Emerging Trends in Educational Measurement, Assessment and Evaluation in Africa

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Edited by J. Gbenga Adewale

Educational Assessment & Research Network in Africa
Biyemassi, Yaoundé, Cameroon,
http://www.earnia.org

Edited by J. Gbenga Adewale
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ISBN: 978-978-52323-1-8

Printed by Esthom Graphic Prints
Tel: 07030298365

PROF. AKINWOLE FALAYAJO

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Foreword

As a master degree student in the Department of Teacher Education, Wole Falayajo taught me statistics, data processing and computer programming. Most of us came from the backgrounds of humanities and so were scared of the esoteric language employed in these courses. Some had indeed closed their minds to the seemingly impossible task of mastering the contents. However, as time progressed, it became clear that the teacher himself was aware of our serious impediment. He decided to tread softly, slowly, cautiously, often having to repeat himself and re-teach those areas that scared most of us. Gradually, my mind was ready to absorb the contents, and indeed to like the subjects. Before I was aware of it, I started thinking statistics in most everyday issues. I found myself debating the statistical probability of IICC scoring three goals against the Zamalek of Egypt before they could win the African Nations Cup. I found myself talking of the inverse correlation between attendances at cinema houses in Ibadan and Ibadan people's possession of television sets. Henceforth, the payday was no longer a day to smile to the bank, but one that demanded that I should first sit down and carefully plan a budget since I now realised the statistical worth of each naira earned. The fact was that Wole Falayajo brought each of the courses he taught us down to earth. The formula in each case was important, but far more important was the problem to which that formula was applied. Of course, I began to enjoy statistics and to perform well in the test. Trouble came when the grades showed me at the top of the class, and some mates approached me to teach them the concepts they found most difficult. It was then that I realised that not every teacher could do what Wole was doing.

The courses ended, and soon thereafter, I found myself in the university wearing a different toga: that of a research fellow –

like Wole Falayajo. We were now colleagues! Before long, I found him and I addressing the same assigned task, usually on a practical teaching assessment in a college of education. Much as I tried to remind myself of my new status vis-à-vis his, I could not easily shed off the old toga of a student before his teacher. But he kept me at ease. He related to me as an equal. Thus, I discovered that he was not only a good teacher but also a good colleague.

We in the Institute of Education have had Wole as our Director on two occasions, the first in an acting capacity and the second in a full-fledged capacity. On each occasion, he has tried his best to raise the tone of work among colleagues. He brought in the first two computers we ever had, and then on his return he secured five more from an international agency for which he had conducted a national assignment. The purchase and/or acquirement of the computers might be great, but greater still is that Wole used the computer to introduce many of his colleagues, including those in the non-academic cadres, to the computer. I learnt my first lessons in word processing and data analysis on the computer in his office. I have not been taught by any other programmer since, but I have been using the computer to typeset all my books and other materials ever since. In 1996, when he gathered the clerical staff together to teach them computer, one or two of the junior clerical staff were at first overwhelmed by the fact they were being taught by a professor that they talked about it to everybody who cared to listen. The sad side of this was that no sooner had the non-academic staff mastered enough of the computer that the university transferred them to some other units where their new skills would be more useful.

Quiet and easy going as ever, Wole related to all of us in as civil a manner as possible. To him it was human relations first and foremost. Thus, when in 1993, he took ill about a month after assumption of office as the Director of the Institute, and was diagnosed of a life-threatening heart ailment, it was as if most of his colleagues had equally taken ill. There being no medical

intervention available in Nigeria for the problem, most of us did what we could -- pray. And the prayer was answered when a distant relative sponsored his way to the United Kingdom for the much needed surgical intervention. We were all the better for that God-sent solution.

We are much aware that he has mentored many others outside this university, especially in his capacity as the leading MLA expert in the country, but the fact remains that in mentoring any outsider he mentors his colleagues doubly. There are in the Institute of Education enough hands to conduct MLA studies for the federation and each state within it.

Any reader of this volume would readily discover that contributions are from several parts of the federation. Many are from the academia, but some are from non-university educational agencies. We were much pleasantly surprised about the response because within weeks, the contributions came pouring in. Such was the regard for this man that all those who had gone through the Institute and Faculty of Education of this university while Wole was here wished to express their feelings through their contributions. Even the problem of financing the publication was solved through some unexpected quarters.

The chapters might appear to be talking in different languages about different concepts, but the bottom line is that they are all pointing towards what the man represented in academics: education, and measurement in education. Most of these are from those he once taught, but many are from those he shared his career with. All of them are saying in effect that they appreciate what he has been. His life has had a positive impact on theirs. To all these people, it is not self-enhancement they are seeking through this forum; the purpose is to register their appreciation and love for our Wole.

As we celebrate with him, it is with our best wishes that he would find fulfillment in his old age.

Prof. Sam. O. Ayodele.

Preface

The book project was the initiative of the Educational Research and Assessment Network in Africa (EARNiA) with its Headquarters in Cameroon. Nevertheless, the responsibility to ensure that the dream was realized was entrusted to me. The main reason for this project was to give honour to him that it is due; an honour to a man whose influence on many of us has been unique, tremendous and all pervading in our career as academics and other facets of the world of work. This book is written as a token of appreciation for the enormous contributions of our Professor 'Wole Falayajo (who turned 80 today 20 May 2016) to education in Nigeria and beyond. His influence can better be appreciated when one examines the geographical spread of the chapter contributions to this.

It is interesting to note that there were 46 chapters running to 800 pages. At the advice of the Printer, the book was divided into two: "Emerging Trends in Educational Measurement, Assessment and Evaluation in Africa" and "Issues in Teacher Education in Africa" all in honour of Professor 'Wole Falayajo. This first book which is "Emerging Trends in Educational Measurement, Assessment and Evaluation in Africa" contains 24 chapters written by active scholars in education. The different loci captured include educational measurement, assessment and evaluation and programme evaluation the areas in which Professor 'Wole Falayajo was involved during his academic career.

Chapters 1 to 12 focused on measurement and evaluation and present issues related to different types of assessment procedures. The first chapter: **Methods of Evaluation** is adopted from Prof Falayajo's last workshop presentations before retirement. Other issued considered were: the oral-written assessment of students' achievement in descriptive essay in

English language, evaluation of social works, clinical assessment of newborns, peer assessment method of teaching, electronic assessment of physical education, equating of students' scores in a longitudinal case using classical test theory, validation of marital stability and continual assessment.

Chapters 13 to 24 focused on educational evaluation. The first paper was by one of Prof Falayajo's students on cost analysis in educational evaluation. Other issues are: using logic model for effective programme planning, implementation and evaluation, evaluation criteria for undergraduate projects, implementation of roll back malaria programme in Oyo State, evaluation of training programmes and finally on evaluation in language education.

The Network (EARNiA) would be glad to see that this book is used as a companion by students and teachers in education. The belief is that it will further encourage educational discourse that Professor Falayajo is reputed for.

On behalf of the Educational Assessment and Research Network in Africa, I wish to thank all who did not mind my idiosyncrasies using text messages, phone calls and physical presence to meet the deadline. I also like to appreciate everyone who has made this project a huge success through their commitment and advice.

Editor
J. Gbenga Adewale

May 8, 2016

Tribute on Prof. Akinwole Falayajo on the occasion of his 80th Birthday and 55 years of Blissful Marriage

Prof Akinwole Falayajo, the quintessential human being.

Tribute by Prof Samuel O. Ayodele

I have been sufficiently close to Professor Wole Falayajo to assert that those who have the present privilege of witnessing his 80th birthday anniversary should sincerely thank the Lord for his life. This is because it is rare for a Nigerian to scale through two heavily shaky health challenges and still live to see a ripe old age. Those close to him would recall that barely a couple of months into his ascendancy into the office of the Director of the Institute of Education, University of Ibadan, he was floored by a heart related dysfunction that rendered him unable to fully function in his new role. Even his most optimistic well-wishers had their hopes fading off when it was learnt that Nigerian medical service was not equipped with the facilities to help him out. Britain was the only option, and there was no fund for that. The University could not rise up to the challenge, and certainly not the Institute. The Federal Ministries of Education and of Health each in turn responded in the negative. All human hope appeared to be ending. Meanwhile, our man was progressively declining, right under our nose, day after day. It was just at this crucial juncture that his fairer half ran around, to an almost forgotten uncle, and was able to pull through a near miracle rescue. A short visit to Britain completed the miracle.

If what has been proffered thus far is a serious indictment of the governmental and administrative systems, so be it. Even if the contract of employment did not clearly impel the administration to take full responsibility for the health and wellbeing of employees, simple respect for fellow feeling should have dictated that those in the right positions should have gone the

extra mile to rescue a fast sinking intellectual. We are talking of a government manned by hundreds who could afford hundreds of trips to Britain if they were personally involved. And to learn that dozens in the university and in the ministry were jostling to occupy the role of accompanying the patient on the trip leaves a rather sour taste in the mouth.

Thank God, the patient made it and returned to the Institute full of health and ready to work. His three year tenure was uneventful as he was able to steer the ship of the Institute smoothly through some of the most eventful periods. He handed the baton over to Prof Bajah in 1996 with the same number of academics that he started with in 1993, but was able to secure two worthwhile programmes- the M.Ed. degree in Ilesa and on the main campus itself. Throughout his tenure none in the Institute could point to any act of impropriety or of unfairness. It was during those three years that one of his senior colleagues, described him as straight forward and upright as his lean 'I' figure. That senior colleague stressed that "Falayajo has no corner in his mind; it is all a straight one street that doesn't bend anywhere. What he agreed with you yesterday is what he will act on, no matter how strongly others may have tried to convince him to the contrary."

Thus, it was that when I took over from his own successor in 1999, I had a model to copy. People soon knew me for telling them the blunt truth even when it hurt. If your promotion case was weak I was not afraid to tell you to go back and re-prepare; if your candidate's thesis was faulty, I had no problem telling you to go back to tidy up for some more months. That was precisely Falayajo's way of life and of administration, even though it earned him a few critics here and there, just as I received some myself.

I earlier referred to two solid health challenges. I have discussed one. The second occurred a few months into my own administration in 2000. It was the first time I learnt of what was

called amnesia. I have since then learnt of some other elderly citizens with this condition and also learnt that all individuals progressively manifest instances of it as they grow older. Today, when I suddenly fail to recall the name of an individual that I have known for years I realize that I myself am growing older. But when it occurred to our man, it was sudden and in a much greater dose than usual. From then on, he has had to rely progressively more on the support of those closest to him. This is especially with regard to communication, the aspect in which the problem is most manifest. Today, when I recall how I myself have experienced a devastating but a totally different health condition, occasioned partly by the process of ageing and even more significantly so by the inept medical system that we have been saddled with in this nation, I realize how essential the reliance on the support of friends and relatives is. Prof Falayajo has been able to pull through thus far mainly because there are relatives and friends to support him in his long hours of loneliness.

Looking back over the long corridor of his life, it can be said to his credit that once any of his doctoral candidates had his thesis presented for defence, that one was sure of earning the degree. His supervised theses were known to be almost 100% flawless. No external examiner ever had any seriously challenging adverse comment. Indeed, they often had more to learn from the exercise than to criticize. A man of few words, he would throw in a word only once in a while; the candidate himself/herself had already been sufficiently cooked for the task of taking on any challenge that might arise.

Most of those candidates are today high up in their careers. Most are professors; at least one occupied the seat of his university's vice-chancellorship. Thus, Prof Falayajo is a vast contrast to the genre of supervisors who take it as a golden rule to stand stolidly against the way of those who would qualify for the

esteemed title of doctorate degree holders. I did not pass through his supervision, but I was taught statistics by him. In those days in the 1970s, we saw him as a strong pillar in his field. And we saw statistics as a veritable tool for tackling most of life's problems. And, you see, if only we are ready to analyse issues and accept what the facts and figures tell us, our ways would be more straight forward.

