301	94.06	06	5.00	00	0.00
Production of local gin	311	97.19	16	2.81		0.94
Using manure in planting & forest conservation	171	53.44		35.31	00	
Local soap & oil production	282	88.13		11.87		
Tie & die of clothes	149	46.56	09	43.75	03	0.00
	288	90.00	113	10.00		11.25
			38		00	0.00
			140			9.69
			32		36	0.00
					00	
					31	
					00	

Table 1 is presented to address research question 1. The pattern of prevalence or commonness of indigenous practices among women is revealed. Although the percentage responses in rating differ, most of the practices are rated as common except two which are; child delivery practices and food protection against diseases and pests by use of natural products like ashes. 8 out of the 13 practices are rated very common by more than 50% of respondents. It is observed that these practices can be classified in the modern perspective as medical and agricultural. Some too are home chores.

In the Nigerian society, some people embrace traditional medicine which is practiced in various ways in the treatment of fractures & wounds, fever, convulsion, diahearria, infectious diseases and so forth which are observed in the study as common. The issue of trado/ortho medical practices generated controversy among society members and orthodox medical practitioners. Trado medical organizations existed a long time ago and in the bid to align with orthodox medicine their modes of operation tend towards the following dimensions; traditional delivery practices in obstetrics & gynecology, local treatment of bone fractures and wounds in orthopedic surgery, local treatment of children sickness, diseases and ailments in pediatrics as well as local treatment of infections, fever, and other ailments in general medicine. Today, the organizations have been professionalized and they operate under a unified and legally recognized body. The bodies strive to refine and modernize the modes of operation and activities.

The relevance of these practices to science education for the enhancement of science teaching and learning is the contention and was explored. This addresses research question 2. Teachers were given the list of indigenous practices and requested to list high school science concepts that blend with each of these practices. Responses of the eighty five school science teachers were sorted and pooled together as summarized on Table 2.

**TABLE 2**

**Science Concepts And Women Indigenous Practices**

INDIGENOUS PRACTICES	HIGH SCHOOL SCIENCE CONCEPTS
Local child delivery practices	Living & non living things, characteristics of living things, Reproduction
Local treatment of fracture & wounds	Skeletal & supporting systems
Treating fever, convulsion & other diseases (by cooking of leaves, stems, grasses and other herbs)	Plants & its uses, monocot & dicot plants, microorganisms, solvents, towards better health
Treating measles, chicken pox & other infectious diseases (by use of concoctions)	Microorganisms, immunization, mixtures, chemical reactions and solutions
Food protection against diseases & pests by use of natural products like ashes	Microorganisms & health, food hygiene, food preservation, nutrition
Smoking of food products for preservation	Food & nutrition, food preservation, fermentation, evaporation, microorganisms
Food preservation by adding salt	Food & nutrition, food preservation, fermentation, evaporation, microorganisms
Production of local additive; locust bean "iru" & melon "ogiri"	Food & nutrition, food preservation, fermentation, evaporation, microorganisms
Production of "gari" (cassava flakes), and pap from maize & other cereals	Agricultural food products, food & cash crops, monocot plants evaporation, fermentation, hydrolysis, chemical separation techniques
Production of local gin	Hydrocarbon - alcohol, brewing, fractional distillation, distillation, fermentation
Using manure in planting & forest conservation	Soil & soil management, soil fertility, conservation of natural resources
Local soap & oil production	Soap, hard & soft water, saponification, evaporation, distillation
Tie & die of clothes	Methods of making designs or fabrics, skin printing, chemical combination & reactions, solvents, colour separation techniques

Table 2 above revealed the views of high / secondary school science teachers when pooled together.

## **DISCUSSION AND RECOMMENDATION**

Some of the listed indigenous practices observed in the study are found to have scientific undertones, and will yield good benefits if not disregarded. Most of them are found to be common and therefore popular among women as displayed on Table 1. School science teachers further provided rich insight into the existence of link between these practices and modern science by identifying some school science concepts as shown on Table 2. How to employ and popularize these practices in order to enrich science teaching and learning in schools poses challenge. The teaching of the science concepts by making reference to the practices will reflect science as action which takes place daily in the environment.

Magagula & Mazubiko (2004) advocated the indigenization of formal school curriculum with efforts to Africanize curricular at all levels of education. This is congruent with the attempt to bring learners of science closer to the immediate environment and it is consistent with the contention of Ogunniyi (1986) that a great number of African myths and beliefs have scientific explanations which cannot be ignored. Therefore, the sensitization of the society on the educational, social and medical relevance of these myths and beliefs has implication on the acquisition of scientific literacy and healthy development.

African Science educators have the challenge of searching and providing scientific explanations for the traditional African culture, practices, beliefs or superstitions. One cannot undermine the fact that there could be hindrances to searching and fact finding among which is the reluctance of women and traditionalists to provide or offer useful information or even to volunteer assistance when required for classroom practices. This brings in the importance of the eradication of illiteracy. A lot of vital indigenous scientific knowledge would be suppressed if stakeholders are not properly orientated and made to acquire useful relevant literacy skills.

Useful experiences in informal science practices can be tapped to ameliorate the problems faced by science teaching and learning at all levels. The different concepts observed in the study cut across all levels of learning. It will therefore be of tremendous benefit to science education if the practices are well internalized and incorporated with classroom learning. The attempt will de-emphasize science as abstract or as bundle of laid down facts and principles to be memorized by learners.

In the present dispensation, science is activity and research reports have communicated this (Hudson, 1994; West, Farmer & Wolf, 1991). School science is neither magic nor a bundle of abstract facts which are unrelated to out of school experiences. For

science to make a lasting impression on learners, relevant informal science practices can be factored into the curricular and methodological approaches of formal science education programmes. This is a challenge for empirical studies and it is the contention of science educators (Mejeha, 1992; Seweje, 2000). It is a great task which requires urgent attention and all stake holders in science education from policy makers to implementers including parents must have inputs.

The positive and long lasting transformation of any society must start from the grassroot, therefore in imparting knowledge, teachers have to find ways of linking learner's knowledge of informal science to their knowledge of formal science. Teachers are immensely relevant in their roles, responsibilities and contributions towards the achievement of educational goals and objectives (Cwikla, 2004; Sim, 2004). They need to demonstrate professionalism and good initiative in the use of well designed innovative teaching strategies in order to achieve their goals. Studies have reported the beneficial use of innovative teaching strategies in science such as games & role play (Adams, 1993), inquiry (Vasquez, 1998), and Cooperative Methods (Alebiosu, 2001; Wachanga & Mwangi 2004). Therefore science teachers face the challenge of exploring ways of using rich teaching strategies that will blend the informal and formal sciences for classroom teaching. Having identified formal science concepts in informal/indigenous practices is commendable, further tasking steps entails teachers resourcefulness in selecting approaches that will integrate both practices in classroom experiences.

Many science teaching instructional techniques or intervention strategies abound and they are employed at the innovativeness or discretion of the teacher to meet specific teaching and learning needs. As science educators, some strategies or approaches which can be employed to integrate or harmonize the indigenous practices with the classroom teaching experiences are as follows;

- i) organizing talks and symposia in schools
- ii) use of pamphlets, handbills & posters in schools
- iii) inclusion of practices in texts and workbooks
- iv) taking students on trips and excursion to centres
- v) collaboration between education authorities and centres
- vi) invitation of women and stakeholders to schools with remunerations
- vii) developing and using resource books on indigenous practices.

In summary, light is shed on the fact that in Nigeria, some forms, values, norms beliefs or operations of indigenous / informal science can have some elements of modern science, a claim is made for integration. Unbiased package of both will provide gateway for survival and recovery in the following areas;

- educational advancement, particularly curriculum and methodologies in science education
- social, economic and health survival
- scientific literacy
- general betterment of life and sustainable development

The study carried out investigation on women. There are other indigenous activities carried out by men too, not only this, many other practices to be explored regardless of sex abound. While experimental studies can explore the actual blending of some of these practices with the school science concepts identified in the present study for classroom teaching, the possibility that the school science concepts have been exhausted is slim. Studies can also extend to the primary level. All these are very rich areas for academic research and it will be of tremendous benefit to practicing school science teachers.

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**DR KEHINDE A. ALEBIOSU**

DEPARTMENT OF CURRICULUM STUDIES & INSTRUCTIONAL TECHNOLOGY  
OLABISI ONABANJO UNIVERSITY.

AGO IWOYE, NIGERIA.

P. O BOX 4622, GENERAL POST OFFICE, DUGBE. IBADAN. NIGERIA

E mail: [dromokenny@yahoo.com](mailto:dromokenny@yahoo.com)

Phone no: +2348023071221 or +2348056651636

## **Effectiveness of Advance Organizers Learning Strategy in Teaching of Yoruba Concepts**

**Odejobi, C. O**

**A.D.O Adesina**

### **Abstract.**

The specific objective of the study is to investigate if advance organizers Learning Strategy will facilitate the learning of Yoruba concepts.

The design for the study was a pretest-post-test control group design. The samples comprise of 231 junior school certificate (JSS I) Yoruba students from nine intact classrooms of three schools selected randomly in the Western Zone of Nigeria.

The students were assigned to three groups A, B and C each presented with different learning packages. A pretest and post text was administered on the groups. The data collected were analyzed using inferential statistics. Parameter observed was the academic performance of students placed on the advance organizer learning Strategy.

The result of the study revealed that there was a significant difference in the academic performance of students in Group A. The significant difference was in favor of the advance organizer plus verbal instruction group. The study concluded that advance organizer learning facilitated the learning of Yoruba concepts.

### **Introduction**

The goal of any educational research in the teaching/learning process is to identify instructional methods and materials that will optimize learning. The way a subject is handled by the teacher goes a long way in facilitating students' attitudes. Effort should also be made to present the subject in a way to arouse and maintain learner's interest (Olowookere 2001). One of the major problems facing the teaching and learning of Yoruba is the narrow didactic teaching style used by language teachers, a carry-over from the way in which they had themselves been taught (Shaplin and Shaplin 1969, Odejobi 1997).

Also, teachers take teaching of Yoruba concept for granted because it was assumed that anybody who could speak Yoruba language fluently could teach the language (Odejobi 1997, Sotonwa & Okeowo 1991). These problems can militate against the discovery of effective ways of transmitting Yoruba concepts to students in a meaningful way so that concept learned can be retained longer, transferable and functional. These inadequate strategies for teaching difficult concepts in this subject area might account for the student's low performance. Students' performances tabulated in the table I below buttress the point.

**Table I: Promotion Examination Results of JSS Students in Western Zone of Nigeria.**



	2001			2002			2003		
Class	No of Students	% Passed	% Failed	No of Students	% Passed	% Failed	No of Students	% Passed	% Failed
JSS I	360	49.4	50.6	330	56.7	43.3	400	54.2	45.8
JSS II	343	49.3	50.7	362	56.9	43.1	437	49.6	50.4
JSS III	313	47	53	328	56.1	43.9	367	46	54

The use of advance organizers has been found useful to the teaching and learning of concepts by earlier researchers like Ausubel (1960), Ausubel and Fitzgerald (1962), Ausubel and Youssef (1963). It has also been established that advance organizer can be used to teach any subject matter (Crowl, Kaminsky and Podell, 1997). This advance organizer according to Crowl et. al..(1997) Activates students schemata, reminds them of what they already know and help them to recognize the relevance of their existing knowledge. The main idea of this instructional system is that what a person already know and how this knowledge is personally structured are the two most important and crucial variables. (Baruwa 1985).

This study was therefore designed to illuminate the efficacy or otherwise of using the advance organizer for the teaching of selected Yoruba concepts like Igbeyawo(marriage), Irun didi (hair do), Ila kiko (tribal mark). (Adeoye, 1979).

### **Objective of the study:**

The objective of this study is to examine whether or not the use of advance organizer strategy will enhance the learning of the selected Yoruba concepts, i.e. Igbeyawo, Irun didi and Ila kiko, among junior secondary school students.

### **Research Hypotheses:**

The following research hypotheses were set to determine whether:

1. there is a significant difference between the academic Performance of students who were taught with advance organizer Plus verbal instruction and those who were taught with verbal Instruction only
2. there is a significant difference between the achievement of students who were taught with advance organizer plus verbal instruction and those who were not taught with neither advance organizer or learning instruction.

### **Research Method:**

The design of the study was a pretest-posttest control group design. Three secondary schools were randomly selected out of the schools in the Western Zone of Nigeria. The schools selected were Idita Community Secondary School, Ile Ife, Osun State, Notre Dame College, Usi Ekiti, Ekiti State, and Community Secondary School, Iware, Oyo State.

The subject for the study consisted of two hundred and thirty one 231 junior secondary school students (JSS I) in Nine (9) intact classrooms of the three selected schools. Class one was chosen because they have the least chance of knowing the selected concept before the researcher taught them. The classes were randomly selected from the number of classes in each school. The age ranges of the subjects are between twelve (12) years and fifteen (15) years. The students were grouped into three (3) namely A, B, and C according to the existing class grouping in the school. The three groups were assigned as group A, taught with advance organizer plus verbal instruction, Group B taught with verbal instruction only while group C was neither taught with advance organizer nor verbal instruction. Group. A was the experimental group while group C remained the control group.