Now at 80, for Prof Falayajo, writing seriously earth-shaking academic papers and presenting them at high profile seminars are out of the question. Nor does he need to. Those are now the tasks for his children with whom God has endowed him. What remains for him is to constantly intercede for their welfare and progress. He once moaned that one of his most academically imbued sons has gone into evangelism, though still in secular service; I calmed him down that God Himself may have charted the course for the young man. Today, he has no regrets; the boys and girl are all doing well, and are sufficiently close to their old man.

What is there left to say about a man who has lived for four full scores? I can only wish him a restful old age. He has paved his way sufficiently for that and it is my strong and sincere belief that that is what he is going to have.

Congratulations.

Rev Prof Samuel O. Ayodele.

Professor 'Wole Falayajo, a unique man in Physique and Character

Tribute by Professor & Mrs Gbenga Adewale

It all started in 1989 after my NYSC. I went to the Director's office, Institute of Education, University of Ibadan to ask about the status of my admission to pursue M.Ed. Degree in Educational Evaluation. The Secretary to the Director allowed me to enter his office. Here was a daunting looking man glued to the 186 computer with 5¼" floppy disc and two pairs of glasses. He removed one and wore another to attend to me. I explained to him that I had not received my admission letter. He left what he was doing and took me to the then Head of ICEE and Sub-Dean (Prof J. O. Obemeata)'s office. I was surprised that he did not ask his secretary to take me to Prof Obemeata's office nor did he give me directions there but he took me to Prof. Obemeata's office personally and asked him to attend to me. I did not think of him as friendly because he was too serious.

During our classroom interactions, his teachings were more in the abstract than concrete, one could imagine what we had to cope with as he would not miss his classes. At the end of the one year M.Ed. Programme, my lecture notes in his courses were the fullest. At the initial stage, I found it difficult to understand what he was teaching because I could not separate his teachings from his looks. I hardly asked any question because I could not tell if he would be impressed or not. Throughout the one year programme, I could not remember if he smiled once. Amazingly, as I read his notes at my own pace, they became easy to understand. I could relate with the lectures notes more as they made more sense to me. This was also the experience of some of my colleagues. His notes became indispensable at a time I needed to teach similar courses. Towards the end of the semester, the supervision roster was pasted and I was assigned to him as my supervisor. It was with mixed feelings, because I needed someone who was very sound in research and he

was qualified by my assessment. On the other hand, pieces of information from past students and my impressions made me think twice. Of course, I had solace in the words of Jeremiah "O LORD, I know that the way of man is not in himself: it is not in man that walks to direct his steps." (Jer 10:23). So, I concluded that God was the one that ordered my life. We started the journey from one that looked like a common student-teacher relationship to that which involves my entire family. My children refer to him as "grandpa Prof."

Being my supervisor was the best thing that ever happened to me in my academic endeavour. He made his materials available to me. You would hardly know who owned his office. The only way you would know the owner was through the name tag on the door and that he had the keys to the office. I often went to his house to collect the office keys. The first sets of computers I met in his office were my first learning tools in the world of ICT. He supervised my M.Ed project and Ph.D Thesis. At that time many of my classmates would ask how I was coping with a man that would neither talk nor smile. He was always wearing 'a serious minded look.' It was not as if I was luckier than they because several times before I entered his office I would have rehearsed what I was going to discuss with him. Immediately I was done, I would not spend an extra second before he asked "eh…heh, what else?"

The situation changed when we became colleagues in the same Institute of Education where I was his student. We could sit down for hours talking. In one of such times, he told me why he was always looking serious. In his words, students coming for education were few in number maybe 20 at the most. However, there was a time there was an upsurge in student enrolments, many students used his class as an entertainment gallery. When he said something, they would laugh uncontrollably to the point that he would not be able to finish his lectures. At that point in time, he decided not to have any of such jokes again and to look serious.

During the Education Sector Analysis (ESA) of the Federal Ministry of Education, he received an invitation letter and was asked to nominate someone who could develop questionnaire for parents and pupils. He called me and said, “you should be able to do that.” I agreed and that was my in-road to Abuja in 2003. Like one of my colleagues would say about my relationship with Prof. Falayajo, that 'your father did not only teach you how to fish but he also took you to different rivers and said, the fishes here are tiny, don't fish here, come to this other river, the fishes are big. You can fish here.' True to his words, one of his past students working in UNICEF in another country came looking for him after he had retired. I took the man to his house and it turned out that the UNICEF wanted Prof to conduct an MLA study for the country in which he was working. The long and short of it was that Prof sent me to the country to conduct the MLA on two missions for five weeks, for which I will always be grateful.

He is committed to his family. My wife and I went to visit him one day at home, I noticed he had a burden, we asked what the matter was, it was his son-in-law's health. He was away in another country for a major surgery. As we prayed for his son-in-law and the daughter, Prof was in tears. To God be the glory! I felt that God saw this old man's tears and decided to answer our prayers.

One of the outstanding lessons I learnt as Prof's student was his sincerity about his knowledge. I rated and still rate him as very intelligent but I was amazingly surprised when he would many times tell me 'I don't know, let's see Dr or Prof so and so, he/she should be able to answer the question.' This actually qualifies him with the appellation given by one of his senior colleagues who described him as “being straightforward and upright as his lean 'I' figure.” That senior colleague also stressed that “Falayajo has no corner in his mind; it is all a straight one street that doesn't bend anywhere.”

It is indeed a blessing to arrive at the octogenarian age with 55 years of blissful marriage. As Prof Wole Falayajo and his sweetheart wife (Mrs Anke Falayajo) continue to grow together, I wish them a very sound health and more years on earth. I also pray that our Almighty God will give them the grace to witness more joy, peace and prosperity.

Hearty congratulations

Professor & Mrs Gbenga Adewale

A TRIBUTE TO PROF FALAYAJO AT 80

To me, it is indeed an honour of immeasurable proportion to be asked to write a short tribute on a distinguished scholar of the caliber of Prof Falayajo. This is because I do not rank tops among those who are qualified for the honour. Since the assignment has been given to me, I therefore, have to respectfully pay this short tribute to a great teacher, an accomplished scholar, a symbol of humility, a great father and an excellent administrator. I predicate my tribute on the following premises.

I first met the celebrant as the Director, Institute of Education, University of Ibadan in 1990 when I was coming into the International School as a teacher. During this period, I found him as a good listener and someone who was willing and ever-ready to help and make the system move smoothly. I later discovered him to be the father of one of the brilliant students - Funmi - in the SS I class of 1990 - 1991. This discovery made it possible for me to observe and work closely with him and to ensure that he had a good impression of me as a young teacher. I must confess that I was greatly motivated to work harder at my work at the International School to avoid disappointing him as the then Chairman of the Board of ISI and make progress in my quest for success in my pursuit in the field of academics. I thank God because it is evident today that I have not disappointed him on both grounds.

As God would have it, I actually became one of his students in the Ph.D class of 1993/1994 academic session. We were lucky to be taught Data Processing and Analysis by Prof. The class was lucky to be taught by him for one very special reason which was not clear to many people. The reason was that most of us in the class never had it funny coping with a similar course during the M.Ed programme because of the way it was handled. We dreaded the course and wished it was never part of what we had to undergo. We were therefore glad when Prof Falayajo brought his simplicity,

thoroughness and ever-smiling face to the teaching of the course. That disposition of his contributed to the success that members of the class recorded during the programme and for which we are eternally grateful to him.

My relationship with him grew closer after the programme and I began my sojourn in the field of academics. Prof Falayajo would always and in a gentle tone, say good words of encouragement to me anywhere he met me and others in the Faculty and outside. He was such a jolly fellow we loved to relate with because it was certain that we would leave his office better. I must confess that we had missed his gentle mien and encouraging words since he retired from the service of the University. I am particularly very glad now that I have this opportunity to say a big thank you to him through this tribute and to put down these few words for posterity.

Prof Falayajo is a man to be emulated in several ways including the following: being ever-smiling and willing to help everybody that came his way whether young or old, always having words of encouragement to give in any situation, being good at teaching his discipline as 'hard and uninteresting' as it is to those who never liked the discipline of mathematics and being a good example of what a good child of God should aspire to be. He is indeed a 'gentleman in whom there is no guile'.

My tribute will not end without a mention of my recent encounter with him and his amiable wife at the banking hall of Skye Bank, University of Ibadan, Ibadan Branch. After we exchanged few pleasantries, I informed them that I would be delivering my inaugural lecture on April, 14 and would love them to attend. Rather than take offence at my audacity, they, in their characteristic way of doing things, took time off to explain to me why they would not be able to make it to the Trenchard Hall. They also prayed for the success of the lecture. Those who attended the lecture would bear witness of the fact that their prayers were answered. Since I cannot possibly write everything I knew and

enjoyed with working under the shadow of this amiable man of God, I pray that as he grows older in grace, God will continue to renew his strength, grant him good health and help him to enjoy the fruits of his labour to the fullest extend possible in Jesus' Name.

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1

METHODS OF EVALUATION

'Wole Falayajo

Introduction

This presentation was his last workshop on methods of evaluation at a workshop in the early 2001. His presentation was premised on the assumption that there will be other presentation that will deal with the details of different types question formats and the 'dos' and 'don'ts' of these formats. The other assumption is that you all share with me the guiding principle that tests or assessments should be used first and foremost for the improvement of learning and secondly for the other purposes for which assessments are used such as selection and placement.

There are three commonly occurring terms in this area that I will like to quickly put in proper perspective; these are measurement, assessment and evaluation. Measurement is the simple procedure of assigning numbers to some attributes of objects according to some rules, it is a one-dimensional operational operation; assessment is the process of collecting information about objects using different procedures (which may include measurement) in order to take decisions about the objects; in evaluation, on the other hand, we take the results from assessment to make one kind of judgement or the other.

It is in this sense that evaluation subsumes assessment and hence measurement. Even though we do talk of the evaluation of students' achievement, but as teachers, we tend to talk more often of assessing our student – we give them tests, quizzes, assignments, etc. Of course when we classify some scores derived from these assessments as pass marks or cut off marks etc, we are evaluating rather than just assessing. I imagine that the work for

these two days will be mainly perfecting your skills in the development of assessment instruments. I see my contribution as that of laying the foundation for that exercise. In doing this, I will first try to talk about evaluation in general (this presentation is supposed to be on methods of evaluation), I will talk much more about assessment (which I think is our main concern) and I will than try and make some proposals about how we can make our assessment of students to positively influence both our instructional practices and our students' learning.

What is Educational Evaluation*?*

There are as many definitions of evaluation as there are people who care to attempt a definition. Some will offer a conceptual definition by saying that evaluation is the process of determining the value or amount of success in achieving predetermined objectives; or the procedures for fact-finding about the results of a planned social action (Hyman and Wright, 1967). If one goes further to state that this process includes formulation of objectives, identification of proper criteria to be used for measuring success, determination and explanation of the degree of success and recommendation for further programme activity, then one would have provided an operational definition of evaluation, that is how evaluation is to be carried out (Suchman, 1967).

The range or variation in the possible definitions of evaluation is captured in the comprehensive characterisation of 'evaluation as **the determination** (whether based on opinions, records, subjective or objective data) of **the results** (whether desirable or undesirable, transient or permanent, immediate or delayed) **attained by some activity** (whether a programme or part of a programme) designed to accomplish some valued goal or objective (whether immediate, intermediate or ultimate). The key elements in this characterisation are: **determination,** which represents the process; results, which are the criteria; **activity** which is the social intervention and **value,** which stands for the objectives.

Approaches to Evaluation Otherwise Known as Models of Evaluation

Different approaches *(which are complementary rather than competing)* have been adopted by evaluators in carrying out their assignments. The first approach, which was spearheaded by Tyler *(1950),* was that which saw evaluation as a way of finding out the extent to which programme objectives are being achieved. In its original formulation this approach was considered rather static. Later improvements to the Tyler's model such as the Stake *(1967)* model introduced some important components. These components were such as to make it possible not only to document the attainment or non-attainment of the programme objectives but also to be able to **explain** why the objectives were or were not achieved.

Scriven *(1967)* observed that decisions about a programme can be taken not only at the completion of the programme but also while the programme is still in process; this gave rise to his famous formative and summative evaluation model. Stufflebeam et al *(1971)* and Dave *(1973)* introduced the idea of context or environment in which programmes are operated into the components which evaluators have take into account in the evaluation of programmes. All these models have been summarized as falling into one of two categories – the Engineering model as typified by all the input-output models and their variants and the Medical model as exemplified by the Scriven's *(1967)* formative-summative evaluation model.

On a lighter mood, we have been able to identify some **"home grown"** models variously referred to as the **"Fire brigade"** model, the **"panic"** model the **"Kiakia – bus"** model and the **"Push me- push you"** model. The label of "**Fire brigade"** captures the essence of what typifies this so called model: An educational crisis occurs, a group is mobilized to put down this crisis and investigate both the immediate and remote causes and suggest remedies. As you may have guessed, what I am talking about there are the various commissions of inquiry, investigation

panels and national conferences (both sovereign and non sovereign) which are usually set up whenever some malfunctioning or inadequacy is observed in our educational system. Such gatherings are usually followed by **blue** prints and **white** papers and **green** lights for implementation. This seems to be our own **"home grown'** approach to educational evaluation. The discussion above completes what may be regarded as introduction to this presentation; I will now go on to the discussion of assessment of students' achievement.

Approaches to the Assessment of Students' Achievement

In 1977 or there about, when an educational policy was first published, a model of assessment was introduced as a matter of policy. This is the policy of continuous assessment as an integral part of students' assessment. What this policy has formally recognised is the fact that students' assessment can be either internal and/or external. There is yet another important issue which the policy highlighted: the issue of the multidimensional nature of students' achievement. The fact that students are not only expected to acquire knowledge about some matters of fact, but also to acquire some manipulative skills and socially desirable values and attitudes. This fact has implications for what and how to assess students' achievement. First, we will consider the internal assessment of students' achievement.

Internal Assessment of Students' Achievement

As part of their instructional practice, teachers periodically give exercise, assignments, quizzes, tests etc. These may be given immediately after or even during a lecture, at the end of a week, term or semester or at the end of the school year. Before the 1977 policy referred to earlier, these periodic assessments did not count towards the final assessment of the students; the innovation introduced in the policy was to change this practice. This change in practice, in principle, makes it possible for teachers to adopt a variety of approaches to the assessment of students. In principle,

teachers should be able to assess those very important aspects of educational outcomes that are not easily assessed under rigidly timed examination conditions. A combination of internal assessment with assessment by examination would have given a more comprehensive view of students' achievement

Public Examinations

These are the highly orchestrated annual 'jamboree' conducted by such bodies as West African Examination Council (WAEC), National Examinations Council (NECO), National Business and Technical Examinations Board (NABTEB), Joint Admission and Matriculation Board (JAMB), and different professional bodies like the Institute of Chartered Accountants of Nigeria (ICAN). These bodies deal with what has been referred to as 'High Stake' examinations; these are examinations whose outcomes have very profound if not decisive effects on the life aspirations of the examinees. They are conducted mainly for selection or certification purposes. The very nature of these examinations makes them prone to all sorts of abuses that throw their validity as assessment procedures into serious doubt. The idea of combining some amount of internal assessment with these external assessments was to ameliorate part of their shortcomings.

National Assessment

It is very different in many respects from internal assessment and the public examination practice. Some of these differences may be mentioned very brief here. National Assessment is usually administered to sample rather than population of students; reports of National Assessment are made on aggregate of students rather than individuals, such aggregates may be school, local, state or national.

National Assessments are administered every two or three years unlike public examinations which are administered every year; National Assessment focuses on what a nation considers as critical skill to be acquired after some years of education rather

than on some prescribed curriculum and finally, National Assessments are administered at predetermined stages of the educational system like primary four or JSS2, or at some age grades like eight year olds, twelve year olds or seventeen year olds rather than end of school cycle. It is a much more policy-oriented approach to assessment than the conventional public examinations. I will come back to the issue of National Assessment later on in the presentation.

Instruments for Assessment

As I mentioned earlier, learning outcomes have been categorised into three domains knowledge, values and skills. The procedures for assessing these outcomes are therefore different. While one might ask students to write an essay on 'blood circulation in the human body' as a way of finding out whether they understand this concept, it will be strange to ask the students to write an essay on 'honesty' in order to find out the most honest student. The following table shows instruments and techniques that can be used for assessment of the three domains.

Table 1: Instruments for Assessing Cogni tive and Non-cognitive outcomes

Instruments and Techniques	Cognitive Outcomes	Affective Outcomes	Psychomotor Outcomes
Test	X		
Projects	X	X	X
Assignments	X	X	X
Observation		X	X
Rating Scales		X	X
Anecdotal Record		X	
Interview and Questionnaire		X	
Sociometric Technique		X	

Source: Ughamadu, K.A. (1991).

Tests

This is the most often used instrument for the assessment of cognitive outcomes of learning. We seem to have developed more expertise in the use of tests than the other types of instruments. Tests are quite often classified on different basis. We distinguish between tests that are produced by professional test makers from those that are made by classroom teachers by referring to the former as **standardised test** and the latter as **Teacher made tests.** We also distinguish between test on the basis of how the result are to be interpreted, when the performance of an individual on the test is interpreted in terms of the performance of the members of the group who took the test, we talk of a **norm referenced test,** but when the performance is compare with a pre-determined level of performance, we talk of a **criterion referenced test.** We also use the mode of responding to test as a way of distinguishing between them; when the response is free format, we talk of **essay tests,** but when the response is more or less forced or fixed then the test is referred to as an **objective test.** The preparation of the normal classroom tests involves at least three distinct steps.

- **Planning:** this requires that the instructional objectives to be tested are identified, the subject matter is also clearly demarcated and a table of specification (or test blue print) is prepared.

- **Construction of test items:** the test format will have to be pre-determined. This should be essay or free response test items or objective – forced choice test items. One of the weaknesses of essay format is the subjectivity of scoring which makes it less reliable. The way to minimise this weakness is to prepare a marking scheme. The dos and don'ts of constructing objective test items particularly the multiple-choice variety will be taken up in another presentation

- **Item Analysis:** this is not a step that most teachers go through. It is however a very important step in test construction. There is no *a priori* way of knowing the adequacy of items and the entire test unless they are subjected to rigorous **analysis**. Such an analysis will show which items are 'pulling' in the same direction as the entire test (item discrimination), whether there is coherence among the items (internal consistency), how reliable the entire test is, and also how valid.

Projects

Project is both a method of instruction and technique of assessment. It's most important feature is that it is possible to achieve objectives in all the three domains of learning outcomes by students undertaking projects. The execution of a project will require the students to search for the relevant information and they will also have to organise the information; most projects require a lot of manipulative skills. Some projects are group projects where students can develop the habit of cooperation; take on responsibility on behalf of the group, etc. Projects usually help the students to learn through problem solving and it also gives the teacher an opportunity to assess students' originality and creativity. In using project as an assessment procedure, the teacher must ensure that the students know ahead of time the criteria that will be used in assessing the work; will it be only the finished product alone or the process will also be assessed?

Project can very considerably in terms of their scope and complexity. A first grade pupil can carry out a project on stamp collection – classifying them by cost, images on the stamps, country of origin, etc, a Junior Secondary school student can do a project on a local traditional; festival, more mature students can do a project attempting to solve a persistent problem in the community such as the problem of indiscriminate dumping of refuse.

Rating Scale

This is one of the techniques that can be used to assess affective behaviour. The rater, which may be the teacher, is asked to rate say the student on the extent to which the student has certain characteristic:

How will you rate this student on punctuality?

Very punctual…Punctual…Sometimes Late…..Usually Late…..Always Late…..

We notice of course that making these judgements may be highly subjective. This is a major problem of assessment of affective behaviour. There are professional prepared instruments that can give more objective and hence more reliable results.

Anecdotal Records

These are brief narratives of some specific behaviour or episode in the day-to-day life of the student in the school. When kept over a period, these records can provide a reasonably good longitudinal picture of the changes that have taken place in a student. It is necessary that the records should have the following features:

- They should contain factual description of what happened, when it happened and under what circumstances.
- Each anecdotal record should contain the record of only one incident.
- Any recorded incident should be one that can be considered as significant to the student's growth and development.
- Any interpretation and recommended action should be separated from the report.
- I have not discussed most of the strategies itemised in the previous table because I feel they may be peripheral to the main concern of this workshop. If I am wrong, then we may discuss any of them further during the time for general discussion. I will like to end this presentation by going back to the issue of assessment, instruction and learning.

Assessment, Teaching and Learning

Assessment should an integral part of teaching. It is the mechanism whereby teachers can learn how students think as well as what students are able to accomplish. Assessment is likely to result in the promotion and improvement of learning only when at least these two conditions are met:

- The outcomes being tested must be recognised and accepted as
- important objectives of the instructional programme. If this is not the case, the assessment programme either can be disregarded as being peripheral or can deflect teaching and the educational programme from central goals.
- Assessment of achievement must be planned and implemented as an integral part of the curriculum and programme of instruction. Only insofar as assessment are constructed or selected in terms of the instructional programme and the results are available for formative planning and change can their greatest value be realised.

Earlier in this presentation, I made reference to National Assessment as one of the approaches to the assessment of students. This approach, potentially can be used to form a good linkage between the trilogy of assessment, teaching and learning National Assessment is undertaken as a result of a definite policy decision on the part of the government of a nation to collect achievement data and related information about the performance f the nation's educational institutions in order to inform policy decisions. There are three broad categories of decisions that can be supported by assessment data: Decision about policy, Decision about student and Decision about curricula and programme. I will take just the type of decisions about students that can be influenced by assessment data: Placing of students, classifying students, managing instruction, Selecting students and Certifying students. Assessment data help in the management of instruction by providing feedback to both students and their parents about achievement and also feedback to the teachers about the effectiveness of their instructional strategies. A very critical step

in the programme of National Assessment is the detailed specification of the kind of learning outcomes that students are expected to acquire at stated levels of the national educational system or age levels.

There is a comprehensive programme of Education Sector Analysis that has take off, within this programme it is hoped that a foundation for the institutionalisation of a National Assessment programme in the country will be laid.

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2

EFFECT OF ORAL-WRITTEN MODE OF ASSESSING SENIOR SECONDARY SCHOOL TWO ENGLISH LANGUAGE STUDENTS' ACHIEVEMENT IN DESCRIPTIVE ESSAY

Oluwabukola O. Oduntan & C. O. O. Kolawole

Introduction

In any educational system, assessment is an inevitable ingredient because it is needed to make informed decisions regarding students learning abilities, their placement in appropriate levels and their achievement. According to Sadler (2005), assessment refers to the process of forming a judgment about the quality and extent of student achievement or performance, and therefore by inference a judgment about the learning that has taken place. Such judgments are mostly based on information obtained by requiring students to attempt specified tasks and submit their work to a university teacher or tutor for an appraisal of its quality. Generally, students know which of their works are to be assessed. All types of tasks, and the conditions under which they are to be completed, are included: tests, term papers, laboratory projects, field reports, oral seminar presentations, studio productions, professional placements, assignments and examinations.

Assessment, when properly carried out, influences learning and when made authentic, provides feedback and revision to improve learning. According to Idialu (2013), assessment can be made valid, fair, ethical, feasible and efficient tools for learning using multiple measures. On the other hand, the success of any

assessment depends on the effective selection and use of appropriate procedures as well as on the proper interpretation of students' performance.