A period of six weeks was used to conduct the research. The advance organizers used include diagrams of different types of (a) Marriages (Igbeyawo): Traditional, Church and Mosque (Igbeyawo ti Ibile, ti Soosi ati Mosalasi), (b) Hair do (irun didi): suku, kolese, ipako elede, ogun pari, layipo) (c) Tribal mark (Ila kiko): Abaja Olowu, Abaja basorun, pele, keke, ture, Gonbo, pele Egba, Ila ibule merin-merin). These diagrams would lead to the acquisition of the knowledge expected since the content of the diagrams are analogous to the content of the learning instruction. The learning materials presented the real content of the lesson in prose form. They focused on the types, functions and problems associated with the concept of marriage, hair do and tribal marks.

The experiment was divided into five (5) sessions. The first session was devoted to introduction of the researcher to both the teachers and the students. The second session was devoted to the administration of a pretest while during the third session, diagrams were presented in form of Advance Organizer to group A. the diagrams was explained and discussed for fifteen (15) minutes in each class. The fourth session was used to teach group A and B. in each class of the study, thirty (30) minutes were used to explain the concepts. In the fifth session, a posttest was administered to the groups (A, B and C). The test was the same as the pretest arranged in different order and it took place four weeks after the pretest. Thirty (30) minutes were given for the test. The test content were multitude choice items of four sessions. The total number of items was twenty (20). In

each question, it was required that the letter bearing, the correct answer be encircled. Obtained data were subjected to inferential statistical analysis of f- test and the t- test.

**Results and Discussion.**

Table 2 below shows the analysis of variance of performance of groups A,B & C on pretest.

Table 2: Analysis of Variance Showing Academic Performance of Groups A, B & C on Pretest.

Source of Variation	Sum of Square	DF	Mean Square	F Ratio
Between groups	109.75	2	54.875	
Within Group	29965.68	230	130.29	0.42

As shown in Table 2, the mean square between groups and within groups are 109.75 and 29965.68 respectively. These yielded an F-Value of 0.42, which is not significant of the 0.05 levels. This implies that there is no significant difference in the academic performance of the students before teaching the concept to them.

Table 3 below shows the t-test analysis of academic performance of the advance organizer plus verbal instruction Group and the verbal instruction only Group.

**Table 3: t-test Analysis Showing Academic Performance of Advance Organizers Plus Verbal Instruction Group (Group A) and the Verbal Instruction only Group (Group B) on posttest.**

Research Groups	N	X	S.D	df	t
Advance Organizer + verbal Instruction group (Group A)	73	38.6184	13.5633	156	2.223
Verbal Instruction Group (Group B)	85	33.9412	12.8428		

As shown in table 3, the mean scores of Groups A and B are 38.6164 and 33.9412 respectfully. The t score is 2.223 which shown a significant difference in the academic performance of group A and B. this means that the advance organizer plus verbal instruction Group performs better than the verbal instruction only Group.

Table 4 below shows the t-test analysis of academic achievements of the advance organizers group (group C).

Table 4 : t-test Analysis showing Academic performance of the Advance Organizers and Verbal Instruction group (GroupA) and the Control Group (GroupC) on posttest.

Research Groups	N	X	SD	df	t
Advance Organizer + Verbal Instruction (Group A)	73	38.6164	13.5633		
Control Group (Group C)	74	24.7703	12.1063	145	1456.532

From table 4 above, the mean scores of groups A and B are 38.6164 and 24.7703 respectively. The t. calculated is 6.532, which shows a significant difference in the academic achieve of groups A and C on posttest. This means that the advance organizer plus verbal instruction group performed better than the Control group.

### Discussion of Result

From the result shown above in tables 3 and 4 the advance organizers plus verbal instruction group (GroupA) performed better than the verbal instruction only group (Group B) and the group neither taught with advance organizers nor verbal instruction (GroupC). This means that the advance organizers learning technique is favourable to the teaching of Yoruba concepts to the Junior Secondary School Pupils.

The results are in line with Adesina (2003), Hartley E Davies (1976); Ausubel (1960) and Ausubel and Youseff (1963). The favourable result of advance organizers learning strategy in this wise is therefore not a surprise.

### Conclusion

This work has revealed with respect to junior Secondary School Students that there is a significant difference between the academic performance of the advance organizers plus verbal instruction group (Group A) which is the experimental group, and the verbal instruction only group. It was also discovered that the advance organizers plus verbal instruction group (Group A) performed better than the Control group (Group C) which was neither taught with advance organizer not verbal instruction .The advance organizers plus verbal instruction group (Group A) is most favourable out of the three groups in the learning of Yoruba concepts.

Studies involving more area in the subject (Yoruba) may be the next focus of research

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### **Short Curriculum Vitae Of Authors**

ODEJOBI, Cecilia Omobola,

Has her B. A. (Honours) in Yoruba and M. A. degree in Yoruba Language and Literature from the Obafemi Awolowo University. Her Ph.D is currently awaiting Senate of Obafemi Awolowo University approval. She is a lecturer in the Institute of Education, Language Arts Unit, Obafemi Awolowo University She has written and co-authored, at both local and international level, in the area of Nigeria indigenous language especially Yoruba and Education.

ADESINA, Adegbenro Dauda Olajide,

He is a lecturer in the Institute of Education, Obafemi Awolowo University.

**Influence Of Parents' Socio-Economic Status On Students' Academic Performance: Implications For The Planning Of Universal Basic Education Programme.**

by  
Olubadewo S. O.  
Stella Ogwu

**Abstract**

The purpose of this study was to examine the influence of parents' socio-economic status (SES) on students' academic performance. The descriptive survey research design was adopted for the study. Subjects consisted of three hundred and seventy two (372) drawn from the twelve randomly selected secondary schools. The instrument labelled Socio-Economic Status and Academic Performance Questionnaire (SESAPQ) was used to collect information on demographic, socio-economic status and academic performance. The chi-square test was used to test the hypotheses that SES of parents would not significantly influence children's performance in English language and Mathematics. The findings revealed that combined male and female students from parents of high SES performed better in English than the other two groups. It was revealed that SES did not influence performance in English language by female students. In Mathematics, children from middle and lower SES performed better than those from high SES. In Mathematics, male students from parents of high SES performed better than those from middle and low SES groups. Female students from low SES performed significantly better in mathematics than those from high and middle SES. It is therefore concluded that parents' SES influences academic performance in the study area.

**Introduction.**

In most African Countries and the World over, socio-economic status of a family is usually aligned with the family's income, parent's educational level, parent's occupation and social status among the kins and even at the global scene.

It is believed that families with high socio-economic status often have more success in preparing their children for school because they always have access to a wide range of resources at their disposal to promote, uplift and support their young ones. According to Ogwu (2004) the high socio-economic status parents are able to provide their young children with high quality child care books and toys to encourage them in their various learning activities at home.

Crnic and Lamberty (1994: 99 – 105) believed that, segregating the nature of social-economic class, ethnicity and race may well reduce the variety often enriching experiences thought to be pre-requisite for creating readiness to learn among children social class.

Across all socio-economic groups, parents face major challenges when it comes to providing optimal care and education for their children. However, the challenges are more acutely devastating among the poor families that are struggling to provide the basic needs necessary to sustain the family members.

Families with low socio-economic status often lack the financial, social and educational supports that characterise families with high socio-economic status. Due to their poverty level, these groups of families may have inadequate or limited access to community resources that can promote and support children's development and school readiness. Socio-economic status therefore can be referred to such a position in relationship to the social and economic standing of the individual parents occupying various positions among the groups in the society. These positions are looked at in relationship with planning of the Universal Basic Education Programmes towards effective educational goal achievement. Educational planning in relation to Universal Basic Education can take its cue from the application of rational and systemic analysis to the process of educational development with the aim of making education more effective and efficient in responding to the needs and goals of its students and society (Coombs 1974: 14).

In every society, there is always the need to consider the economy of the Nation and the individual economic status when planning the education system. The allusion dwells on the believe that the process rests on the conscious attempt being made by Governments at any level to link the development efforts with their educational systems with the demand for educated manpower by the Nation's sectoral economies.

If planning the education for the citizenry is a conscious attempt by the Governments, it goes to say therefore that parents of the would be beneficiaries should be taken into cognisance. Their economic positions and likely contributions they are expected to make towards the education development of their children. The objectives of educational planning rests on educational expansion, quality of education for the society with emphasis on learning and outcomes, equality of educational opportunity and post-graduation employment and manpower requirement for the different economic sectors of the nation (Olubadewo 1992: 68).

There are three dimensional views for educational planners when planning the educational system of the nation. These are the functional, general and special objectives. The functional objectives are the school buildings and plant planning, manpower planning and budgeting, finance, curriculum, administration, management and publicity. The special objectives deal with the types of institution like the Primary, Secondary, University, Teacher, Technical and Adult education programmes. The general objectives which are the main concern of parents' status in the society embrace the political, legal, economic, social, cultural, demographic and technology. These general objectives in essence engulf both the financial and special objectives.

Parents' socio-economic status is at stake in these areas if the planners and governments in power at any time of our educational level will mean well for the nations educational development. If planning is aware of status differences, the equality of

educational opportunity should be looked into with adequate provisions of educational facilities to the various socio-economic groups in the society.

It is generally but specifically believed that children from high and middle socio-economic status parents are better exposed to learning environment at home because of provision and availability of extra learning facilities. In contrast, the believe holds that, children from low socio-economic status parents do not have access to extra learning facilities, hence, the opportunity to get to the top of their educational ladder may not be very easy. The study sets to investigate parents' socio-economic status of JSS 3 students as a factor of their academic performance in Mathematics and English language.

### **Research Questions.**

1. What is the relationship between parents' socio-economic status and academic performance of JSS 3 students in general?
2. Has parents' socio-economic status any influence on the performance of JSS 3 children in Mathematics?
3. Has parents' socio-economic status any influence on the performance of JSS 3 children in English language?

### ***Hypotheses***

#### **Hypothesis One**

There is no significant difference among children from parents of different socio-economic status in their academic performance.

#### **Hypothesis Two**

There is no significant difference among male children from parents of different socio-economic status in their academic performance generally.

#### **Hypothesis Three**

There is no significant difference among female children from parents of different socio-economic status in their academic performance generally.

## **METHODOLOGY**

### **Design**

The descriptive survey research design was adopted for this study. Descriptive survey is a systematic description of facts, qualities or characteristics of a given population or event which factually and accurately answer a given question posed by the problem under investigation (Nwankwo, 1984: 51-54)



Isaac and Michael (1972: 18) described the objectives of a descriptive survey research as:

- to collect detailed factual information that describes existing phenomena,
- to identify problems or justify current conditions and practices and
- to make comparison and evaluation.

### **Population and Sample**

The total group with which the study is concerned is referred to as the population or universe of concern. The population is the group which the researchers are interested in gaining information upon which subsequent conclusions are drawn.

The researchers randomly selected 372 subjects from (12) Junior Secondary Schools in Kano metropolis, using the Table of random numbers. The sample comprised of thirty one (31) students from each of the twelve (12) selected schools in Kano metropolis.

### **Research Instruments**

The researchers used close-ended questionnaire to collect information from the research subjects. The instrument is labelled Socio-Economic Status and Academic Performance Questionnaire (SESAPQ).

The questionnaire was made up of three (3) sections :-

1. Demographic information: This included the demographic variables like sex, age, father's occupation etc.
2. Socio-economic status according to Olusi, Ademowore, and Ajani (1979) with their ranking are:

Variable	Max Point
i Level of Education	7
ii Ownership of a house	1
iii Ownership of a Car	1
iv Household Equipment / Utensil	0.5
v Crowding Indices i.e. Number of rooms to number of persons in a house (Adults only) $< 0.5 = \frac{1}{2}$ , $> 0.5 = 1$	

Maximum Obtainable Score = 26

Minimum Obtainable Score = 0

Parents' Socio-economic Status is categorized into high, middle and low.

High Socio-Economic Status = HSES =  $>17$

Middle Socio-Economic Status = MSES = 9 -17

Low Socio-Economic Status = LSES =  $< 9$

3. Academic performance: This is weighted according to subjects' scores in Mathematics and English language in the Junior Secondary School Examinations as obtained. Scores in each subject were categorized into four (4) grades.

A = 70% and above	Distinction
C = 50% - 69%	Good
P = 40% - 49%	Pass
F = Less than 40% and below	Fail

### **Statistical analysis**

In this study, frequency and percentage distribution as well as cross tabulation were used to describe and present the data. The chi-square contingency analysis was used to test the hypothesis that parents' SES will not significantly influence students' academic performance. Contingency coefficient was used to determine the extent to which SES influence academic performance. All analyses were performed on a microcomputer using the Statistical Package for the Social Sciences (SPSS) (Windows Version 9.0, Chicago, IL, USA) at an alpha level of 0.05.