Assessment is the process of gathering and interpreting evidence to make judgments about a student learning (National Research Council NRC, 2001). It is the crucial link between learning outcomes content teaching and learning activities. Assessment is used by learners and their teachers to decide where the learners are at in their learning, where they need to go and how best to get there. The purpose of assessment is to improve learning, inform teaching, help students achieve the highest standards they can and provide meaningful reports on students' achievement.

Assessment in Nigeria over a long period of time has been mainly through written mode particularly in language related discipline, where reading, writing, listing and speaking skill are taught and this has remained persistent. The mode of assessment hitherto has not reflected this fact. The predominant mode of students' assessment in Nigerian schools is the traditional mode. In this mode, students are assessed using paper and pen to measure their gain. This mode of assessment has imposed serious limitations to the overall determination of achievements of students especially in English language class mode of assessment in English is of importance to us because English language as a subject has been taught and used as a medium of communication in Nigeria for decades. It occupies a very conspicuous position among other languages when its various functions are considered. It is a compulsory subject for students right from primary to tertiary level and a credit pass in it is required for any student seeking admission into a tertiary institution after secondary education. It is, however, unfortunate to note that candidates' performance is below expectation, most especially at the school certificate level because in Nigeria for example achievement and mastery are only measured through examinations like classroom tests, quizzes, essays etc applied as achievement tests, performance tests and skills evaluation which only require them to

write. It is therefore not surprising to note that students' performance over the years has been unimpressive as reflected in table 1 below.

Table 1: A summary of the Statistics of performance of students in English language in May/June WASSCE 2002-2012

S/N	Year	No of Candidates Examined	Credit Pass(A1-C6)		Ordinary Pass (D7 - E8)		Fail (F9)	
			No	(%)	No (%)		No	(%)
1	2002	909,888	229,824	(24.03)	320,298	(32.81)	387,642	(42.61)
2	2003	929,271	269,824	(29.03)	320,185	(33.91)	314,255	(33.8)
3	2004	833,204	252,271	(29.83)	257,054	(29.41)	323,879	(38.07)
4	2005	1,064,587	272,922	(25.63)	371,095	(34.85)	393,201	(36.93)
5	2006	1,154,266	375,001	(32.48)	39,994	(34.13)	342,311	(29.65)
6	2007	1,252,510	379,779	(30.32)	463,827	(37.03)	378,902	(30.25)
7	2008	1,274,166	446,288	(35.02)	405,942	(31.85)	400,126	(31.40)
8	2009	1,355,725	563,294	(41.55)	400,424	(29.54)	314,965	(23.23)
9	2010	1,351,557	337,071	(24.09)	543,349	(40.2)	471.137	(34.86)
10	2011	1,540,250	472,906	(30.76)	618,924	(40.18)	448,420	(29.10)
11	2012	1,672,224	649,156	(38.82)	602,306	(36.02)	420.762	(25.16)
12	2013	1, 689, 188	1,085,472	(64.26)	252,005	(18.28)	201,203	(17.48)
13	2014	1,692,435	529,425	(31.28)	705,108	(23.45)	787,207	(45.27)
14.	2015	1,593,442	616, 370	(38.68)	501,699	(33.89)	380,849	(27.43)

Source: Test Development Division WAEC Office, Ogba, Lagos.http://www.nairaland.com/1855405/mass-failure-waec-releases-may

However, many reasons have been advanced for habitual dismal performance of students in English Language such as incompetence of many teachers, inappropriate modes of teaching, lackadaisical attitude of teachers to the teaching of English language, poor reading and writing culture of students, to mention but just a few.

Researchers like Kolawole (1998, 2003), O'Malley, & Valdez- Pierce (1996); Fakeye (2006) blamed the poor performance of students in Senior Secondary Certificate Examination on students' poor writing skill. Kolawole (1998) in his submission noted that the mass failure of students in English Language begins from students' poor performance in essay writing which takes the largest share of the total marks allotted to the subject by the West African Examinations Council or the National Examinations Council. The mark allotted to essay writing is 45%

of the total mark of English Language Paper 1 among other aspects of the language usually tested such as comprehension and summary.

If the purpose of an English language examination especially in essay is to test the students' overall language proficiency rather than their writing ability, oral-written mode of assessment is to these researchers would be a better way of assessing them. It can show a teacher at a glance whether or not the students have a general grasp of the subject, as well as their major strengths and weaknesses. This mode of assessment will give the teacher a clear and objective idea of the student's level of proficiency, uncultured by judgements about skills in other areas such as paragraphing, capitalisation, spelling ability and neatness of handwriting. In addition, it saves a huge amount of time normally spent reading and marking piles of examination scripts besides English is expected to be used more orally outside instead of being written, in spite of the fact that written skill is important. It is this that informs this research which aims at experimenting a new mode of assessing students' achievement in English language. The oral assessment mode is used in this research work so that it can be compared with the written mode, to compare which one will be more effective in bringing out the best in senior secondary school students' language achievement especially in essay.

Gender has been linked with student achievement in various studies. Gender is a variable that plays an important role in learning. It refers to varied socially and culturally constructed roles, qualities, behaviour and so on that are ascribed to women and men of different societies Ashford, Locrory and Lortie (2001) to them, they see gender as the social construct used in defining male and female. According to Chukwu (2012) gender is the behavioral, cultural and psychological characteristics associated with boys and girls which may influence their achievement in essay writing. Chukwu (2012) in his study found no significant difference in the mean achievement scores of male and female students in essay writing. Fabunmi (2004) in a study discovered

that gender composition has a significant relationship with students' academic performance and that gender composition has a significant influence on secondary school students' academic performance. Beside this, inconsistent findings have been discovered on gender differences and academic achievement (Yaki, 2006 and Olowe, 2010). There is therefore the need to find out if gender have effect on students' academic achievements in descriptive essay writing in English language.

In the light of the above, the researcher intends to investigate the effect of two modes of assessing senior secondary school two English language students' achievement in descriptive essay. The study also examined the main effect of gender on students' achievement in descriptive essay

Theoretical Background

The main thrust of the bevariourist theory of language learning is that language is behaviour (Hussein (2006) and is manifested in spoken form before it is represented in symbolic form in form of writing (Wayne (2007). This is why while the mentalist theory emphasises rules and linguistic features (Chomsky, 2000 and 2002). the behaviourist concern themselves with what language can be used to do. The primacy of speech is not in doubt because individuals learn how to speak a language first before they write in it. One of the objectives of language teaching and learning lays emphasis on ability to use the language orally before it talks about using it literally that is in writing. Thus, when we teach language in schools, we emphasise speaking the language first.

It is therefore of interest to language examiners to incorporate the skills that is primary in their attempt to determine what students have learnt and can do with any language that they have learnt. What we are used to before now is a situation where examiners, in their concern to determine what students can do with English language make them write essays/letters, answer comprehension and summary questions and answer some

questions based on lexis and structure and completely abandon the most important skill - speech - which shows clearly what they can use the language to do in social situations.

Since the West African Examinations Council reports on yearly basis that students fail to write well in English, it has become imperative to modify the way students' achievement is being determined by suggesting an alternative. This alternative mode of assessing students' capability and ability to use the language in essays is the oral/written mode which is a combination of oral and written skills. It has been proposed in this paper that oral/written mode be used in the determination of what student can achieve in their examination in the area of essays because the mode easily accommodates all that students are expected to do when essays are being assessed.

Statement of the Problem

The dominant mode of assessing students is through writing and that has been largely responsible for students' poor performance because other aspects of language learning sure as oral and listening skill are not accommodated in the written mode of assessment. Many studies have adduced various reasons for students' poor performance and have come up with different suggestions on how to improve it without a look at how the students are being assessed. It is known over the years that many students have excellent writing skills but are deficient when it comes to speaking. Also, some students have excellent speaking skills but are deficient when it comes to writing effectively. It thus becomes imperative to compare oral and the written mode of assessment in English language descriptive essay.

Hypotheses

Three null hypotheses guided the study and are tested at 0.05 level of significance.

H01: There is no significant main effect of Treatment on Students' Achievement in Descriptive Essay

H02: There is no significant main effect of Gender on Students' Achievement in Descriptive Essay

H03: There is no significant Interaction effect of Treatment and Gender on Students' Achievement in Descriptive essay.

Methodology

Research design

The study adopted a pretest-posttest control group, quasi experimental design with a 2x2 factorial matrix.

Variables in the Study

The independent variable: The independent variable in this study is treatment at two levels, namely: (i) Oral-written assessment of descriptive essay

(ii) Conventional mode (written assessment) of assessment of descriptive essay

Moderating variable: Gender (Male and Female)

Dependent variable: achievement in descriptive essay

Selection of participants

The participant consisted of 140 Senior Secondary II students drawn from four intact classes from four schools randomly selected from four Local Government Areas randomly selected from Oyo town in Oyo State. Two schools were assigned each for the treatment group and the control group.

Research Instruments

Four instruments used in the study were:

A. Descriptive essay achievement test
B. Descriptive essay achievement test marking scheme
C. Checklist of Oral-written Assessment (COA)
D. Teachers instructional guide on descriptive essay

Descriptive Essay Achievement Test

This achievement test was used to measure students' pretest performance in descriptive essay. It was adopted from the West African Examination Council's (May/June 2014) English language Paper 1. This is because it is a standardized paper which could be marked on an objective basis, based on WASSCE Marking Scheme.

Descriptive Essay Achievement Test Marking Scheme

The scoring guide for essay writing used by the West African Examination Council was adopted and was used to mark the pretest descriptive essay achievement test. This is a comprehensive analytic marking scheme because it reflected all aspects of essay writing, such as, content, organization, expression and mechanical accuracy (Hughes, 1989).

Checklist on Oral-Written Assessment

The scoring guide in assessment of descriptive essay was developed by the researcher and used to mark the posttest. This was used to assess the experimental groups posttest descriptive essay achievement. The draft form of this instrument was given to the researcher's supervisor and two experienced English Language educators from the University of Ibadan for content validity. The experts were requested to screen the items for the content validity of the instrument and judge whether or not it is appropriate to ensure that the test is objectively assessed. Suggestions made were effected to improve the instrument.

Teachers Instructional Guide on Descriptive Essay

This was prepared to teach both the experimental and the control groups. It contains the lesson steps to take to teach descriptive essay effectively. It also contains the activities students are to perform in the course of teaching.

Data collected were analyzed using T-test, Analysis of Covariance (ANCOVA) and Estimated marginal means (EMMs).

Results

H01: There is no significant main effect of treatment on students' achievement in descriptive essay

Table 2: Table showing the main effect of Tr eatment on Students' Achievement in Descriptive Essay

Source	Sum of Square	Df	Mean Square	F	Sig.	Eta Square
Corrected model	5610.686	2	2805.343	100.527	.000	.595
Pre-test	1209.079	1	1209.079	43.326	.000	.240
Treatment group	1463.054	1	1463.054	52.427	.000*	277
Gender	91.357	1	91.357	2.409	.123	.017
Treatment * Gender	33.019	1	33.019	1.195	.276	.009
	3823.164		27.906			
Error	9433.850	137				
Corrected total		139				

* = denotes significant at p<.05

Table 2 above showed that there was significant main effect of treatment on students' achievement in descriptive essay ($F_{(1,137)}$ = 52.427, P<.05). The effect size of 27.7% is fair. Thus, the null hypothesis was rejected. In order to determine the magnitude of the mean scores of the group's performance EMMs was carried out and the result was presented in Tables 2

Table 3: Table showing the Estimated Marginal Mean Scores from the analysis

Treatment	Mean	Std. Error
Treatment groups	36.15	0.689
Control	28.55	0.689

Table 3 revealed that the students in treatment group had the highest adjusted mean score (= 36.15) while the control group had the lowest adjusted mean score

Table 4: Table showing the Estimated Marginal Mean Scores by Gender

Gender	Mean	Std. Error
Male	33.23	0.769
Female	31.59	0.715

Table 5 revealed that male students had the highest adjusted mean score (= 33.23) while their female counterpart had the lowest adjusted mean score (= 31.59). But their mean difference was not statistically significant.

H03: There is no significant two-way interaction effect of treatment and gender on students' achievement in descriptive essay

The results in Table 1 showed that there was no significant two-way interaction effect of treatment and gender on students' achievement in descriptive essay. The null hypothesis 3 was not rejected.

Discussion

Main Effect of Treatment on Students' Achievement in Descriptive Essay

The findings revealed that there was significant main effect of treatment on students' achievement in descriptive essay. The results further revealed that students assessed in descriptive essay writing using oral-written assessment performed significantly better than those assessed using written assessment mode. The higher performance by the experimental group could be as a result that oral-written assessment mode encompasses all the skills (listening, speaking, reading and writing in English) of assessing students in descriptive essay. This finding of significant effect of treatment on students' achievement in descriptive essay is in accordance with Joughin & Collom (2003) who asserted that oral assessment can encourage deep approaches to learning. Students will learn differently for an oral exam, trying to find out what is essential to the course material and to get a thorough understanding. It also supported the conclusion of Rollings-Carter (2010) who concluded that paper and pencil tests can be effective when assessing listening and reading comprehension skills, they are not appropriate assessment methods for performance skills such as speaking and writing. In a balanced assessment program, a variety of assessment techniques should be incorporated into daily instruction.

This result, however novel it is, has shown that there is a bible alternative to the urgent mode of sensing student ability in essays in English. The dual mode of assessment being suggested here has a basis in theory and literature because it has shown that oral/written mode can be used to solve the perennial problem of

students' poor use of English. Two, the mode has also given further justification for the fact that language is primarily speech and oral use of language is the ultimate aims of teaching and learning any language in schools. Although writing skills helps to preserve documents more and much longer, it is not the basic reasons for language teaching. This is why writing is a secondary skill that complements speaking. This important factor has to be given adequate place in students' assessment.

Language teachers are being called upon to be more innovative and resourceful in teaching and assessing students after a very hard work at equipping the students to acquire and demonstrate the skills necessary to show that students have learnt the given language meaningfully. What the researchers are suggesting here is akin to what current researchers have suggested as a positive step to solving the problem which has characterised the teaching and testing comprehension by teachers and has posed a serious problem to assessing students' comprehension skills.

What is clear from these important innovations is that teachers, curriculum planners and examination bodies have to go beyond what they have been doing that has failed to portray students' abilities in the other skills of language. Although adopting this dual mode of assessing students may face some challenges initially, the challenges can be overcome with doggedness and genuine interest in tacking students' problems in the all-the-important subject.

Main Effect of Gender on Students' Achievement in Descriptive Essay

The study revealed that gender has no significant influence on the students' achievement in descriptive essay writing. This could be as a result of the innovative assessment approach adopted by the researchers. It agrees with Chukwu (2012) in his study who found no significant difference between male and female students in essay writing. The study also agrees with the assertions that gender difference may exist but a good method should be capable

of neutralizing the difference (Akinsola (2007). However, it contradicts that of Fabunmi (2004) who found that that gender composition has a significant relationship with students' academic performance of secondary school students' academic performance.

Two-way Interaction Effect of Treatment and Gender on Students' Achievement in Descriptive Essay

The result also revealed that the interaction effect of treatment and gender on students' achievement in descriptive essay writing was not significant. This could mean that the treatment is suitable to both sexes with respect to descriptive essay.

Conclusion and Recommendations

The researchers feel that this is just the beginning of a continuous ongoing process. Extensive ground work is needed to bring about a shift in students' assessment from traditional written to oral-written mode of assessment in essay. To be effective, assessment should recognise the diversity of learners and allow for difference in styles and rate of learning. To accurately assess English Language learners, variation in students' English Language skills most be considered at all levels.

Therefore, the following recommendations are made with a view to improving and facilitating the teaching and learning of reading in schools.

English Language Teachers: The results from this study show that English Language teachers could employ oral-written mode of assessment to facilitate higher achievement in students in English language especially in descriptive essay. In a typical English Language class, there are two groups of students: those who can speak fluently but are deficient in writing and those who can write very well but deficient in speaking. English teachers are advised to employ the oral-written mode of assessment to put a balance on their learning outcomes.

Teacher Trainers: The universities and colleges of education might need to modify their teacher training programmes

to re-orientate teachers toward alternative modes of assessment such as oral-written. This would take care of the individual differences of the students in language skills. They should also make known to students in training the current research findings on assessment.

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3

EVALUATION OF BACHELOR OF SOCIAL WORK PROGRAMME OF UNIVERSITY OF IBADAN ON STUDENTS' ACADEMIC PERFORMANCE

Olufunmilayo O. Folaranmi

Introduction

Bachelor of Social Work is a programme offered at the University of Ibadan, under the auspices of Distance Learning Centre (DLC) to provide both medium and high level manpower needed in private and public agencies at both national and international job markets. It is a programme that helps those who may not have had the opportunity of attending tertiary institution due to lack of access, sponsor, or time. One of the major objectives of the Nigerian National Policy on Education is the provision of equal educational opportunities to all citizens at all levels of education. Section 9, Article 89 states that the Open/Distance Education is the mode of teaching in which learners are removed in time and space from the teacher; it uses a variety of media and technologies to provide and/or improve access to good quality education for large number of learners wherever they may be (National Policy on Education (FGN), 2004). University of Ibadan Distance Learning Centre (UIDLC) utilizes both online learning and face to face interaction to provide access to education to her teeming and ever-increasing student population.

Bates (2000) explains the rationale for using technology in higher education thus:

- To improve the quality of learning
- To provide students with information and technological (IT) skills require for modern life
- To widen access to education and training
- To respond to the technological imperative
- To reduce cost of education
- To improve the cost-effectiveness of education

The impact of new technologies on learning and teaching is one of the greatest pressures on institutions of higher education to change. Invariably, both staff and students in higher learning institutions in Nigeria need to adapt to this change to enable them meet up with the regulations and requirements of global standards. Academics and professionals in Social Work in University of Ibadan are not left out of this innovation as the requirement for all schools of social work to adapt to this change is well stated in the documents of Global Standard for Social Work Education (2004). Under the standards, with regard to programme curricular including field education, item 3.6 on page 18 clearly stated that schools of Social Work should ensure that the curricular helps Social Work students to develop skills of critical thinking and scholarly aptitude of reasoning, openness to new experiences and paradigms, and commitment to life-long learning. The Department of Social Work, University of Ibadan is indeed keying into the yearnings of numerous prospective students who are willing and ready to improve themselves. Hence, the goals of Distance Education as listed in the National Policy on Education shall be to:

- Provide access to quality education and equity in educational opportunities for those who otherwise would have been denied.
- Meet special needs of employers by mounting certificate courses for employees at their workplace
- Encourage internationalization especially of tertiary education curricular;

- Ameliorate the effect of internal and external brain drain of their locations or places of work.

It is in response to the objective of provision of equal access to education that the University of Ibadan Distance Learning Centre was established.

Brief History of University of Ibadan Distance Learning Centre (UIDLC)

The idea of Distance Education was conceived by the department of Adult Education of the University of Ibadan in 1972. The proposal for the commencement of the various programmes was presented to the senate of the University in 1976. Thereafter, the programme was approved by National Universities Commission. The centre started as the External Studies Programme of the Department of Adult Education in 1988, with courses from the parent department (Adult Education) and two other departments, Guidance and Counseling and Teacher Education.

In 2002, the nomenclature changed to Distance Learning Centre in line with the new global trend in providing enhanced accessibility for more interested persons willing to acquire University education that is largely mediated by ICT.

Today, 5 Faculties and over 40 Departments are enlisted on DL programme of the university. Since inception, the centre has graduated 6,000 students. The available programmes of study in the centre are essentially the same as what obtained in the conventional mode of the University. The admission requirements, mode and conduct of examination and regulations guiding the award of its degrees are all the same with that of the regular programmes of the University of Ibadan.

Vision

- The Distance Learning Centre, University of Ibadan, was established to provide qualitative education and training to

people who, for various reasons are unable to enroll for full-time studies.

♦ Its overarching vision is: "to provide access to globally competitive, qualitative and continuous education"

Mission

♦ The mission, which is consistent with the University of Ibadan internationalization programme are:

- To bridge the capacity gap by delivering programmes of global standards in areas of national needs
- To deliver skill-based programmes in order to promote employment and productivity
- To partner with communities and private sector so as to create requisite synergy for quality and competitive education
- To partner with reputable institutions in order to deliver global educational products to Nigerians
- To key into the global education market by positioning the University of Ibadan as an exporter of knowledge and intellectual resources
- To become the primary centre for learning resources in Africa and provide a platform for facilitating Pan African development
- To provide an avenue for forging global cooperation and …

The Bachelor of Social Work Programme of the University of Ibadan

- The programme was borne out of the realization that there is a need to expand Social Work programme in the University to cater for the training of high level manpower needed in private and public agencies at both national and international markets.
- The programme also becomes necessary to provide opportunity for our Diploma students to continue their university education and to provide academic training for prospective welfare officers who will be working in social

welfare agencies and non-governmental organizations (NGOs) and those that may be willing to further their academic pursuits.

- The university authority recognizes this need, and supports the proposal for floating the programme at DLC mode.

Objectives of the Programme

♦ The bachelor's degree programme in social work is designed to foster the development of professional social work in Nigeria and to provide candidates with a high level of intellectual and professional skills that will enable them function effectively in the society.

Specifically, the programme is intended to:

- Produce highly skilled manpower for professional personnel for leadership positions in the different sections of public and private agencies of the country.
- Produce highly qualified and motivated officers requiring their skill expertise.
- Expose the students to variety of social problems and encourage them to develop spirit of understanding and control.

Assessment is an important ingredient in any programme that checkmates the success or failure of its activities. An assessment goes further to show the loop- hole or examines if the objectives of the programme has been achieved. The assessment of this programme is of utmost importance because it will show the details of the progress of the programme. The assessment of this programme will be limited to students' academic performance, achievement of learning objectives, interaction among and between students and staffs and field work components.

Most Universities, just as University of Ibadan has a form of distance learning programme to help in educating the adults and those who were not given access to tertiary education due to one reason or the other. However, there is always a problem of

assessment of this programme to ensure that the set objectives have been met. Therefore this study seeks to assess students' academic performance, achievement of learning objectives, interaction among and between students and staffs and field components of the Bachelor of Social Work programme.

Research Questions

1. What is the profile of Bachelor of Social Work students under Distance Learning Programme (DLC)?
2. What is the perception of students towards lecturers' ability to achieve the learning objectives?
3. What is the student-teacher relationship in Distance Learning programme?
4. What is the view of students with respect to field work components?
5. To what extent does Independent variables (lecturers' ability to achieve the learning objective, student-teacher relationship and field work) jointly predict students' academic performance?
6. What is the relative contribution of each of the independent variables on student performance?

Methodology

Research design

The study adopted a survey design with a target population of University of Ibadan undergraduate students.

Population and Sample

274 social work undergraduate students (100 to 500 level) were purposively chosen for the study because the evaluation focused on Bachelor of Social Work.

Instrumentation and Data Collection procedure

Assessment of Bachelor of Social Work Questionnaire (ABSOQ) was constructed by the researcher to enhance the assessment.

ABSOQ consist of two sections; the first sector consist of background information of students and second section consist of 28 items (students' academic performance (6), Lecturers' ability to achieve the Learning objectives (6), student-teacher relationship (6), field work (6), others (4) with a response format of Almost all the time (4), half of the time (3), sometimes (2) and almost never (1), Satisfied (3), Undecided (2), Not satisfied (1), Agree (3), Undecided (2) and Disagree (1). Descriptive statistics and multiple regression were used for the statistical analysis. The admission records in the department was checked to find out the number of students who have enrolled for the BSW programme since the inception of the programme. Informal discussion with some lecturers were used to elicit information on whether the students met the learning objectives as specified in the course material.