### **Results**

The demographic characteristics of the participants are presented in Table 1. As indicated in the Table, there are more girls (57%) than boys (43%) and children from parents of middle SES (52.4%) were more than either those from low (25.5%) or high SES (22.0%)

**Table 1:** Frequency and percentage distribution of subjects' demographic characteristics.

Variable	Frequency	Percent	Cumulative percent
Gender			
Male	160	43.0	43.0
Female	212	57.0	100.0
SES			
High	82	22.0	22.0
Middle	195	52.4	74.5
Low	95	25.5	100

The results of hypothesis testing are presented in Tables 2, 3, 4, 5, 6 and 7. The chi-square test was used to test the hypothesis that SES of parents would not significantly influence children's performance in English and Mathematics.

The first hypothesis stated that SES of parents would not significantly influence subjects' performance in English language. The results are presented in Table 2.

**Table 2:** English language performance of subjects according to SES

SES	Distinction	Good	Pass	Fail	Total
High	22 (13)	20 (17.90)	38 (47.4)	2 (3.7)	82
Middle	21 (30.9)	41 (42.5)	125 (112.7)	8 (8.9)	195
Low	16 (15.1)	20 (20.7)	52 (54.9)	8 (7.4)	95
Total	59	81	215	17	372

$X^2 = 15.689$ ,  $DF = 6$ ,  $P < 0.05$ . Values in parentheses are expected frequencies.

A look at Table 2 shows that approximately 51% of subjects from high SES performed well (distinction and good grades) while less than half (49%) had poor grades. On the other hand more than two-thirds of children from parents of middle (69%) and low (63%) SES had poor grades (pass and fail).

The result of the chi-square test shows significant association between SES and performance in English language ( $P < 0.05$ ). This indicates that children from parents of high SES performed disproportionately better than children from the other two groups in English language. Contingency coefficient reveals that 20% of the variance in English language performance by children was accounted for by SES of their parents.

**Table 3:** English language performance of Male subjects according to SES (n = 160)

SES	Distinction	Good	Pass	Fail	Total
High	16 (8.3)	12 (10.5)	21 (30.0)	2 (2.2)	51
Middle	9 (15.0)	20 (19.0)	59 (54.1)	4 (4.0)	92
Low	1 (2.8)	1 (3.5)	14 (10.0)	1 (0.7)	17
Total	26	33	94	7	160

$X^2 = 17.584$ ,  $DF = 6$ ,  $P < 0.01$ . Values in parentheses are expected frequencies.

Results on Table 3 shows that more than half (55%) of the subjects from parents of high SES performed well (distinction and good grades) while only about two-thirds (32%) and one-tenth (12%) of subjects from parents of middle and low SES respectively performed well. Majority of them (middle and low SES) fell within poor grades.

Chi-square test was used to test the hypothesis that parents' SES would not influence male subjects' performance in English language. Results revealed significant ( $P < 0.007$ ) association between parents' SES and male subjects' performance in English language. Further analysis revealed that parents' SES accounted for 32% of the variation in English language performance by male subjects.

**Table 4:** English language performance of female subjects according to SES

SES	Distinction	Good	Pass	Fail	Total
High	6 (4.8)	8 (7.0)	17 (17.7)	0 (1.5)	31
Middle	12 (16.0)	21 (23.3)	66 (58.8)	4 (4.9)	103
Low	15 (12.1)	19 (17.7)	38 (44.5)	6 (3.7)	78
Total	33	48	121	10	212

$X^2 = 7.387$ ,  $DF = 6$ ,  $P > 0.05$ . Values in parentheses are expected frequencies.

The results on Table 4 of the analysis revealed a 45 % performance level of female subjects in English language. This further showed that parents' from the high SES group had no influence on the academic performance of their children.

It could be deduced from the results that parents SES has no significant influence on performance of their female children in English language.

The result of the chi-square test shows a no significant association between SES and performance of female subjects in English language ( $P > 0.05$ )

**Table 5:** Mathematics performance of male and female students according to SES (n=372)

SES	Distinction	Good	Pass	Fail	Total
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High	26 (14.5)	13 (13.0)	39 (45.6)	4 (8.8)	82
Middle	26 (34.6)	32 (30.9)	115 (108.5)	22 (21.0)	195
Low	14 (16.9)	14 (15.1)	53 (52.9)	14 (10.2)	95
Total	66	59	207	40	372

$X^2 = 17.183$ ,  $DF = 6$ ,  $P < 0.05$ . Values in parentheses are expected frequencies.

Table 5 details the results of the influence of parents' SES on Mathematics performance by the combined groups of subjects. Results indicate that approximately half (48%) of subjects from HSES fell within the good grades while less than one-third (29%) of subjects from LSES had good grades

Results of the Chi-square indicate significant association ( $P < 0.01$ ) between SES and performance in mathematics. This means that children from HSES performed disproportionately better than those from the lower groups. Further analysis revealed that parents SES made up for 21% of the variation in mathematics performance.

**Table 6:** Male subjects' performance in Mathematics according to parents SES (n = 160)

SES	Distinction	Good	Pass	Fail	Total
High	14 (7.0)	13 (9.6)	21 (29.0)	3 (5.4)	51
Middle	8 (12.6)	17 (17.3)	57 (52.3)	10 (9.8)	92
Low	0 (2.3)	0 (3.2)	13 (9.7)	4 (1.8)	17
Total	22	30	91	17	160

$X^2 = 22.961$ ,  $DF = 6$ ,  $P < 0.001$ . Values in parentheses are expected frequencies.

**Table 7:** Mathematics performance of female subjects according to SES of their parents. (n = 212)

SES	Distinction	Good	Pass	Fail	Total
High	12 (6.4)	0 (4.2)	18 (17.0)	1 (3.4)	31
Middle	18 (21.4)	15 (14.1)	58 (56.4)	12 (11.2)	103
Low	14 (16.2)	14 (10.7)	40 (42.7)	10 (8.5)	78
Total	44	29	116	23	212

$X^2 = 13.264$ ,  $DF = 6$ ,  $P < .039$ . Values in parentheses are expected frequencies.

Results of the gender specific chi-square contingency analysis are presented in table 6 and 7. in the case of male subjects see (table 6) influence of SES was clearly demonstrated. For instance, more than half (53%) of the male subjects are HSES performed with high grades while performance of less than one-third (27%) of subjects from MSES and none (0%) of subjects from LSES fell within high grades. Results of the chi-square contingency analysis in case of male subjects showed significant ( $P < 0.001$ ) association between parents' SES and

subjects' performance in mathematics. Contingency coefficient indicated that parents' SES accounted for 35% of the variation in mathematics performance.

Results of female subjects are presented in table 7. apparently, less than 40% of children from SES category performed with high grades though, more children from parents of HSES performed better than children from the lower groups.

Chi-square test indicated significant ( $P < 0.05$ ) association between parents' SES and female children performance in mathematics. This means that female children's performance in mathematics depends on SES of their parents. In the present study, children from parents of HSES and LSES performed disproportionately better than those from parents of MSES. Further analysis revealed that 24% of the variation in mathematics performance by female subjects was accounted for by SES of their parents.

### **Discussion.**

The results from this showed that parents' SES has influence on children academic performance in their JSS 3 examinations in English language and Mathematics in the area of study. Positive parental attitude towards the child, such as high interest in the child's academic efforts, provision of household equipment like TV, Computer, books, educative video, radio, good school, closeness and intimacy with children are variables known to be associated with academic performance (Backman et al 1968).

In corroboration with Backman et al (1968) the result from English general performance is high with over 51% subjects when high SES performed between distinction and good grades. With this the results of the chi-square shows a significant association between SES and performance in English Language ( $P < 0.05$ ). it is good indication that children from parents of high SES performed better in English Language than the two other groups.

There cannot be any meaningful success in children learning without good planning for their education. Both the governments and education planners should have at the back of their minds when planning the curriculum of education taking into account the various backgrounds. Balanced plans that consider the various socio-economic status and agitate for provision of equipment always help the middle and low SES parents. Olubadewo (1992: 71 – 73)

In a typical natural environment of this kind, there is no doubt that socio-economic status may be related to academic performance (Akinboye 1985). The result of male students from SES (Table 3) justifies influence of parents socio-economic status with the male student having 55% had distinction and good grades in English Language examination.

The result on Table 4 as analysed showed a chi-square test of no significant association between SES and performance of female students in English Language ( $P >$

0.05 ). Therefore one can claim that academic performance in school work is not facilitated only by parents SES. There could be other factors like poor grouping, school policy and administrations contributing to academic performance.

The result of performance in Mathematics of male and female showed a startling revelation when less than 27.5 of children from parents of 72.5% scores. The results from the chi-square test revealed a significant ( $P < .009$ ) association between parents SES of male and female subjects performance in Mathematics. This factors that can contribute to academic performance in school and not only that which is based on parents SES.

Fraser (1969) researched on the effects of home environment on 408 Aberdeen children academic achievement and discovered that two variables with highest correlation with educational attainment are parental encouragement and parental education. In a home where parents are fairly or highly educated, they would still aspire to see their children better than they are educationally. This inspiration forces them to motivate their young ones by providing for their basic needs in education, hence their performances in their academic work in schools. This further explains the reason why children from HSES performed individually better than those from the middle SES and the low SES.

### **Conclusion.**

In conclusion therefore the research efforts revealed that parents' SES can greatly influence academic performance of their children. It was revealed that there could be other factors contributing to academic performance which were outside the premise of this research.

However, the research has been able to determine a relationship between parents' SES and academic performance of JSS children in the study area and found out that there are strong relationships. The study also highlighted the important position of good and conscious planning of education for these various groups of children from the different strata of economic background so that even those from poor background can climb to the top of their education ladder in the society.

### **Recommendations.**

Based on the foregone analysis of data, results and findings as revealed by the research, the following tips are recommended for governments, parents, educational planners and policy makers and the school authorities for consideration in the provision of educational facilities.

Planning for and delivery of education should take into account the parents' SES. Teachers as implementers of educational facilities should have a balanced view of children from various SES background as to blend their teaching so that all will benefit equally.

Parents whether HSES, middle SES or low SES should strive to provide extra incentive for their children in the school.

The school administration should provide a conducive atmosphere for the children to learn even from those who are opportune to have access to extra learning facilities at home. By so doing, the gap between the haves and don't have will be reduced.

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NAME: Dr. S. O. Olubadewo, Dept. of Education, Bayero University,  
P.M.B. 3011, Kano State Nigeria.

Position: Associate Professor  
Educational, planning and administration

E-mail: [olubadewoso@yahoo.com](mailto:olubadewoso@yahoo.com)

Name: Stella Ogwu  
Working Address: Federal Government College, Abuja  
Position: Teacher



## **Information Needs And Utilization In Selected Local Government Areas In Kaduna, Kano And Katsina States Of Nigeria**

**Andrew Leo Ogbonyomi**

### **Abstract**

The place of information in our daily life cannot be overstressed, as information has become a very powerful tool in both our individual and national development. Unfortunately in many developing countries such as Nigeria even though some of the citizenry realize the importance of information, the great majority of the rural dwellers are yet to enjoy the value of information in their day to day activities. They are yet to feel the impact of libraries and information centers services in the villages. Their productivity has not been fully enhanced because they lack the information needed for this achievement. This research attempts to reveal the information needs and utilization in three local government areas in each of Kaduna, Kano and Katsina States of Nigeria.

### **1.0 Introduction**

Bayero University, Kano The place of information in our national development and growth can best be appreciated when one considers the outcome of the Conference Board on Information Technology Report (1972:2) in which the conclusion reached was that “the United States could not succeed and continue to maintain its leadership role in the world when it moves from an industrial base to an information base”. Also the organization for Economic Cooperation and Development categorically stated that “information is the key to men’s future ... society must learn to use it effectively”.

The current technological age is gradually moving the world in to what Bell (1973:127), Garfield (1979:209-215) and others refer to as “Post – industrial Society” or “Information Society”. The importance of information as both a national, economic and political resource cannot be over emphasized.

There is a great need, therefore to provide the resources, which will provide the much-needed information for the total development of all societies.

Unfortunately in this present day Nigeria, Library and information Centre Services are largely limited to the literate minority in the rural areas. This development has apparently led to a total neglect of the majority of the populace being starved of information, which they greatly need for their every day development.

The need for the provision of information resources to societies of this nation was clearly spelt out by F. A. Sharr (1963:6), when he reported that:

*It is clearly in the public interest that new literates be enabled and encouraged to maintain and extend their literacy, and that both the new literates and illiterates should have means of obtaining information they want*

The above quotation has clearly shown that information, indeed, has become the missing ingredient in the development process of our country. Also Kedem (1993) supported this claim when he observed that:

*It is needless to stress that without relevant and accurate information, countries cannot choose the best course of action in terms of their own national interest*

The trend of events of information needs as well as efforts towards satisfying such needs and demands are strictly urban affairs. This is because the establishment, operation and services of agencies of mass information dissemination centres are exclusively without adequate interest of the rural populace. This lack of information has led to low productivity. Issa (1998:132) in a paper observed that:

*The rural populace suffers from acute low productivity, social and economic retrogression due mainly to ignorance, which is also a direct consequence of either in adequate or total lack of information provision to them.*

It is against this background that this research work derives its problem, which involves an investigation in to media of information dissemination and what they do to meet the peculiar needs of rural people in some selected local government areas in Kano, Kaduna and Katsina States.