Findings and Discussion

Providing or improving access to social work education, the enrolment rate for the programme since inception is provided in Table 1.

Table 1: Enrolment of Students in BSW Programme from 2007 – 2012

2011/2012	250
2010/2011	200
2009/2010	130
2008/2009	111
2007/2008	92
2006/2007	18

Source: Department of Social Work Admission

Providing access

- There has been a steady increase in the enrolment figure which shows that DLC is actually meeting the first goal of providing and improving access to quality education. The fact that the programmes are equivalent in structure and status to the regular courses in the university is commendable.
- We are all aware of the large number of students who write JAMB/UTME examinations every year seeking admission into tertiary institutions in Nigeria. Out of 1.2 million

candidates that write the examination, less than 300,000 students are absorbed by both federal and private institutions. Hence, the various universities offering DLC programmes are helping to make opportunities available to those who otherwise would have been denied good education.

- The number of applicants seeking tertiary education admission is growing at an alarming rate. According to the Federal Ministry of Education (2006) the carrying capacities of Nigerian Universities was only 148,323 while the demand for admission is 1.2 million annually.

Achievement of Learning Objectives

- Most lecturers are able to achieve their learning objectives which are usually stated at the beginning of the course materials.
- One way of measuring this variable is through the pre-test and post-test when the results are compared.
- The DLC UI has also added another feather to their cap with the appointment of graduate assistants who will be interacting with the students online. It is believed that this effort will greatly enhance the students learning as it will be additional strategy towards ensuring students overall academic performance.

Interaction among and between staff and students

- The level of interaction was found to be comparable to traditional face-to-face regular programmes. This is made more possible during the 6-week interactive session which comes after the period long independent study at home.
- Limitation in interactions is due to the limited time the students spend in school.

Field Work Practice

The field work component of the BSW programme in Ibadan is a huge success. It is similar and comparable to face-to-

face regular programme. Students participated actively and saw it as a good opportunity to enlighten the populace on what Social Work is all about.

Research Question 1

What is the profile of Bachelor of Social Work student under Distance Learning Programme? (DLC)?

Table 1: Distribution of Students Background Information

Background Information		Frequency
Level	100L	1(0.4%)
	300L	92(33.6%)
	400L	128(46.7%)
	500L	21(7.7%)
	No Response	32(11.7%)
Religion	Christian	236(86.1%)
	Muslim	31(11.3%)
	Others	1(0.4%)
	No Response	6(2.4%)
Marital Status	Single	137(50.0%)
	Married	118(43.1%)
	No Response	19(7.6%)
Sex	Female	159(58.0%)
	Male	93(33.9%)
	No Response	22(8.0%)
Age	20-24yrs	19(6.9%)
	25-29yrs	62(22.6%)
	30 and above	142(51.8%)
	No Response	51(18.6%)

N=274

Table 1 shows the distribution of responses from DLC students. The result shows that majority 128(46.7%) of the respondents were 400 level undergraduates students, followed by 300 level undergraduates, 21(7.7%) were 500 level students and 1(0.4%) was 100 level undergraduates students. With respects to religion, majority 236(86.1%) of the respondents were Christian and Muslim were about 31(11.3%). The result further shows that majority of the respondents are single. This also indicates that most of DLC students are single. However, female 159(58.0%) were

represented more in the sample and student from 30 and above had the highest representation age-wise. This shows that majority of DLC students are adult. This indicates that DLC programme is majorly for adults who must have been denied of tertiary education.

Research Question 2

What is the perception of students towards lecturers' ability to achieve the learning objectives?

Table 2: Distribution of Perception of Students towards Lecturers' ability to Achieve Learning Objectives

Lecturers' Ability to achieve the Learning Objective	Almost all the time	Half of the time	Sometimes	Almost Never	No Response	Mean
My lecturer covers the course outline before examination	107(39.1%)	43(15.7%)	68(24.8%)	43(15.7%)	13(4.7%)	2.69
Extra class is scheduled for lectures so as to cover the course outline	60(21.9%)	58(21.2%)	86(31.4%)	56(20.4%)	14(5.1%)	2.34
I get more confused with concepts after the lecture	19(6.9%)	55(20.1%)	109(39.8%)	70(25.5%)	21(7.7%)	1.93
I find it difficult to comprehend my notes	19(6.9%)	53(19.3%)	97(35.4%)	75(27.4%)	30(10.9%)	1.84
My lecturer answers questions in an understanding and precise manner	120(43.8%)	49(17.9%)	58(21.2%)	25(9.1%)	22(8.0%)	2.80
I enjoy attending lectures	148(54.0%)	37(13.5%)	35(12.8%)	12(4.4%)	42(15.3%)	2.86

Average mean = 2.5

Table 2 shows the responses to the question on lecturers' ability to achieve the learning objectives. Majority 148(54.0%) of the responses perceived almost all the time that they enjoy attending lectures, followed by my respondents who perceived that lecturer answers questions in an understanding and precise manner 120(43.8%), 107(39.1%) perceived that lecturer covers the course outline before examination, 60(21.9%) also perceived almost all

the time that extra class is scheduled for lectures so as to cover the course outline and 19(6.9%) perceived that they get more confused with concepts after the lecture and find it difficult to comprehend their notes. Summarily, from the result, it can be seen that majority of the responses has mean above 2.5 which signifies that lecturers are working hard towards achieving the learning objectives in DLC programme.

Discussion

The ability to achieve learning objective by the lecturers is one of the factor that must be met if a programme must succeed. The result shows that lecturers are performing excellently especially in the area of using the appropriate teaching method during instruction. However, efforts need to be intensified in the area of organising extra-mural classes for students. Extra-mural classes to a large extent enhance better performance amongst the students.

Research Question 3

What is the student-teacher relationship in Distance Learning programme?

Table 3: Distribution of Responses on Student-Lecturer Relationship

Student-Lecturer Relationship	Almost all the time	Half of the time	Sometimes	Almost Never	No Response	Mean
I feel comfortable interacting with my lecturers	102(37.2%)	48(17.5%)	76(27.7%)	32(11.7%)	16(5.8%)	2.69
My lecturers attend to us in a polite and friendly manner	95(34.7%)	51(18.6%)	77(28.1%)	31(11.3%)	20(7.3%)	2.62
My lecturers are difficult to deal with	32(11.7%)	48(17.5%)	93(33.9%)	75(27.4%)	26(9.5%)	1.95
I asked questions when interacting with my lecturers freely	78(28.5%)	49(17.9%)	84(30.7%)	44(16.1%)	19(6.9%)	2.45
My lecturers render abuses when there is a misunderstanding	29(10.5%)	33(12.0%)	74(27.0%)	119(43.4%)	19(6.9%)	1.76
When am wrong, I am corrected by my lecturers	49(17.9%)	42(15.3%)	67(24.5%)	88(32.1%)	28(10.2%)	1.99

Average mean = 2.5

Table 4

	Agree	Undecided	Disagree	
Do you think face to face interaction should be abolished	43(15.7%)	26(9.5%)	178(65.0%)	27(9.9%)

Table 3 shows the responses with respect to teacher- student relationship. Majority 107(37.2%) of the responses feel comfortable interacting with lecturers, followed by 95(34.7%) who identified that almost all the time lecturers attend to them in a polite and friendly manner. 78(28.5%) asked questions when interacting with lecturer almost all the time and 49(17.9%) are corrected when they are wrong almost all the time. However, 32(11.4%) and 29(10.5%) responded that lecturers are difficult to deal with and lecturers render abuses when there is a misunderstanding respectively. From the result, it can be summarized that there exist cordial relationship between lecturer and students. The mean of the responses also indicates a mean above the average mean. Table 4 answers the question do you think face to face interaction should be abolished. The result shows that

majority 178(65.0%) disagrees to the abolishment of face to face interaction, 43(15.7%) disagrees while 26(9.5%) were uncertain.

Discussion

The result indicates that there exist a cordial relationship between the staffs and student. This implies that students are able to communicate with their lecturer freely when there is a misunderstanding in the classroom or out of school. The result also indicates that the students understand the lecturer more when there is a face to face interaction. Hence, there is sense of responsibility between the two parties which minimises abuses. Finally, face to face interaction should not be abolished but rather encouraged.

Research Question 4

What is the view of students with respect to field work components?

Table 5: Perception of Students on Field work components

Field Work components	Almost all the time	Half of the time	Sometimes	Almost Never	No Response	Mean
I gain wealth of experience during field work	170(62.0%)	33(12.0%)	30(10.9%)	19(6.9%)	22(8.0%)	3.13
I think field work should be scrapped out of the programme	26(9.5%)	28(10.2%)	34(12.4%)	170(62.0%)	16(5.8%)	1.55
Lecturers do not take field work serious	34(12.4%)	28(10.2%)	48(17.5%)	140(51.1%)	24(8.8%)	1.66
I apply theoretical knowledge on the field	137(50.0%)	49(17.9%)	52(19.0%)	13(4.7%)	23(8.4%)	2.96
I oppose the idea of field work in DLC programme	40(14.6%)	47(17.2%)	92(33.6%)	58(21.2%)	37(13.5%)	1.98
I get a better understanding of social work concepts during field work	170(62.0%)	36(13.1%)	38(13.9%)	11(4.0%)	19(6.9%)	3.19

Table 5 shows the responses of the views about field work components. The result indicates that majority 170(62.0%) responded that they gain wealth of experience during field work and they get a better understanding of social work concepts during the exercise, followed by 137(50.0%) respondents who ascertain that they apply theoretical knowledge during field work. However, 26(9.5%), 34(12.4%) and 40(14.6%) responded that field work should be scrapped, lecturers do not take field work seriously and in opposition with the idea of field work respectively. Summarily, the result shows that majority have an average mean above 2.5, signifying that most students agree to the continuity of field work for the purpose of practical and better understanding of social work concepts.

Discussion

Field work is part of the curriculum in social work. It enhances the theoretical knowledge that is taught in the classroom. The result shows that field work enhances students' comprehensive ability and may lead to a better performance. Hence, there is a need to promote field work for better result.

Research Question 5

To what extent does Independent variables (lecturers' ability to achieve the learning objective, student-lecturer relationship and field work component) jointly predict students' academic performance?

Table 5: ANOVA

R	0.400
R^2	0.160
Adjusted R^2	0.150
Std. Error of the Estimates	3.94391

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	797.672	3	265.891	17.094	.000
Residual	4199.686	270	15.554		
Total	4997.358	273			

The multiple regression correlation coefficient (R) showing the linear relationship between the independent variables (lecturers' ability to achieve the learning objective, student-teacher relationship and field work component) and dependent variable as shown in Table 5 is 0.400, the multiple R^2 is 0.160 and the Adjusted R square value is 0.150. This means that the variation in students' performance accounted for by the three independent variable is approximately 15.0% and it is statistically significant $F(3, 270) = 17.094$, $p < 0.05$). This indicates that the independent variables combined together can predict students' performance.

Research Question 6

What is the relative contribution of each of the independent variables on student performance?

Table 6: Relative Prediction of the Predictor Variables on Students Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	9.898	.950		10.416	.000
Lecturers 'Ability	.356	.066	.370	5.385	.000
Student-TeacherRel.	-.010	.076	-.010	-.130	.897
Fieldwork	.061	.072	.063	.850	.396

Table 6 shows the individual variable's contribution to the prediction model of students' performance. The table indicates that only lecturers' ability to achieve the learning objective $\beta = 0.370$, $t(270) = 5.385$, $p < 0.05$ was found to have significant relative prediction to the students' performance. It also shows that student-teacher relationship $\beta = -0.010$, $t(270) = -0.130$, $p > 0.05$ and field work component $\beta = 0.061$, $t(270) = -0.850$, $p > 0.05$ do not contribute significantly to the prediction model.

Discussion

The finding of this study reveals that lecturers' ability to achieve the learning objective have a significant effect on students' performance. The predictive value of 15.0% shows a low

prediction on students' performance. However, out of the three independent variables, only one was significant (lecturers' ability to achieve the learning objective); the remaining variables, student-lecturer relationship and field work component were not significant, it can be deduced that the impact of these non-significant variable reduced the predictive value. The result reveals that student-lecturer relationship and field work component have little impact on students' performance. Also, the result shows that, for every increase in lecturers' ability to achieve the learning objective brings a corresponding positive improvement in students' performance ($\beta = 0.370$, $t(270) = 5.385$, $p < 0.05$).

Challenges

- Some of the major challenges students face are:
- Registration irregularities
- Inability to get courses approved online and on-time
- Non-availability of course materials
- Inability to study before the interactive session
- Fatigue as a result of combining work with study
- Financial problems/inability to pay school fees on time
- Feelings of inferiority concerning quality of certificate and acceptability

Conclusion and Recommendations

There are many advantages of distance education. The ability of many more to enrol for the BSW programme through the DLC will definitely expand the frontiers of the profession and as well respond professionally to the ever increasing social problems of our time.

In view of the findings, it can be concluded that lecturers' ability to help students achieve learning objectives has a significant impact on students' academic performance in DLC programmes which is as a result of lecturers' hard-work to meet the

learning objectives of the DLC. As a matter of fact, the interaction between students and lecturer is very cordial making the environment academically friendly. At this juncture, it is worthy to note the hardwork of the past and present management team of the DLC as well as the unflinching support of the entire workforce of the DLC and the strong faith that DLC has in making great impact in the lives of their students. This author really commends the efforts of this great team who have laboured to bring DLC to this admirable position. I wish the directorate of the DLC more grease and future successes.

Interactive sessions are designed for revision and contact between students and tutors, during this period, students are required to be in residence for 6 weeks for revision and examination. It is strongly recommended that the interactive session continues because of the important role it plays enhancing the learning capabilities of students. Interactive session also adds value to the programme by making students identify and belong to the school, rather than interacting online alone which makes them feel lonely.

Interactive session also allows maximum interaction between staff and students which is psychologically healthy and socially rewarding.

Students who enroll for programmes at the DLC should be encouraged to participate actively in the activities and events of various student associations especially the young and up-coming students. This will give the DLC students a good sense of belonging.

Many of the DLC students are not aware; hence do not make use of the library facilities in their respective departments and Kenneth Dike Libraries.

Adequate information should be made available to students to maximize library facilities so as to make the most of their educational experience.

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4

CLINICAL ASSESSMENT OF THE NEWBORN

Titilayo L. Dada

Introduction:

A comprehensive examination of the newborn at birth forms the basis for subsequent care. The assessor (Midwife or Doctor) take interest in the care and thorough scrutiny of the newborn as this initial discovery helps with the later management of the baby. Effective assessment requires in-depth knowledge of neonatal physiological and psychological development to accurately make a good judgment of the baby's condition. Rather than relying on verbal responses as in adult, the assessor communicates with the baby via sight, touch, and hearing reflexes to elicit information from the baby. All the parts of the baby are examined in details starting with measurement of physical quantity like length to evaluation of symptoms in the newborns.

It is necessary to define some concepts used in this papers, these are measurement, assessment and evaluation.

Measurement, In a simple term refers to amount or value giving to something that is being assessed. Measurement is one of the key building blocks for research (Kerlinger & Lee. 2000). Measurement is a major step in the diagnosis and management in the health sector and clinical field. Measurement is the allocation of numeral to objects or events according to rules, e.g. 1,2,3, or I, II, III. (Kerlinger & Lee. 2000).

Assessment : According to Gregory (1998), assessment involves the appraisal of individual as a basis for decision making. The

decisions are varied and depend on the setting. The assessment can be used for test designed to evaluate the behaviour of applicant under stressful, frustrating and anxiety inducing conditions and in medical setting

Assessment can be defined as the process of evaluating the characteristics, strength and weaknesses of an individual as a basis for informed decision-making (Gregory 1998). He also described assessment as incorporating activities ranging from descriptive assessment (describing the symptom of a client to aid diagnosis), to functional assessment (that is determining situation and characterological features that serve to maintain maladaptive behaviours) also prescriptive assessment (recommending types of intervention that is most beneficial).

Descriptive assessment may through interview seek if patient exhibits the symptoms indicative of major condition (sad mood, sense of guilt, sleep disturbance, loss of energy). Functional assessment could be concluded by a refusal to function effectively and when necessary. Prescriptive assessment is illustrated by evaluating cognitive – behaviour of client.

Question in assessment may be simple and straight forward or it may be complex and multilayered e.g. why does a baby refuse to suckle and how to tackle the problem. The practitioner also expresses conclusion, recommendation or decision in a written report during assessment. This report should be written with great care as it can make a substantial impact in the life of the client.

Phases of Assessment: Assessment proceeds through four phases: Planning, Data Collection, Inference and Communication.

In planning the clinician determines the purpose of the assessment. The clinician's function is not only to determine the underlying issue but also to educate the stakeholder. Data collection involves the selection of the best source of information in light of the purpose of the assessment. In the case of a child the mother is the principal source of information. The clinician has to decide whether to trust personal judgment or rely on research-

based formula for the interpretation of data in making a diagnosis and treatment plan. This is referred to as clinician versus actuarial judgment. In clinical judgment the practitioner uses personal judgment to diagnose, classify or predict behaviour, while in actuarial judgment the practitioner uses a research-based formula to diagnose, classify or predict behavior. Although, the actuarial judgment is more superior, clinician still rely heavily on clinical judgment to make diagnosis or take decision in line of treatments (Gregory, 1998).

Finally, assessment involves the transmission of the result and the communication of recommendation. Written report is always better and should be considered obligatory only for administrative requirements. An effective written report functions as a permanent and positive guide for the referral source and others who might work with the client. A good Clinician must always anticipate that he/she may be asked to explain and justify content of the report.

Evaluation: This phase decides whether the problem has been solved. That is if expected outcome is met. The factors that might have contributed to the success or failure of a plan are also identified. Evaluation is an ongoing effect which may be repeated until the desired goal is achieved. Wesley (1992) said, “If you do not measure results, you cannot tell success from failure. If you cannot see success, you cannot reward it. If you cannot reward success you are probably rewarding failure. If you cannot see success, you cannot learn from it. If you cannot recognize failure, you cannot correct it. If you can demonstrate results, you can win public support”. This can be applied to the clinical measurement, assessment and evaluation of the newborn in order to detect early any abnormalities in the baby as well as taking proactive measure to prevent serious deterioration of condition of the newborn. Evaluation is a way of proving diagnostic and therapeutic effectiveness of a decision and action, as well as for safety and

ethical reasons. It promotes credibility and confidence, it gives room for improvement as well as helps to establish key goals and objectives.

Assessment of the Newborn

As soon as the baby is born, the general condition of the baby is assessed using the most widely acceptable method, "APGAR SCORE" (invented by Dr Virginia Apgar 1953). Apgar score can be defined as the clinical assessment of the baby's condition measured in numerical terms at 1minute after birth and 5 minutes later. The first 1 minute is important for further management of resuscitation of the baby. Apgar score makes for proper evaluation and closer observation of the baby's condition. It prevents unnecessary delay inresuscitation. Apgar score must be properly documented. The higher the score the better the prognosis of the baby, and the lesser the score the greater the risk of permanent brain damage. The mnemonic for Apgar are the variables to look for during examination:

A - Active (muscle tone)
P - Pulse (heart rate)
G - Grimace (response to stimuli)
A - Appearance (colour)
R - Respiration (breathing). A score of 0,1or 2 is awarded to each item.

Table 1 APGAR SCORE CHART

Score	0	1	2
Heart Rate	Absent	Less than 100b.p.m.	More than100b.p.m.
Respiration	Absent	Slow, Irregular	Good or Crying
Muscle Tone	Limp	Some reflexion of limbs	Active
Stimulus	None	Minimal grimace	Cough, Sneeze
Colour	Blue ,Pale	Body pink Extremity blue	Completely Pink

b.p.m.= beat per minute

A score of 8-10 is good. A score less than 6 will need medical Aids and active resuscitation (Farrell &Sittlington 2008)
About one hour after birth a full general examination is performed on the baby.

Method

A complete physical examination is divided into three areas:
i. General appearance
ii. Vital signs
iii. Measurements and head to toe assessment.

Generally, examination begins by using technique that require the new born to be in a quiet state, e.g. observation of general appearance, measurement of vital signs, observation of respiratory effort, auscultation of heart, lungs and bowel sounds, then palpation of the abdomen. Then complete inspection and palpation of the rest of the body. Physical examination ends with the measurements of length, head and chest circumference and weight.

General Appearance:

Observe the baby at rest, noting the posture before touching the baby. A full term is flexed. In breech presentation – baby may be in "frog leg" position or lay with legs fully extended. Abnormal posture may be observed for hypotonia (poor muscle tone, flaccid, a "floppy baby") or hypertonia (high muscle tone), lethargy, jitteriness or irregularity. Baby is observe baby during movement and any restricted or asymmetrical movement is noted. Deviation from normal are reported and documented. History of the parent's state of health can also assists in making a decision on the baby.

Skin: Soft, smooth, good tugor, peeling and dryness of the hands and feet, lanugo may be present. The colour depends on race, ranging from pink and white to olive or dark brown. There is hyper pigmentation of the genitalia and nipple in dark colour, linea nigra may be present. The skin becomes darker in the first week of life except the palm and sole of feet which remain pink. Sweat glands are inactive in the first few days

Vital Signs:
Temperature:

Range $36^{o}c - 37^{o}c$ (Farrell & Sittlington, 2008).

Heart Beat
Heat beat is difficult to localize by palpation but it is easier by auscultation when neonate is at rest. There may be temporary cardiac murmur till Ductus arteriosus closes anatomically. The recommended heart rate is 120 – 160 per minute (DiDona & Marks 2006).

Respiration
Respiration varies according to activity and mostly abdominal. Pink mucosa indicates good central oxygenation. Central cyanosis indicates circulatory or respiratory pathology. Recommended 30 – 60 beats per minute at birth (Farrell & Sittlington, 2008(a)).
Note: The tongue is a good index of central oxygenation as it is the nearest accessible organ with same temperature as the heart.

Physical Examination
Physical examination of the newborn is done with the aim of discovering congenital malformations, evidence of injuries and any other anomalies in the baby. Examination must be delayed until the baby's condition is stable within 1-6 hours after birth

Preparation
1. Warm room of not less than 26^0C temperature.
2. All equipment needed must be ready.
3. Ensure sufficient light and drought free environment
4. Explain procedure to the mother (if possible).
5. Wash hand.

Method: Complete assessment is postponed until the condition is stable (1hr after birth). The examination is done methodically from head to toes. Baby must not be exposed for too long. The assessor must use slow gentle movement while talking softly to the baby. Particular attention must be paid to the baby's respiration and colour. Begin by using procedures that requires the baby to be in a quiet state – observation.

Head
The head is examined for presence of any swellings e.g. caput succedenum cephalhaematoma, depressed fracture, excessive moulding, bruises or abrasion. Head circumference is measured with a tape rule round the baby's head. The average occipital frontal circumference is 34-35cm in 95% of babies. Moulding and caput may alter the normal size and shape of the head. An increase of 1-2cm is expected in the first month. Increases greater than 1.5cm in the first 14 days is abnormal

Fontanelle
Out of six only two the anterior and posterior fontanelles are present at birth. This is a good index for assessment of baby's health The fontanelles is examined for shape; diamond in anterior and triangle in posterior.
The posterior closes at 6 weeks while the anterior one closes at about 18-24 months.

Eye: Note presence of eye balls, that the lens is clear, sub-conjunctival haemorrhage, Nystagmus and colour of iris.

Nose: Septum, Congestion etc Milia is present,

Mouth: Midline, symmetrical, Cleft palate, Harelip, tongue tie occult cleft palate and false teeth.