## **2.0 Research Problems**

Discussing the state of Nigeria's socio-political and economic situation Ogbonyomi (1998:97) also observed that Nigeria being a developing country is still in search of a political economic and social order, unfortunately, a great number of its citizens are ignorant about vital issues of the day.

The nine local government areas in Kano, Kaduna and Katsina States are not left out of the problems enumerated above. Therefore, the information needs of the majority of the dwellers in these local government areas automatically constitute a hindrance to any efforts towards national development to which they have great contribution and specifically to the survival of the national economy.

It is the aim of this research to find out how the information needs of the nine local government areas are provided by the information provision agencies, in what form they are

provided and how satisfactory are these means to meet the information needs of the local government areas.

#### Research Questions

To carry put this research work the researcher intends to provide answers to the following research questions:

1. *What are the information needs of the communities in the nine local government areas under study?*
2. *To what extent are the communities in the local government areas aware of the resources based centers in their localities?*
3. *What channels of information dissemination exist in the local government areas under study?*
4. *To what extent do library and information centers in the localities serve as the primary information centers for the communities under study?*
5. *How do these librarians and information centers carry out their operations in the communities?*

#### Literature Review

It is also generally agreed that rural areas have invariably lagged behind most in the rate of development. This constitute to a great extent a lag on national development on a whole because the rural areas form the nucleus of the nation. The lack of adequate information dissemination at the right time to the right people undermines the efforts at improving the living standard of the rural people by both national government and international voluntary organizations. The rural development in itself according to Aboyade (1987:99) is:

*A development package embracing the boosting of agricultural productivity, the promotion of socio-economic equity and the encouragement of grass root community participation in the process of development.*

To achieve this, there is the need to embark on full-fledged provision of information to the rural populace.

Information, therefore, if well articulated for the rural areas eradicates ignorance and gives enlightenment on how to achieve economic, social, political and cultural objectives towards the development of the entire society.

In Nigeria, particularly in the rural areas, where information is being shared through somewhat genuine communication process, there is bound to arise a situation leading to understanding of, as well as, sympathy with the ways of each other. This is evident in our

societal setting of multi-cultural differences. More so, it is a fact that a development process of harmonious and peaceful co-existence among people is a direct consequence of a more effective information dissemination.

For a country that is predominantly rural in settlement like Nigeria, the fact must be recognized that in order to achieve total national development, it is imperative that the rural sector of the economy must be developed.

Different disciplines try to define information the way it will suit the conceptual nature of the discipline. Abubakar (1985:9) sees information as:

*The content of a message which if conveyed, and assimilated by the person to whom it was conveyed, usually results in some decisions, actions or behavioural changes of addition to one's knowledge.*

To contend with this nature of information as expressed by Abubakar, Schram and others defined information as "Any content that reduces uncertainty or the number of alternative possibilities in a situation" they further opined that, " the information include such other thought as emotion, facts, opinions, guidance or persuasion.

Information, therefore, is a very powerful tool for both the governance and the governed in the socio-political development of a people. Because it is socially dynamic, universal and multi-dimensional information is sent to serve as a major source of political and economic power the world over

Summarizing the values of information Adamu and others 1998:9 observed:

*Progress in the field of human endeavour, growth and development is largely regulated and determined by our ability to reflect, appreciate and comprehend on the necessary variables involved in the information circles.*

Therefore, the nature and level of development as well as the sophistication of individuals and the society at large as a system is but a function of the relevancy and adequacy or otherwise of the availability of information at hand.

Conclusively, information is one of the greatest instruments creating confidence in the minds of the ruled and the rulers, which suffice to say that information delayed, is like justice delayed and is justice denied. Poor information or total lack of it can create upheaval and instabilities, hence, timely and relevant information is very necessary in any given society. The sources of information too vis a vis the store house of information should ensure that the right information is provided to the users at the right time.

The local government function areas including states, federal government and private organizations require one form of information or the other to keep abreast

with what is currently happening around and within them. Hence information is very vital to every sphere of life in any society.

### **Research Methodology Survey Population And Sample Size Of Respondents**

The population for this research study is made up of three local government areas in each of the three states (Kano, Katsina and Kaduna States). These local government areas were selected randomly. These local government areas include Dala, Kura and Kumbotso in Kano, Malumfashi, Daura and Katsina in Katsina State and Makarfi, Sabon Gari and Kakuri in Kaduna State. These local government areas also have easy access to the three states' headquarters and branch libraries of their various state library boards.

The sample size of communities were selected for this research work on the basis of the time of the establishment of the local government areas. Using this approach, all the public enlightening and information resources in the state were identified.

With regard to the sample size of respondents, a total of nine hundred were surveyed. This was made up of one hundred (100) from each of the nine local government areas. Also the librarians responsible for outreach activities of the three state library boards were served with questionnaires. Data collection instruments.

Survey method of research was employed in the design of the research instruments. Principally among this was the construction of a questionnaire, which required mostly close end answers. Also research assistants were used to collect data from the respondents who could not read and write English language. These research assistants were secondary school leavers who could read and explain in Hausa Language.

### **Collection Of Data**

It took the researcher about two months to collect the data for this research work. The researcher spent eight days to collect the data in Kaduna and Katsina States, which took two vigorous working days to collect the data in Kano State. The branch libraries at each local government headquarters used in this research with the assistance of the research assistants.

### **Data Analysis**

The data collected from the respondents were tallied. Average and percentages were used to analyze the data and were found necessary tables. Tables were used to further explain some of the information gathered.

**Table 1 Response Rate.**

S/N	Local Government Areas	Total No. of Questionnaire Served	No. of Usable Return	Percentage
<b>KADUNA STATE</b>				
1.	Kakuri	200	115	57.5%
2.	Makarfi	200	140	70.0%
3.	Sabon Gari	200	120	60.0%
	<i>Sub Total</i>	<i>600</i>	<i>375</i>	<i>62.5%</i>
<b>KANO STATE</b>				
1.	Dala	200	130	65.0%
2.	Kura	200	110	55.0%
3.	Kumbotso	200	140	70.0%
	<i>Sub Total</i>	<i>600</i>	<i>380</i>	<i>63.3%</i>
<b>KATSINA STATE</b>				
1.	Katsina	200	118	59.0%
2.	Daura	200	95	47.6%
3.	Malumfashi	200	150	75.0%
	<i>Sub Total</i>	<i>600</i>	<i>363</i>	<i>60.5%</i>
<b>GRAND TOTAL</b>		<b>1,800</b>	<b>1,118</b>	<b>62.1%</b>

A total of one thousand eight hundred questionnaires were administered while one thousand one hundred and eighteen or 62.1% were returned and found useable.

**Table 2 Summary of Useable Returns by Occupation Groups in the Three States**

Occupational Groups	Kaduna	Kano	Katsina	Total
Teachers	30	65	56	151
<i>Students</i>	85	40	60	185
<i>Civil Servants</i>	60	70	53	183
<i>Bankers</i>	10	18	14	42
<i>Business people</i>	50	70	62	182
<i>Housewives</i>	10	7	13	30
<i>Farmers</i>	75	20	16	111
<i>Applicants</i>	40	50	80	170
<i>Others (Apprentices Unemployed)</i>	15	40	30	85
<b>Total</b>	<b>375</b>	<b>380</b>	<b>363</b>	<b>1,118</b>

As shown above the breakdown of the returned questionnaires that were found useable was further analyzed according to the respondents' occupations. It is discovered that students, civil servants and business people have the highest respondent rate while the bankers and housewives have the lowest respondent rate.

**Research Question One**

*What are the information needs of the communities in the nine local government areas under study?*

To this question the respondents’ responses were shown in the table bellow.

**Table 3 Extent of Information Needs.**

Respondents From The Nine Local Governments	Very Much	%	Need Only Minimum	%	Do Not Need Any	%
Kano State	(380)200	52	120	32	60	16
Kaduna State	(375)180	48	140	37	56	16
Katsina State	(363)190	52	120	33	53	15
Total	(1118)570	51	380	34	168	15

The table above shows that 570 of 51% require a lot of information to carry out their various business and political awareness. While 380 or 34% need very minimum information in the daily activities, but only 158 or 15% do not need information at all.

A close look at the reasons presented shows that majority of those who do not need any information to carry out their daily activities are mainly teachers, bankers, housewives and farmers. While those who need information very greatly include business people, applicants, civil servants and teachers. Those who need minimum information include farmers and others such as apprentices.

**Research Question Three**

*Question three tries to find out the channels of information dissemination that exist in the local governments under study.*

To this the respondents’ responses are stated in the table below:

**Table 4 Media Through Which Respondents Obtain Information**

Respondents	Newspaper	%	Radio/ Television	%	Public Address System	%	Libraries	%
Kano State	(380)50	13	100	26	70	19	160	42
Kaduna State	(375)60	16	130	35	45	12	140	37
Katsina State	(363)70	19	180	50	90	25	23	5
Total	(1118)180	16	410	37	205	18	323	29

It can be clearly observed from the above table that 410 or 37% of the respondents in the nine local government areas depend on radio and television media obtain to their information. This is also confirmed by the fact that about 85% of all the respondents claim that they have either radio sets or television sets or both. Also 323 or 29% claim that they rely on the libraries for their sources of information. A closer look on this category of respondents shows that they are mainly students, teachers and applicants. Not many of the respondents use newspapers because they claim that newspapers are very expensive and so they cannot afford to buy them regularly. Those who responded that they rely on public address system are mainly farmers. They also claim that the information they usually receive from this system include health and education information.

#### **Research Question Four**

*Research Question four seeks to find out the extent to which libraries and information centers in their localities serve as primary information dissemination centers.*

As shown in the table only three hundred and twenty respondents to the third research question responded that they go to libraries for their information needs. A breakdown of this figure according to the occupation of respondents is shown in the table below.



**Table 5 Occupations Of Those Who Rely On Libraries For Their Information Needs.**

Respondents	Newspaper	%	Radio/ Television	%	Public Address System	%	Libraries	%
Kano State (160)	70	44	50	19	55	34	5	3
Kaduna State (140)	50	35	30	21	40	29	20	14
Katsina State (23)	20	87	-	-	3	13	-	-
Total (323)	140	43	60	19	95	30	25	8

The table above shows that 140 or 43% of the respondents are students. This category of respondents remarked that they use the libraries mainly to read up their notes books, especially during their schools' examination periods 95 of 30% claim that they usually come to the libraries to read job advertisements and get information on the political developments in the country. While the teachers, which form 19% of the respondents, claim that they use the libraries mainly for relaxation and to get information on political development.

Research Question five seeks to find out how the libraries and information centres carry out their operations in the communities under study. This question was posed to the libraries in the various communities where reading rooms a sort of "clearing houses" are established for the communities to lend and return their borrowed books to the outreach librarians who usually come to the communities in a poorly maintained mobile library vans.

Since it will not be possible to collect all the needed information through the questionnaire, the researcher decided to interview the librarians of the outreach units of the three states. One can easily draw a lot of similarities in their responses. The outreach librarians were unanimous in their responses that their services have been met with very many difficulties. These difficulties include poor and few collections, lack of fund to run the services, lack of good vehicles to take materials to the communities, poor staffing and the communities unwillingness to come out in an encouraging manner to justify the stress in carrying out this arrangement.

The chief librarians of the states when asked, the plans of the library boards to solve these problems were hopeful that plans are on to solve the problems of the sections of their libraries.

Research question six sought to know if the communities are satisfied with the library and information centres efforts to meet their information needs.

The respondents in Dala local government area of Kano State responded that they are satisfied. While respondents from Katsina and part of Kaduna States were not satisfied. They observed that the visits to their areas are irregular and the materials supplied are outdated and mostly books/pamphlets they are already used to. On the other hand the communities are fairly satisfied with the services of the information centres.

Lastly on the problems militating against the communities' accessibilities and use of the information required by them on their localities. The pattern of the respondent's responses was similar in all the nine survey centres with minor variations the results of the analysis here are presented together.

- a. About 95% of the respondents cited cost of access to the information centres as a major problem
- b. Another problem cited by about 80% of respondents was the problem of lack of current or up-to-date materials in their communities (as stated earlier).
- c. Other problems cited by some respondents in all the centres include the problems of distance from the resource base centre and lack of awareness of where to seek for information.

### **Conclusion**

The findings of this research work reveal that the majority of the people sampled need information to develop and enhance their daily activities. The public libraries and other information centres need to put in more efforts to reach the rural dwellers and present to them information that will help them improve on the occupations, health, political, socio-economic awareness.

The Ministry of Information should do more to reach out to the rural dwellers as majority of them obtain their current awareness on issue through them.

Transistor radio sets could be subsidized by the Governments of these three states to enable more rural dwellers acquire them as very many of them rely on them to obtain their information needs.

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**ANDREW LEO OGBONYOMI**

Department of Library and Information Sciences,

## **Methodological Choice And Application In A Research Study: A Framework For Practitioners**

**Dr. Nana Adu-Pipim Boaduo Frc**

### **Abstract**

Very often researchers confuse methodological paradigms and the choice for methods as well as their application to a given research study. This problem deters researchers from engaging in their research activities regularly. Authors who write research books rarely discuss the philosophical underpinnings of both qualitative and quantitative methods; how they can be applied; where in the study; when to apply them and what to do to enable the researcher make informed professional decision about the choice of methodology. Coupled with this dilemma is the researcher's choice on framework for data collection, treatment, analysis and interpretation to make the study report a professional masterpiece.

This paper proposes to do the following to clarify the dilemma inherent in the research fraternity. Briefly:

- a. Sketch the need to select a researchable topic which the researcher feels comfortable to undertake.
- b. Discuss the need to know and clearly understand the philosophical underpinnings of both qualitative and quantitative methods.
- c. Elaborate the need for the choice of applicable and relevant instruments and techniques for the collection, treatment, analysis and interpretation of data; and
- d. Show how it is necessary to interweave the processes listed to expose the relevance of knowing what to do, how to do it and why to be able to address a research problem professionally.

### **At the Beginning of a Research Study**

Practically, any research textbook you open will advise you on the concept of research: what it is and what it is not (Leedy 1980; Tuckman 1988; Ary & Razavieh 1972; Gay 1976; Nachmias & Nachmias 1981; Barzun & Graff 1977; Bell 2004; Anderson, Herr, Nihlen, 1994; Bless & Higson-Smith 2004; Baker 1999; Miles & Huberman 1994). Some will give a straightjacket list of criteria with which to comply. Others will give some tentative guide as to how to approach your research study. The following is the generally acceptable sequence of beginning a research study.

1. The identification of the research question [topic].
2. The statement of the main research problem.
3. The statement of the sub-problems [hypotheses].
4. The rationale for the chosen study question [topic].
5. Appropriate and relevant literature review.
6. The methodology to be chosen for the study.
7. The delimitation and limitations of the study.

8. The chapter outline
9. Appendices
10. The bibliography or reference list.

The first step of a research design is the need for the identification of a research question and the development of a meaningful research proposal remain the hallmark of successful research study. There is need to decide on the focus of the study and the provision of a statement of purpose. The statement of purpose leads to the careful selection of critical research questions, which will further focus on the research problem and help to refine the statement of purpose. The rationale for the study is required for the reader to see the need for the study. This is followed by an elaborate literature review that will focus on what has been done previously in the selected area chosen for the study and what has not been done – usually referred to as **gap lapse** – that would be filled by the present study. A theoretical framework, which is a well-developed and articulated comprehensive explanation on which the entire research study will depend on for the events to follow, is identified. From this point, the need for data collection techniques comes to focus. In this respect, the general methodological orientation pertaining to the study is required. There is need to pay particular attention to the research parameters within which the required data for the study will be collected as well as the instruments that would be used for this purpose. Elaborate explanation as to how the collected data will be treated, analysed and interpreted comes to attention for consideration at this stage. You would then be required to give the general outline of the chapters as well as the period for the completion of the study. Finally, if the study is financed by an agency where you have to account for the money given for the study then there will be need to provide a budget where a table detailing all possible expenses that would be incurred is provided.

### **Putting a Research Study into Perspective**

Again, any research textbook you open, after introducing you to the research proposal may touch on research types (Myles & Huberman 1994; Bless & Higson-Smith 2004; Anderson, Herr, Nihlen, 1994). Unfortunately, as Maykut and Morehouse (2003) observe, most research textbooks say nothing about the philosophical underpinnings of qualitative and quantitative paradigms. This section will discuss what these two authors consider as significant knowledge base for researchers if appropriate and relevant methodology can be understood before choosing and applying them in a research study.

Both authors argue that quantitative research is traditionally based on observations that are converted into discrete units that can be compared with other units by using statistical

analysis. To them they may be modifications and variations on this general picture of quantitative research. Statistical analysis is an essential part of quantitative research. In principle, their argument is that quantitative research is based on a **positivist position**. On the other hand, their argument continues with qualitative research and indicates that in general terms it examines peoples' words and actions in narrative and/or descriptive ways more closely representing the situation as experienced by the participants. To them qualitative research is based on a **phenomenological position**. In brief, these enface differences between quantitative and qualitative are further distinguished by their philosophic underpinnings (Maykut & Morehouse 2003).

### **Quantitative Research Is Positivistic [Philosophic Underpinnings]**

According to Stromberg (1986) positivism is synonymous with science or observable facts. In simple terms, positivism has come to mean observable enquiry based on measurable variables and provide propositions. The positivist research orientation holds that science is primarily concerned with the explanation and the prediction of observable events (Kincheloe 1991). Insistence on explanation, prediction and proof are the hallmarks of positivism.

### **Qualitative Research Is Phenomenological [Philosophic Underpinnings]**

Qualitative research focuses on the underpinning of the meaning events have for the group being studied. Even though phenomenological approach to enquiry includes quantitative research, it has under its umbrella such areas in enquiry as ethno-methodology, symbolic interactionism, and hermeneutic enquiry, grounded theory, naturalistic enquiry and ethnography (Patton 1991). The phenomenological position sees the individual and its world as co-constituted. That is, the individual is viewed as having no existence apart from the world and the world as having no existence apart from the individual (Vale & King 1978; Maykut & Morehouse 2003).

To give a clear picture about the differences in methodological paradigms, the following four philosophical concepts will be discussed: ontology, epistemology, logic and teleology. All the four concepts fall in the realm of **assumptions** (Hoy & Miskel 2001). Ontological assumptions deal with the nature of being and pose questions about the nature of reality. One known question in this category is "**What is the nature of reality?**" Epistemological assumptions concern the origins of knowledge and the most important questions usually asked are "**What is the relationship between the knower and the known? What role do values play in understanding?**" Logic, on the other hand, deals principally with the principles of demonstration or verification. Some of the important questions about the logic of enquiry are "**Are causal linkages between bits of information possible?**"

**What is the possibility of generalization?"** Teleology deals with interpretation in terms of purpose. Teleological questions include **"What does research contribute to knowledge? What is the purpose of research?"** (Maykut & Morehouse 2003:3-4).

The questions raised by the four philosophical concepts need answers and these are referred to as **postulates** of the research **paradigm. Paradigm is a set of overarching and interconnected assumptions about the nature of reality.** In other words, assumptions are keys to unravel events. One has to make assumptions about the nature of reality because anything that a researcher might do to test what reality is, of necessity, must be based on some understanding of that reality.

On the other hand, philosophic assumptions cannot be proved but can be stipulated. These stipulations are **postulates**. Therefore, an assumption positively stated becomes postulate and a set of postulates make a paradigm. Paradigm, like the postulate on which it is based cannot itself be tested (Maykut & Morehouse 200). However, the paradigm provides the largest reliable and verifiable framework within which every research takes place. Furthermore, paradigm is the worldview within which all researchers work. Postulates are the individual assumptions that are stipulated to be true.

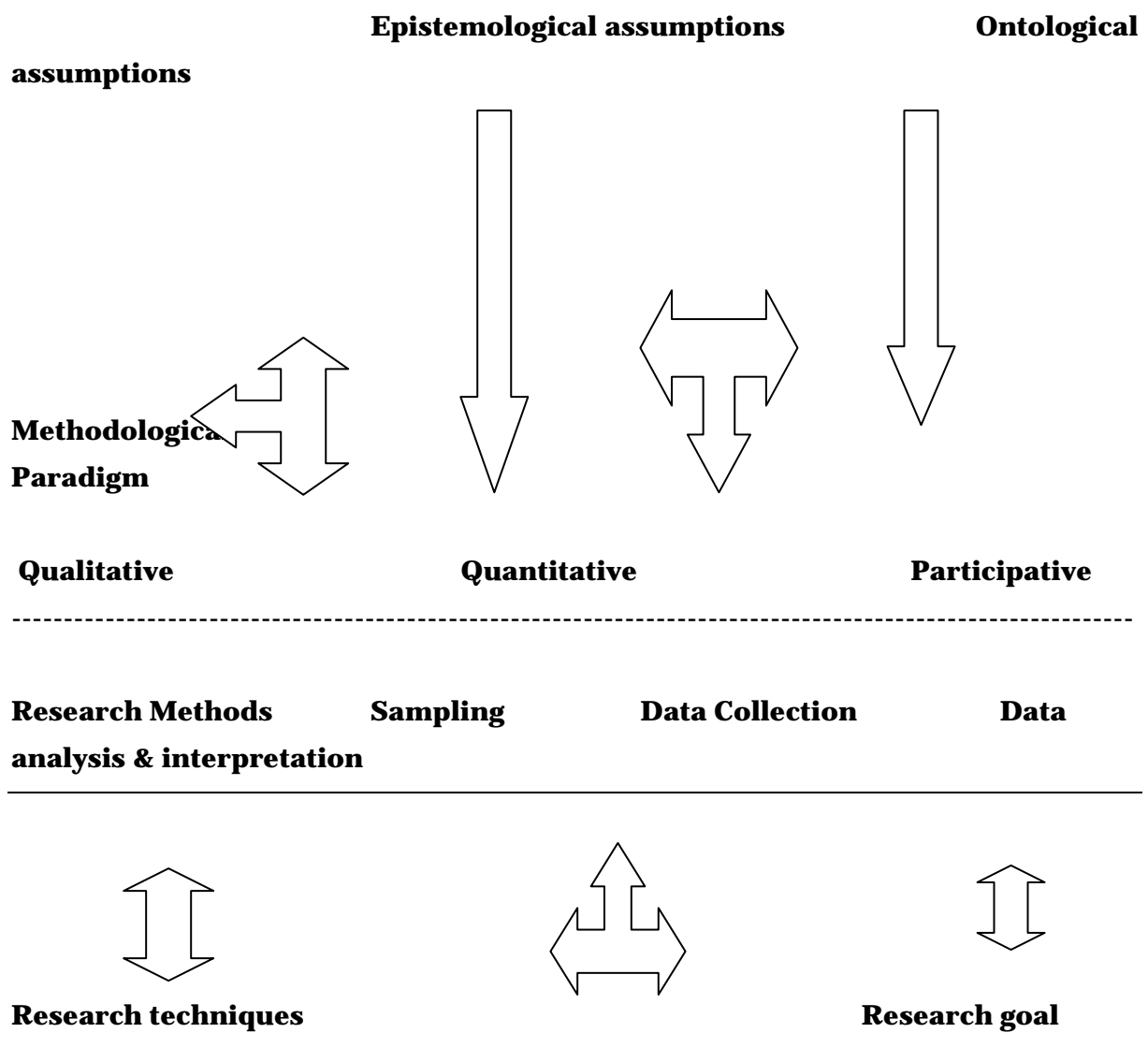
Pertinently, a tradition in research consists of more or less like-minded researchers who accept the postulates within the paradigm as working assumptions. However, research methods are task-specific, many and varied within that tradition. While the research methods are distinct, they share some specific points and general orientations within the tradition. In this case, the two competing traditions are the positivist and the phenomenological traditions.

### **The Significance of Methodological Paradigms**

In any research study there is need to identify the most relevant and applicable methodological paradigms that will enable the researcher to successfully conduct the study. Mouton (1996) believes that methodological paradigms - for instance those related to qualitative, quantitative and participatory action - are not merely collections of research methods with their applicable techniques. They rather include certain assumptions and values regarding their use under specific circumstances. At the level of a research study where the researcher has to make a choice concerning methods for the study, the researcher has to encounter both the actual applicable methods and techniques and the underlying philosophy regarding their use in the study. In this respect the philosophy will include a

**theory of when and why** to apply, for instance qualitative rather than quantitative method and the awareness of the limitations of equally applicable and relevant various methods. The distinction between the three levels in the methodological paradigmatic dimension is represented diagrammatically in figure 1 below.

**Figure 1 Levels Of Methodological Dimension**



**Source: Mouton 1996: 39 with modifications by the author**

The emphases in this respect are that:

1. Research methods and techniques are task-specific and the task is often defined by the research goal.



2. Different research studies use different research methods and techniques because they have different objectives.
3. In all cases, the research methods and techniques must be appropriate and relevant for the task.
4. This should also apply to all the aspects of the research study – sampling, questionnaire and interview schedule design, data treatment, analysis and interpretation.

### **Data Sources for A Chosen Study**

The purpose of collecting data for a chosen research study using the most relevant and applicable methods and techniques is to be able to address the research problem scientifically and appropriately and to achieve the research goal (Tuckman 1988; Dey 1993; Strauss 1993; Mason, 1994; Ritchie & Spencer 1994).

It has been indicated that quantitative data deals principally with statistical or numerical specifications while that of qualitative data deals with interpretations and meaning (Dey 1993). To Carspecken (1996) these meanings are expressed through action language and like meanings and interpretations, numbers are important at all levels of measurements in research. However, numbers must be based on meaningful conceptualizations. Furthermore, qualitative and quantitative methods, certainly, complement each other for meaningful research report documentation (Giarelli 1988).

Concepts used in a research study are constructed in terms of inter-subjective language, which allows for intelligible communication and effective interaction among researchers who may have access to the research report [Sayer 1992]. However, meaning is a matter of making distinctive distinctions. This is further bound up with the contrasts between **what is asserted** and **what is implied** not to be the case (Tuckman 1988:389). Meaning, therefore, resides in social practice. Whatever way this is looked at, social phenomena are concept dependent and are not impervious to the meaning ascribed to them (Sayer 1992). Therefore, it can be specifically implied that qualitative data convey meaningful information in a form more precise and understandable other than numbers (Strauss & Corbin 1990; Maykut & Morehouse 1994). Complementarily, at different levels of measurement, numbers [that is quantitative data] and meanings [that is qualitative data] are related to give a clearer picture than otherwise would be if a single method is applied (Dey 1993).

Another important aspect of a research study is the ability to categorize. Categorising brings together a number of observations, which could be considered similar or different in some

respect by implied contrast with other observations and data obtained from the questionnaire or interview schedules. Such classification helps to differentiate between observations and adds to information about the data collected (Merton 1968; Conrad & Reinhartz 1984; Dey 1993; Delmont 1992; Bryman & Burgess 1994). This enables the researcher to give accurate analysis and interpretation depending on the classified groupings of questionnaire and the interview responses.

### **Interpretation of Analysed Data**

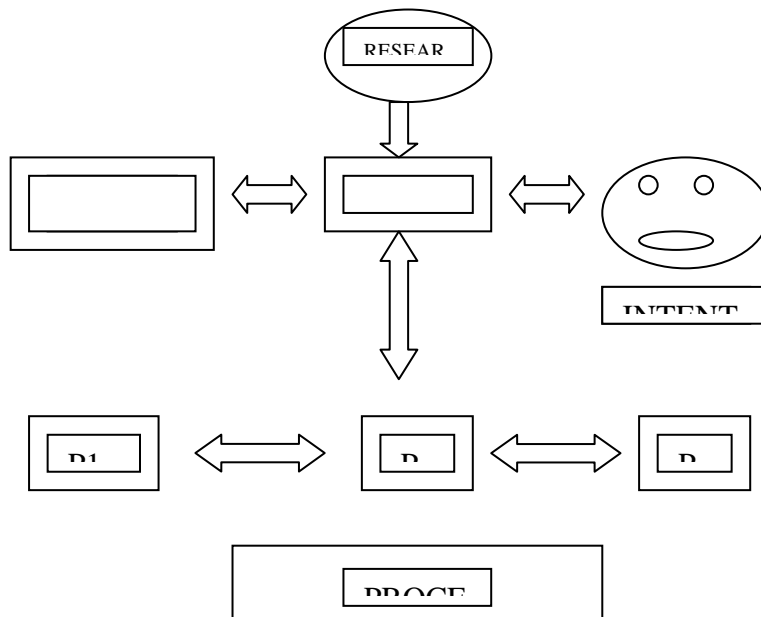
Yin (1994) stresses that to interpret data collected for a research study; it is important to use meaningful categories to organise the data in order to get precise measure of the variables concerned. Generally, problems of analysis and interpretation are pervasive in any research study which data in any category is considered. In any research, study numbers [statistical records] are not enough. To make these numbers reasonable and useful, they have to refer to concepts established through qualitative analysis (Bryman & Burgess 1994). While quantities are powerful because of the complex mathematical operations they permit, they mean nothing or mean very little if at all, in themselves unless they are based on meaningful conceptualization. In other words, social or scientific research without qualitative data would not connect with the world in which we live and interact. Therefore, data obtained through the instruments selected for a research study can be grouped [or categorized], analysed and interpreted in a generally or specifically acceptable manner making the findings and recommendations applicable and relevant to practitioners and the public.

### **Steps in Qualitative Analysis And Interpretation**

In the analyses of data collected for a qualitative research study two kinds of descriptions are used, these are “thin” and “thick” (Geertz 1973:30; Denzin 1978: 33; Delamont 1992: 150). The “thin” descriptions merely state facts while the “thick” descriptions include information about the context of the act, the intentions and the meanings that organise the action and its subsequent evolution (Charles 1995; Soltis 1990). In most circumstance in a research study, qualitative analysis aims to provide thorough descriptions of the collected data to make them meaningful (Dey 1993). Figure 2 below is a diagrammatic representation of the three aspects of description in qualitative analysis that is context, intention and process.

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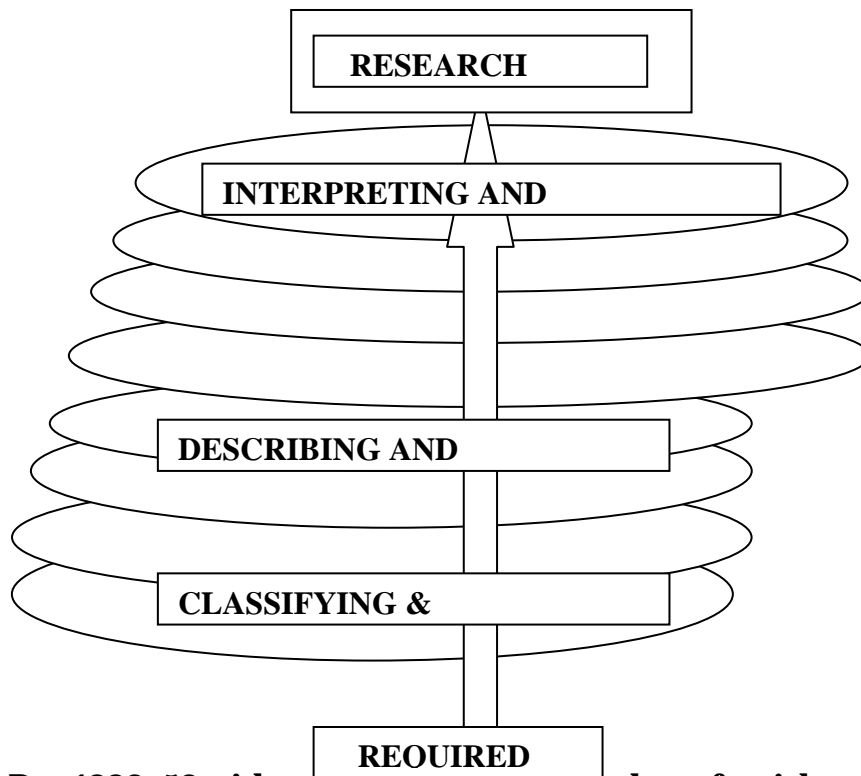
**Figure 2 The Three Aspects Of Description In Qualitative Analysis**



**Source: Dey 1993:32 with modifications by the author**

From this perspective the analysis becomes intertwined and moves into an iterative spiral from data to classifying – describing – and connecting to an account of what the data revealed. This is represented diagrammatically in figure 3 below. By doing this the context of the data, intention and process of the research study and the complete classification of the data have been given the attention they need.

**Figure 3. Qualitative Analysis As An Iterative**



**Spiral**

**Source: Dey 1993: 53 with modification by the author of article**

**Context**

The need to take account of context in a research study is a recurrent theme in qualitative analysis. In qualitative analysis, contexts are important as a means of situating action and of grasping its wider social, economic, political, scientific and historical import. This may further require detailed descriptions of their social setting within which action occurs: the relevant social context may be a group, organization, culture, society or a system; the period within which the action takes place; the spatial context and the network of social relationships (Dey 1993).

**Intention**

As already indicated in this discussion qualitative analysis aims at describing the world, as different observers perceive it. The analysis is usually concerned with how actors define situations and explain the motives, which govern their actions. It must therefore, be ensured that this relates to intentions of the actors involved in the research study (Dey 1993; Stake 1994; Carspecken 1996).

**Process**

Qualitative research often seeks to illuminate the ways individuals or objects interact to sustain or change social situations. Qualitative data therefore, is descriptive of social

relationships and interchange, which unfold in the succession of action and events in which the actors are engaged. Data collected can themselves be conceived as interactive process through which the researcher struggles to elicit meaningful interpretation of social action.

In all research studies analysis follows data collection. The result of the analysis depends on and is modified by the collection and the investigation of further data. In this way the researchers become participants in their research project, for their own interpretations and actions become legitimate object of subsequent analysis by other researchers. Furthermore, information on the researcher's own behaviour and thinking in the form of field notes, memos and diary can become a vital source of data for the overall analysis. In this way, the process shifts attention from context and intention to action and consequences (Sayer 1992). In putting together and relating the central characteristics through a reasoned account, description acquires its unity and force. Description, according to Dey (1993: 39) "...tells of a story about the data and uses a range of techniques such as - summarising events, focusing on key episodes, delineating roles and characters, setting out chronological sequence – to construct an illuminating narrative”.

### **Classification**

Interpretation and explanation of data are the key responsibilities of the researcher. In all research studies, it is necessary to develop a meaningful and adequate account of what has been researched. The data collected provide the basis of analysis (Burgess 1982; Tuckman 1988). The collected data require the development of a conceptual framework through which the actions or events researched can be rendered intelligible (Yin 1994). To explain is to account for an action. Interpretation requires the development of conceptual tools through which to comprehend the significance of social action and how actions interrelate. Interpretation therefore, makes the analysed data meaningful to practitioners and users.

Furthermore, classification involves breaking up collected data and then bringing the parts logically together again into related sequence. The data then form the conceptual foundation for a specific analysis. Classification therefore, becomes a familiar process of practical reasoning. Categorising and retrieving data provide the basis for comparison. Redefining categories can produce more rigorous conceptualization. Classification, in all cases, is guided by the research objectives and once data have been classified and categorised; they lead to finding answers to the research problem or creating more confusing problems for further investigation (Dey 1993).

### **Making Connections And Establishing Relationships**

It is very important to know and understand precisely that data collected for a research study cannot be left as the last resort of what have been found in the field by the researcher. In effect, classification helps to produce an account of analysis that can be adequately interpreted. In all forms of research, concepts are the most significant building blocks of analysis. In this case, the first major task is to make these building blocks and then put them together (Dey 1993). Connecting concepts is the analytic equivalent of putting mortar between the building blocks (Yin 1994). Generally, classification lays the foundation for identifying substantive connections. In this way associations between different variables are identified and once the data are classified, regularities, variations and singularities can be isolated and specifically defined (Refer to figures 1, 2 & 3).

### **Conclusion**

Research of any kind is endlessly creative and interpretive. In the real research process there is need for problem identification, statement of purpose with the most adequate and relevant critical questions that have to be answered clearly listed. Various sources of literature have to be consulted to be able to identify the “**gap lapse**” that has to be filled by the study. A rationale for the study has to be stated as well as the provision of the theoretical framework upon which the comprehensive explanation for the whole research event is dependent. The study should be put in a relevant and applicable methodological perspective philosophically. The data collection methods and techniques should be provided by considering the research parameters within which the data required for the study will be collected. A field text has to be created which will comprise field notes, questionnaire and interview schedules, observation and document review. This indexing is the basis for the final report of the study (Sanjek 1990; Plath 1990; Denzin & Lincoln 1994; Delamont 1992; Stouthamer-Loeber & Van Kammer 1995). The notes are based on the field text and recreated as a working interpretation document containing all the initial and subsequent attempts to make sense of what has been learned and found in the field (Carspecken 1996). The final research report is produced from the field text (notes, observations, questionnaires, interview and documents) through classification and categorization. The analysis and interpretation should focus on context, intention and process to be able to give a valid interpretation of the data obtained for the study. The findings listed, the conclusions drawn and the recommendations that the researcher will provide are based on what the study revealed. That is the essence of making sense of data for a research study through the most relevant and applicable methodological choice.

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**University Of Botswana**  
**Faculty Of Education:**  
**Department Of Languages And Social Sciences Education**  
**P.O. BOX 26268**  
**GABORONE**  
**BOTSWANA**  
**E-MAIL: [nanaapb@hotmail.com](mailto:nanaapb@hotmail.com) or [Boaduo@mopipi.ub.bw](mailto:Boaduo@mopipi.ub.bw)**  
**Mobile: +267 716 39387**  
**Office: +267 355 2374**  
**15 FEBRUARY 2005**  
**GABORONE**

## **Financing of Education in Eritrea - A Case Study of Zoba Maekel**

**Dr. Ravinder Rena**

### **Abstract**

Educational investment is an engine of economic development in Eritrea and thus financing education is like a blood to human body; while this is widely accepted, little empirical research has been conducted on the topic. This paper analyses patterns of educational finances in secondary education in Eritrea particularly in the zoba –Maekel. It presents data on selected secondary schools in zoba and other related data tables with the results observed. It also provides the pattern of financing both from public and other related non-governmental organisations. The paper consists of four parts; the first part deals with the introduction, second part explains the cost and financing of education and training in Eritrea, third section provides education expenditure norms and procedures and the final section summarizes the results and concludes.

### **Introduction:**

Finance is one of the most important requirements for the development of education in any country. Eritrea is no exception to this situation. But for a country like Eritrea, finance is a scarce resource to spill around illogically without any scientific direction. This study intends to understand the global strategies of financing education, especially secondary education and compare them with Eritrea to verify where Eritrea stands. This study also focuses the financing secondary education, especially in Zoba Maekel (central zone and one of the six zobas/provinces) in Eritrea.

Educational investment is an engine of economic development in Eritrea. Educational investment is one of the important economic activities that can play a major role in boosting a country's economy (Ravinder Rena, 2002<sup>b</sup>:3). However, Secondary education is indeed a crucial stage for the education system. This is where most primary school teachers are trained. It is also where the future students of higher education are selected and taught essential foundation skills. Students enter secondary schools as children and leave it as young adults. What they experience there will influence the course of the rest of their lives. It is the level at which youngsters consolidate their basic knowledge gained in primary schools. But also where they acquire the common culture that will allow them to be useful citizen in a peace full society, where they build knowledge through experience and experiments, where essential subjects such as science, health education and technology are first taught in a formal way. Finally this is where youngsters learn with much more maturity, how to think, how to be, how to work and how to cooperate with others.

Eritrea got its independence in 1991 after thirty years freedom struggle. It is located in the Horn of Africa, bordered in the North and West by Sudan, in the South by Ethiopia and Djibouti and in the East by the Red Sea. It has an estimated population of about 4 million. Since its independence, the country has been undertaking number of developmental programs in rebuilding its war damaged economy particularly agriculture sector.

Eritrea became independent just fourteen years ago; therefore, the country is still at a primary stage of making its early steps in most of the sectors. But the demands of public and their institutions are as intense as any other country. Demands of awareness, in personal and professional arenas, disaster management, employment, health, resource management, agriculture, industrial production, distribution, import export, banking, currencies, etc. have all to be met with professional expertise, even if the country is just born. A mass of basic educated population cannot cater to the needs of these expert professional demands. A broad base and support of the secondary and higher educated masses is eminent for a developing nation like Eritrea.

### **Educational Background of Eritrea:**

The educational system in Eritrea shows all the symptoms of prolonged neglect under conditions of colonialism and war. At the time of independence in 1991, 84 per cent of the existing 190 schools were rated to be in serious disrepair. The remaining 16 per cent were far from providing a satisfactory learning environment. Disparity in the geographical distribution of schools was sharply marked. For instance, the number of secondary schools and students in the highlands was much higher than those in the lowland areas of Eritrea (Ministry of Education, 1996; Petros H., 2000:129). Today, more than 1100 government and non-government schools are functioning, however, most of these schools need lot of improvement, expansion and/or replacement.

Eritrea is still undergoing a process of rehabilitating educational institutions and services that were devastated during the long war. Decades of long conflict have led to the accumulation of a huge backlog of primary-age children who missed schooling. At the time of liberation, Gross Enrolment Rate (GER) at the primary school level stood at 30 per cent. However, it has increased considerably since independence (Ravinder Rena, 2004:6).

**Purpose of the study:**

The focus on achieving education for all after the world education forum in Jomtein (1990) has meant a singular emphasis on increasing enrolment in primary schools for many agencies and developing countries. Secondary education has been quietly neglected, squeezed as it is between primary education, the object of so much attention, and higher education, which has never really lost its supporters.

Yet, what to offer to young children graduating from primary schools is a growing matter of concern. As policies designed to ensure participation of all school age children in primary education start bearing fruits, and as a longer proportion of children complete primary education strong pressure will be felt at higher level of education system. How to finance secondary education expansion, how to organize it and what to teach at that level will be the burning issues for the years to come.

This study investigates the financial situation of Secondary Schooling in Eritrea. As a part of the study it overviews the trends of school of financing in the developing countries and the income-expenditure status of a few sample schools in Asmara, the capital city of Eritrea. The study also looks at the national scenario of the expenditure on the education sector in different levels schooling.

**Objectives of the study:**

1] To verify if this principles have any relevance and application in Eritrea; 2] To understand empirically, the situation of financing secondary education in Eritrea.

**Limitation of the study:**

Asmara schools don't represent the cross sectional view of Eritrea. The socio-economic, culture and infrastructural status of the students and schools differ drastically with that of the other rural school. But due to logistical reasons and convenience of data collection, samples from the rural schools could not be taken up. A further study that includes samples from the other Zobas would yield much wider results. This study has concentrated on the expenditure and the income analysis but could not study the qualitative improvements of the increased expenditures.

### **Methodology and Data Source:**

The study is initiated in the month of April 2004. Study proposal was submitted for approval on the month of April 2004 and very soon questionnaires were prepared on the approval of the proposal and questionnaire, data was shared to be collected. As is the problem with many questionnaires, return of the questionnaires was not very easy. However thanks to the cooperative attitude of the school office bearers, the entire questionnaire were returned in time.

Data has been procured from the Department of Finance of the Ministry of Education, and four secondary schools of Asmara to understand the revenue, expenditure and needs situation of secondary schools in Zoba Meakel as a sample of the Secondary Schools of Eritrea. The following is the information collected and compiled in to tabular form.

Eritrea has terrible shortage of reference books. Getting suitable reference material is a Herculean task. However, thanks to the Internet and World Bank library, the researcher could get excellent and recent documents to consult.

### **Cost and Financing Of Education And Training In Eritrea:**

The Government of Eritrea (GOE) and its Ministry of Education (MOE) is preparing a longer-term strategy to improve the coverage and performance of its education and training sector. This includes an ambitious plan for achieving its "Education For All (EFA)" goals by 2010, while concurrently increasing net enrollment and completion rates at middle and secondary education and training levels over the next decade (WCEFA, 1990).

Annual education and training spending as a percentage of total government spending (and as a percentage of GDP, since GDP spending by the GOE was equal to 90 percent between 1998-2000) grew modestly from 4 percent in 1993 to about 5 percent in between 1998-2000. Government spending as a percentage of GDP is estimated to drop to 55 percent by 2005. This creates negative pressure on possible private sector financing in human development. The GOE's dependence on support from the Diaspora has shifted to dependence on donor aid to make these levels of government expenditures possible. The MOE's total education and training spending in the year 2000 amounted to about US\$8.3 million was capital spending. Donor support for pre-tertiary education and training amounted to about 85 percent of capital and 26 percent of overall spending. The UOA's budget is directly financed by the Ministry of Finance, and it spent about US\$3.5 million in 2000, of which 51 per cent

was donor planning system based on informed political and management decisions. This hinders transparency, decentralization and priority budget decision-making.

It is recognized that EFA in Eritrea will require significantly increased resource allocations due to geographic (reaching nomadic populations) and other problems. It would be beneficial if the MOE could select and agree on quantitative and qualitative sector performance targets for the longer term. The first step could be a detailed cost and financing study of the education and training sector per level of education. Three financial scenarios are included in the main text to be used as a reference point for creating a sustainable planning and budgeting system based on priority policy decisions. One of the major policy issues in Eritrea is related to the sector's teacher and staff salaries, which in the year 2000 were in the range of 8-10 times GDP per capita. Based on a comparison with other African countries and general trends in OECD countries, a sustainable wage policy for expansion of the present system would need to bring teacher and staff salaries to below at least 5 times GDP per capita. An unknown proportion of teachers at primary and middle level appear currently to draw a lower salary now as part of their national service. It is not known for how long this will continue, but its phasing out, combined with a substantial expansion, will certainly inflated the MOE's wage bill. Significant expansion cannot take place if salaries remain at this unsustainable level. This will require a balanced wage policy for the sector, agreed with the major stakeholders. This issue is also linked to the lack of pension arrangements in the current system.

The major source of inequity in education and training spending comes through differences in spending per level of education. Per pupil spending at the tertiary level was the equivalent of US\$1,000 in 1999 (or five times GDP per capita), and in Technical Education and Vocational Training (TEVT) US\$880, compared to basic and general secondary education where per pupil spending was only US\$55. Since most of the poorest students do not make it to the university level, these spending patterns suggest that children of families who are better off would receive significantly larger subsidies than children from poor families. More balanced spending is needed per level of education, relevant to unit costs, and improved resource allocation for school environment along with improved transparency of reporting on recurrent non-salary spending.

External funding plays a crucial role in overall spending on education and training in Eritrea. Donor funding has increased over 1993-2000. Most donor involvement is concentrated on basic education and TEVT. The level of foreign donor support for the University of Asmara is not known. Lack of donor coordination has led to unbalanced and fragmented development

within the sector. For example, the neglect of general secondary education by donors has affected quality at this level. In addition, there is bound to be volatility of funding, creating problems for long-term strategic sector development. Eritrea will continue to be dependent on significant external donor funding and would need to (i) improve coordination mechanisms between and within the University of Asmara (UOA) and MOE, and (ii) start to establish better donor coordination mechanism based on agreed and realistic sector development strategies. The Diaspora funds could potentially be of great help to Eritrea's education and training. Mechanisms could be established to improve the monitoring of these external-funding streams, and incentives could be created to stimulate participation by private sources in the financing of services.

### **Macroeconomics Context**

Real economic progress was made in Eritrea between 1992 and 1997, when broad-based macroeconomic reforms caused average annual GDP growth rates of 7 percent. But this promising start came to a halt in 1998 when a border conflict with Ethiopia escalated into a full pledged war by May of 2000. During the war years and immediate aftermath, macroeconomic conditions deteriorated rapidly. The border conflict also put a strain on the government budget. Total government spending, traditionally high, rose to almost 100 percent of GDP by 2000. Prior to the conflict government spending already averaged 64 percent of GDP. Defence spending rose from 13 per cent in 1997 to an average of 38 percent of GDP during 1998-2000 due to the border conflict with Ethiopia.

As a consequence, education spending stayed stagnant and was sustained largely by the largesse of external donors. Rebuilding social and economic progress will require:

i] A broad education and training sector reform; ii] Establishment of sustainable sector financing accompanied by a modern budgeting process; iii] Strengthening the central and Zoba management and skill base, and iv] Building public-private partnerships at all levels of education and training. An additional element is the need to improve coordination and public funding arrangements between the MOE and Higher Education (University of Asmara). Building a privatized system of higher education and vocational training, based on regulatory and financial incentives from the government, should be seriously considered. This could be achieved over the next five years if the GOE would agree on a strategy in the coming year.

Given this background, there are several questions this paper seeks to answer. The first question refers to spending. How much is spent on education and training, who spends it, what is it spent on, and how efficiently is it spent? In particular, in light of the Eritrea's September 2005

ambitious “National Objectives”, how adequate is the financing for education and training? The second set of questions concerns sources of revenue. What financing instruments are used, what are the levels of subsidies, cost recovery, and private sector provision? Related to this, how much does education cost parents? Finally, a number of scenarios have been developed which explore how much would it cost to expand the system and improve quality of basic and secondary education. An examination of these questions provides the basis for looking at common, but complex priorities and trade-off in the education sector.

### **Education Expenditure Norms And Procedures:**

Eritrea’s budget process is not an integral part of its strategic policy making. The MOF currently requires separate units such as Departments in the central MOE, regional education offices (Zobas), and individual schools to report their planned and projected expenditures separately. A committee then does approval of requests per line item from the MOF and the Office of the President. Existing budgeting norms are not conducive to the emergence of effective zobas, and their capacity to do rational financing planning and setting priorities. The MOE began keeping track of spending across levels and Zobas in 1999. However, it is not possible to distinguish how much of the non -salary recurrent spending went to primary or secondary. And at the Zoba level, it was not possible to break down non-salary recurrent spending between, primary, middle and secondary levels, because the central MOE procured for schools at all levels and for all Zobas. Therefore, there is a need to simplify the reporting mechanism and coordinate and integrate program execution. There is no official budget presentation to define the spending priorities of the government. Line ministry managers do not have adequate autonomy to set priorities and execute their strategic programs, nor are they held accountable. This adds to the existing operational inefficiency.

The *tables 1, 2, 3*, are exhibiting the eligibility, beneficiary, expenditure figures of four years since 2000, level wise. Whereas *table 4* shows the data collected from the schools pertaining to the school strength, strength of the staff, expenditure and income details of each school.



**Table 1. Spending on Education In Eritrea (in million Nakfa).**

		Spending on Basic and Secondary Education				University of Asmara		
Year	Total Spending	Capital Spending	Donor's Contribution	Donors contribution		Total Spending	Donor's contribution	% Donor's contribution
				% of total spending	% of capital spending			
1993	10.8	2.5	2.5	23.1	100	0.9	0.3	32
1994	13.6	3.8	2.8	20.6	73.3	1.1	0.1	12
1995	18.1	5.1	2.4	13.3	47.1	1.3	0.3	19
1996	15.6	5	2.5	15.7	50	3.1	0.9	29
1997	25.5	8.1	5.8	22.7	71.6	7.2	1.5	21
1998	33.9	9.3	7.1	20.9	76.3	3.6	1.7	46
1999	34.9	13.4	9.7	27.8	72.4	4.2	2.3	56
2000	26.8	8.3	7.1	26.5	85.5	3.5	1.8	51

**Source: Ministry of Education and University of Asmara various Reports and Bulletins.**

**External Funding of the Education and Training Sector:**

External funding plays a crucial role in overall spending on education and training in Eritrea. The table next shows the donor and their level of commitment in 2000. There were several donors with widely varying commitments in 2000. The majority of the funding came from 10 donors and 73 per cent of commitments came from 5 donors. Danish International Development Agency (DANIDA) the single largest donor accounted for one third of total external funding for that year. External Donors funding of basic and secondary education is mainly used for capital spending. The share of external funding in capital spending has increased in recent years from 50 per cent in 1996 to 86 per cent in 2000. Most donors' involvement is concentrated on basic education and TVET. Lack of donor coordination has led to unbalanced and fragmented development within the sector. For example, the neglect of general secondary education by donors has affected quality at this level. In addition, there is bound to be volatility of funding, which creates problems for long-term strategic sector development. Eritrea will need significant external donor funding for some time to come.

**Table 2. Different Donors and their Contributions to the Eritrean Education Sector in 2000.**

Name of the Donor		Share of total donor contribution
DANIDA	2,419,050	33.1
ECDF	490,808	6.7
SIDA	686,982	9.4
KFW	637,536	8.7
NORAD	548,927	7.5
UNCDF	180,326	2.5
UNDP	358,420	4.9
UNHCR	113,396	1.5
UNICEF	728,211	10
WORLD BANK	895,438	12.2
OTHER DONORS	2,56,149	3.5
<b>TOTAL</b>	<b>7,315,243</b>	<b>100</b>

*Source: Ministry of Education various Reports and Bulletins.*

**Table 3. Eligibility, Beneficiary and Expenditure in 2000-01.**

Level	Population			Expenditure in million Nakfa			
	Eligible	Benefited	%	Total	Recurrent	Capital	Per Capita
Primary	486,639	298,691	61.37	87.03	74.58	12.44	291.37
Middle	169,628	282,140	45.13	15.05	8.2	6.23	196.61
Secondary	282,140	63,951	22.66	26.67	9.06	17.61	417.18
Technical	-	1,434	-	9.56	5.41	4.15	6,672.54
TTI	-	883	-	5.74	5.74	-	6,506.64

*Source: Ministry of Education various Reports and Bulletins.*

**Table 4. Eligibility, Beneficiary and Expenditure in 2001-2002.**

Level	Population			Expenditure in million Nakfa			
	Eligible	Benefited	%	Total	Recurrent	Capital	Per Capita
Primary	504,250	330,278	65.49	107.2	90.28	16.97	324.75
Middle	175,758	80,882	46.01	26.59	9.79	9.79	328.79
Secondary	292,355	70,183	24.00	73.46	10.08	63.38	1,046.77
Technical	-	1,992	-	9.56	7.32	15.44	11,429.52
TTI	-	922	-	5.74	4.6	-	5,045.92

*Source: Ministry of Education various Reports and Bulletins.*

**Table 5. Eligibility, Beneficiary and Expenditure in 2003-2004.**

Level	Population			Expenditure in million Nakfa			
	Eligible	Benefited	%	Total	Recurrent	Capital	Per Capita
Primary	522,504	359,399	68.78	123.60	93.31	30.35	344.12
Middle	182,104	86,644	47.57	10.26	8.85	1.40	118.43
Secondary	302,938	72,812	24.03	160.80	13.56	147.32	2209.64
Technical	-	1,965	-	17.6	8.25	9.41	8991.97
TTI	-	834	-	4.4	4.4	-	5323.00

*Source: Ministry of Education various Reports and Bulletins.*

**Table 6: Students, Staff and their Salaries in Selected Secondary Schools of Zoba Maekel.**

S.No.	Students	Limeat	Harnet	Comprehen sive	Red Sea
1	2000-01	1727	1756	3395	2617
	2000-02	1683	2028	3038	2965
	2000-03	1768	2229	2968	2791
	2000-04	1442	1991	2368	2251
2	<b>2000-2001</b>				
	Total Staff	47	50	70	66
	Teaching	41	36	60	53
	Non-Teaching	6	14	10	13
	<b>2001-2002</b>				
	Total Staff	49	56	67	65
	Teaching	40	40	58	52
	Non-Teaching	9	16	9	13
	<b>2002-2003</b>				
	Total Staff	47	65	70	67
	Teaching	37	48	58	54
	Non-Teaching	10	17	12	13
	<b>2003-2004</b>				
	Total Staff	43	68	72	67
	Teaching	33	48	57	54
	Non-Teaching	10	20	15	13
S.No.	2000-01	Limeat	Harnet	Comprehen sive	Red Sea
3	Total Expenditure	268,957.15	192,720.0 0	202,027.00	113407.80
	Salaries	38,078.50	152,720.0 0	155,967.00	73922.45
	Administration	226,933.65	30,000.0 0	46,060.00	39485.35
	Capital	3,945.00	10,000.00	Nil	Nil
	Per capita staff salary	810.17	3,054.00	2,805.93	1692.00
	<b>2001-02</b>				
	Total Expenditure	364,753.07	189,080.0 0	224,096.00	137615.75
	Salaries	46,723.00	84,080.00	183,742.00	73992.45
	Administration	244,552.58	35,000.00	40,354.00	63623.30
	Capital	73,477.49	70,000.00	Nil	Nil
Per capita staff salary	953.53	1,501.42	3,344.71	1138.34	
	<b>2002-03</b>				
	Total Expenditure	474621.17	150,770.0 0	291,565.00	113768.45
	Salaries	44,964.70	75,770.00	259,930.00	73992.45
	Administration	426,493.85	35,000.00	31,635.00	39776.00
	Capital	31,638.12	40,000.0 0	Nil	Nil
Per capita staff salary	956.69	116,566.0 0		1104.36	
	<b>2003-04</b>				
	Total Expenditure	341,364.10	223,402.0 0	254,884.00	158886.45
	Salaries	45,924.10	88,402.00	230,506.00	73922.45

Administration	278,479.00	35000.00	29,424.00	36354.00
Capital	16,950.00	100,000.00	Nil	48540.00
Per capita staff salary 2003	1,068.00	130,000.00		1104.36
Income	392,448.55	204,442.00	223,405.00	285658.42
Fees	290,442.00	123,442.00	154,295.00	140000.00
Donors	27,076.55	25,000.00	30,575.00	15000.00
Rents	56,500.00	40,000.00	38,535.00	130658.42
Transcript	6,430.00	6,000.00		
Id cards	12,000.00	10,000.00		
Inc-Exp	+123,491.40	+11,722.00	-31479.00	+126771.97

**Source: Primary Data**

### Analysis

1] Examining the *tables 1,2,3*, it is observed that the raise in the beneficiaries of all levels that is primary, middle and secondary is very marginal. But the expenditure raise in those three years is quite substantial and large.

2] There is an increase of thirty million Nakfa in the first year and another 17 million in the second year in the primary level and about 10 million in the first year and a reduction of fifteen million in the second year in the middle school expenditure and about 50 million in the first and about 90 million in the second year school level. These figures can be interpreted as that there is a substantial increase in the allocation of money to the school education but it did not seem to be affecting the enrolment levels of all the levels of schooling. The primary enrolment (of the total eligible), rose from 61.37 per cent to 65.49 per cent in the first year and to 68.78 per cent in the second year. The rate of increase of the middle and secondary also is not very different from the primary. So we have to understand that the increased allocations have not been effective on the enrolment. A deeper understanding of the table reveals the shifted priorities.

3] The *tables 1,2,3* show that in the primary level the extra-allocated money has been spent more in the recurrent expenditure in the first year and more the capital expenditure in the second year. These figures give us an assumption that there was more expenditure on the construction of school buildings in the year 2003-2004 and more expenditure on salaries of the teachers in the year 2001-2002 as result of their return to school after the war time in the mid of 2000.

3] Similarly in the secondary level there is a tremendous increase in the allocation of money over the three years. A close examination of the figures show that while the recurrent expenditure is only marginal the capital expenditure is very large. It indicates that more money has been spent on construction and equipping of the secondary schools.

4] Yet another interesting observation that can be made from the *table 3,4,5*, is about the per capita expenditure on each student in different levels. While the per capita expenditure on a primary school child, middle school child and secondary school student is Nakfa 291, 196 and 417 respectively. Further, it is Nakfa 6,600 on a technical school student and 6,500 on a (Teacher Training Institute (TTI) student in the year 2000-2001. Though there is an increase in the per capita expenditure over the three years, the difference among the levels seems to be constant.

5] It can be observed that of all the levels, the per capita expenditure of middle school seems to be the lowest, which might indicate that middle school education requires a special focus.

6] It is interesting to note that the per capita expenditure on a secondary school student has increased many folds over the three years period. While the per capita expenditure of a secondary school student in 2000-2001 is Nakfa 417, however, it increased from Nakfa 1,046 to Nakfa 2,209 during the period 2001 –2002 to 2003-2004. This is the result of the increased expenditure on construction.

7] It should be noted that if we compare the expenditure of a secondary school student with that of a TTI or a technical student the cost per student has been about 15 times in the first year, 10 times in the second and 4 times in the third year.

8] It is found that all the increase in expenditure of both primary and secondary education is without any increase in the number of students and teachers and quality of schooling.

9] The tables also indicate that in the last one year there is a drop of 300-600 students per school. This happened because of the shift of grade 8 students to the middle school from secondary schools as part of the educational reforms in Eritrea in the year 2003-2004. It can be noted that despite the shift, the total expenditure of each school has not changed much, but there is an increase per child expenditure many folds.

10] The administrative cost of many schools is exorbitantly high. However, Eritrean secondary schools must be one of its kinds in the world, which are making profits. This is revealed when we look at the income expenditure difference. This means that the cost of running a secondary school appears to be less than the income a school generates. This is despite the high cost of administration. Thanks to the national service teachers, Voluntary Service Organisation (VSOs) and cost bearing of Indian teachers by the International Aid agencies.

11] It is interesting to note that resources of a school like tearoom and the grass grown in the school premises yields substantial amount of income to the schools.

### **Results and Discussion**

1] It is found that the administrative and capital expenditure is exorbitantly high and the cost of salaries is comparatively very low in the secondary schools of Eritrea.

2] It is also observed that the students collect money (other than the regular fees) and pay to the national service teachers who received Nakfa 145 – 450 per month for their sustainability. This becomes an extra burden on the children to pay two kinds of fees.

3] The schools have resources that yield extra income. Some times these resources are good enough to bear the cost of the salaries. More ideas have to be thought of to exploit the resources fully and with much more efficiency so that the income from these sources is increased.

4] It is a very unique situation in Eritrea that most of the schools studied in this paper have surplus income. The surplus could be spent for the teaching resources or teachers welfare.

5] There is an increase in the amounts of spending on all the levels of education every year. However, this increase in the expenditure is not yielding any improvement in enrolment or achievement. Thus care must be taken to ensure the increased expenditure result in increased performance.

6] It is also found in this study that the dependence on aid agencies is quite high. It might be necessary for Eritrea to find avenues for self-sustenance.

7] There is a very high disparity in the expenditure per student across different levels of schooling. Though it is quite natural to find increased expenditure as we go up the educational level, the disparity seen in Eritrea is unsubstantially high.

8] Increase in the expenditure per year on education is not proportionate to the increase in the number of schools in the country.

9] The staff number also appears to be not increasing significantly despite increase in the beneficiaries. The student-teacher ratio in the schools is exorbitantly very high.

### **Conclusion:**

The emphasis on education for all, all over the world has increased the inflow of students into secondary level. But the shortage of resources and expensive efforts has forced the interested students off the school and finally drop out of the educational system.

In Eritrea for an eligible population of 282,140 there are only 34 schools, which amounts to about 8,300 students per school and a teacher student ratio of 430 per teacher. This situation is very pathetic and there is a need for very immediate expansion of number of schools, teacher availability, quality of education and access. All this requires capital and efficiency of utilization of funds.

It is also observed that the investment on different levels is not yielding results proportionately. Care must be taken to improve the efficiency of the system and seriousness of the results.

The capital and administrative expenditure of Eritrean secondary schooling seems to be high and the GOE may consider lowering this expenditure so that the amount can be spent on qualitative improvement of the schooling and the welfare of the teaching community.

It is good to see an increase in the per capita expenditure but it is heartening to see that this extra spending per child is not affecting the increase in the enrolment nor the quality of schooling. Care should be taken to see the costs yield quality.

A major recurring cost of the school, the teacher's salaries are reduced in Eritrea because of its bearing by the national service staff or the international aid agencies. Eritrea has established a good precedence to the world of sustaining its public expenditure through sharing by stakeholders and income generation form resources. Eritrean schools should

search for more avenues of sustaining its expenditure from its own means so that the dependence on external support systems and other subsidies can be less depended on.

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## Dr. Ravinder Rena

M.A., B.Ed., LL.B., M.Phil., Ph.D.

Assistant Professor of Economics

Dept. of Business and Economics



Post Box No: 7956

Eritrean Institute of Technology and Teacher Education – Mai Nefhi  
(Under the Ministry of Education)

Asmara, Eritrea.

Email: [ravinder\\_rena@yahoo.com](mailto:ravinder_rena@yahoo.com)

[ravinder\\_rena@rediffmail.com](mailto:ravinder_rena@rediffmail.com)

Phone: 00291 7120361 (mobile in Eritrea)

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