Ear: The ear cartilage should be well formed. Ear pinna should recoils rapidly, size, presence of hole and situation – upper level to the same level with the angle of the eye.

Hair: Texture, colour Hair is soft and silky, may be straight or curly.

Neck: Normal in length, swelling e.g. goiter (very rare) Ensure rotation and flexion

Chest: Round, symmetrical, slightly smaller than head, no fractured clavicle, no crepitation.

Upper Limbs: Length: if short or long, equality.

Fingers: for completion, extra digits webbed finger, Nails for texture and level pink nail beds. . Nail are fully formed and adherent to the tips of the fingers or it may extend beyond the finger, there is plenty of palm & sole creases

Abdomen: Protrudes but no distension, Distension, examphalos, absence of abdominal wall should be noted, umbilical cord has two arteries and one vein. Presence of bowel sound and no palpable mass.

External Genitalia
Male: Undescended testicles, Epispadias or hypospadias, Penis straight.

Female: Urethral opening in the perineum, Imperforate vagina etc labia majora covers minoral

Anus: Present and patent or imperforate anus

Lower Limbs: Note the length; short, long, and equality, club foot, talipes – Equano varus or calcuneo valgus are observed for, baby should move the limbs freely.

Hips: For dislocation.

Spine: Straight at midline, no visible defects like Encephalocele, Miningocele, True spinal bifida. Hairy patches may signify occult spinal bifida or defect.

Cord: For oozing of blood. Another clamp or ligature may be applied if necessary.

Reaction and Response to environment: A normal healthy infant sleeps for about 20-22hrs a day during the first week of life. He only wakes up to feed.

Cry: The neonate cries to alert of discomfort e.g. cold, pain, hunger wet cloths etc. A normal hunger cry is soft and continuous. High pitched cry indicates intracranial injury. Normal cry is lusty.

Special senses:
Sight: The neonate cannot see at birth due to poor focusing only at 15-20 cm but the pupils react to light. Bright light seems unpleasant. Can cognize mother's face by two weeks (Farrell & Sittington 2008). Full term baby can shed tears though may not be obvious until a few weeks after birth.

Taste: Sense of taste is highly developed than other senses. He accepts sweet fluids and rejects sour, salty and bitter tastes.

Hearing: Neonate can hear though cannot distinguish between sounds. He reacts to the voice of the mother and gets disturbed by loud noise.

Touch:
Is the most highly developed of all the senses and this is more acute on the lips, tongue, ears, and forehead. Failure to grasp nipple is an indication of brain damage. Baby withdraws from painful stimulus and cries.

Smell: Can distinguish the smell of milk e.g. mother's. Turns away from unpleasant smell.

Neurological Response:
Moro reflex: Thisis the response to sudden stimulus. It may be incomplete in preterm and absence in term baby suggests intracranial damage. It is present in the first 8 weeks. Persistence beyond age 6 month is suggestive of mental retardation (DiDona & Marks, 2006).

Rooting Response: When the check or side of mouth, is stroked baby turn to the side of the stimulus by opening the mouth ready to suck. This is absent in preterm and severe asphyxia.

Grasp Response: The baby grasps firmly if a finger or pencil is placed in the palm of his hand. Also by stroking the base of the toes he flexes the sole of the feet (Palmar grasp).

Traction Response: Baby resists any attempt to track him down.

Walking and stepping reflexes: Baby will make stepping effort to walk when put in upright position with the leg touching any firm surface.

Suckling and swallowing: Present at birth if a finger is inserted in the mouth the baby will suckle and swallow.

Measurements: These are results of many authors in the field of Paediatrics and Midwifery.

Birth Weight: (developing countries) mean 2.8kg range 2.5. – 4kg. Regains birth weight by 8-10 days after birth.

Length

Normal length is about 50cm. It is a better guard to maturity and skeletal development of the baby. A length of 45cm is regarded too short for a term baby. The length is measured from the crown to the heel with baby laid flat or turned upside down. A tape rule or plastic long ruler can be used. It increases by half at 12 months, at age 4 it should be double.

Blood Values

Accoding to Farrell & Sittlington (2008(a)), Total blood volume at birth is 80mls/body kg.wt. Haemoglobin is high (13-20 g/dl) of which 80 -85% is fetal haemoglobin (HbF). This is reduced by haemolysis during first 6 weeks and repalced by adult's

haemoglobin (HbA) over the first 6 months of life... This why abnormal Haemoglobin e.g. Hb AS or SS cannot be diagnosed till after this time. Blood pressure ranges from50-55/25-30 to 80/50mmHg in the first 10days

Subsequent Observations and Recording: Neonate must be examined daily to ensure he is healthy and thriving well. During the first 24 hours close observation is necessary as the majority of complication manifest during this time. The doctor depends on the vigilant observation of the midwife to detect abnormalities and early signs of illness and on her careful recording of her finding. The baby is examined daily, from head to toe both physically and neurologically.

Head – for size, shape, sutures and fontanelles and any abnormalities are noted. Eyes and ears are checked for discharges.

Mouth for infections, thrush.

Skin – check colour for cyanosis and jaundice, rashes around the neck, axilla and groins, buttocks and all skin folds.

Temperature – taken twice daily, normal $36^{o}c - 37^{o}c$

Respiration – Rate and type are most important during the first 48hrs of life. It should be smooth, regular and quiet. Any periodic apnoea, grunting respiration, flaming of the nasal alae or withdrawing of the chest wall should be reported.

Abdomen – check for distension and protrusion.

Umbilical Cord - Check for bleeding, signs of infection, if drying, soft or offensive odour. The stump should fall off 5-7 days after birth; a thick cord may take longer period. Delay in separation may be due to infection.

Groin and Buttocks – Observe for sore and rashes.

Stool and Urine – Meconium should start to change colour by the 2nd day. Bowel should open 3-4 times daily. Urine should be passed within 24 hours, it should be clear in colour; may be up to 6 times in 24hrs and not less than 30mls.Yellow colouration is an indication of neonatal jaundice,which may be physiological or pathological origin.

Weighing – At birth then every alternate day, maximum drop of 50 gm daily for the first 3 days. From the 4th day there should be steady daily increase of 30 gm, baby should recover the lost weight by 8-10 days after. It should be noted that some babies do not lose weight.

Feeding – should suck actively on breast. Healthy baby feeds eagerly on demand or timed.

Behaviour – Observe for activities, sleep and wakefulness.

Conclusion and Recommendations:

The newborn's initial examination includes a physiological and neurological assessment, using the senses of hearing, vision, touch supported by the initiative knowledge obtained from experience. Cry is the main means of communication for baby to alert the career to pain, hunger, discomfort or suffering and other needs. The skeletal- neurological systems are interlinked and mental status can be accessed through level of consciousness, and responses to stimuli activities, posture and reflexes. Active response to these indicate normalcy while passive response indicate abnormalities. Measurement, assessment and evaluation sare a key to child's care. Focused and concerted efforts are needed in order to absorb all of the information provided by the baby's responses and behaviours. Doctors, nurses and parents, are encouraged to assess infants so as to identify any anomalies for prompt attention.

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5

EQUATING JS1 AND JS2 PROMOTION CURRICULUM-REFERENCED TEST SCORES IN BASIC SCIENCE AND TECHNOLOGY IN OYO STATE, NIGERIA

J. Gbenga Adewale

Introduction

One of the major reasons for testing students in schools is to produce scores which are often used in making important decisions such as selection, promotion and certification. Based on scores from tests, schools decide who are to be promoted, external examining bodies decide who are to be certificated, higher institutions decide who are to be admitted and for which course, recruiting organizations decide who are to be selected. At junior secondary school level, test scores are used to assess abilities and/or skills for basic education certification and admission into senior secondary school, among others. Since the decisions made based on scores are very important to individuals and the public, the scores should reflect the most accurate estimates of abilities and skills.

Challenges facing the teachers and external examiners on how to assess students and to obtain scores with fair and equitable evaluation as well as reducing difficulty are enormous. Doran, Moses and Eignor (2010) placed emphasis on "fair and equitable treatment of examinees that is commensurate with their actual performance on the test they took". In this regard, teachers adopt various methods of teaching; embark on constant students' assessment to motivate students to study. After developing test

items, pilot test, file the characteristics of each of the items, the administered tests are marked and overall scores produced are used to assess the abilities, achievement, skills of the students without paying attention to the response pattern of the students to the items of such items in relation to the students' character traits.

Few studies have looked at assessing students based on their pattern of response to test items. Akindele (2004) developed a prototype item bank for the test items of Joint Admissions and Matriculation Board (JAMB). He also calibrated English objective test items stored in the bank but did not equate scores of JAMB candidates in English to other form of test. Omo-Egbekuse and Afemikhe (2013)carried outa study on equating for quality assurance in innovative examining system: Application of Kernel and Equipercentile Methods. The equated scores derived from these methods were compared with a view to finding what the scores in one test equated to in the second, and with lesser error. The Standard Error of Equating (SEE), Standard Error of Equating Difference (SEED) and Percent Relative Error (PRE) were used as criteria for evaluating the equating from both methods. They found out that the kernel method was more effective than the equipercentile method.

Similarly, Enu (2014) validated, standardised and calibrated mathematics and geography items for joint command schools promotion examination in Nigeria. He even attempted to find equating scores of the subset of mathematics and geography without considering the subject scores as the two forms of a test to be equated. However, Olatunji (2015)'s work was on analyzing linear and equipercentile equating of senior school certificate examination Economics multiple-choice papers of National Examinations Council (NECO), West African Examinations Council (WAEC) and National Business and Technical Examinations Board (NABTEB) in Kwara State, Nigeria. All the previous studies focused on the external examination items of the senior secondary school without paying attention to curriculum referenced promotion test items in Basic Science. Therefore, this

study **e**quated two Years (2011 and 2014) JSS 1 Promotion Curriculum-Referenced Tests in Basic Science and Technology in Lagos State, Nigeria. There are two methods of equating test items: the Classical Test Theory (CTT) and Item Response Theory (IRT).

Classical test theory has been the foundation for measurement theory for over 90 years, yet it is faced with the problems of non-correlation of true and error scores, group dependence item statistics (item difficulty and item discrimination), assumption of equal errors of measurement among all testees (Enu, 2014). This gave rise to the development of modern method that uses Item Response Theory (IRT). The IRT is a set of models which, by relating the likelihood of a particular reaction by an individual with a given trait level to the characteristics of the item designed to elicit the level to which the individual possesses that trait (Nenty, 2003). The IRT attempts to model the relationship between a testee's latent abilities and probability of the testee responding to a certain item correctly. According to Nenty (2003), IRT attempts to estimate the parameters involved, explain the process and predict the results of such an encounter. This implies that the unobserved latent trait in a testee enables such an encounter between individual testee and an item to be possible during the testing process; hence IRT is regarded as latent trait theory which focuses on the test items.

The superiority of IRT and CTT is under contention as many researchers were of the opinion that CTT is as effective as the IRT, for example, Lawson (1991) compared IRT based (one parameter Rasch Model) and CTT – based item and person statistics for three different data sets. The study only examined the most restrictive one parameter IRT model. Fan (1998) carried out an empirical comparison of person/item statistics of IRT & CTT. The test item pool was composed of two tests (Mathematics and Reading) with 60 and 48 dichotomously scored items in each and the participant pool had more than 193,000 examinees who took both tests. The result of the study revealed that difficulty indexes from CTT were very comparable with those from all IRT models

especially Rasch model. Therefore, the CTT method was used in this study.

Classical test theory assumes that each person has a *true scoreT*, that would be obtained if there were no errors in measurement. A person's true score is defined as the expected number-correct score over an infinite number of independent administrations of the test. Unfortunately, test users never observe a person's true score, only an *observed score*, *X*. It is assumed that *observed score* = *true score* plus some *error*:

X	=	T	+	E
observed score		true score		error

hence, classical test theory is concerned with the relations between the three variables *X*, *T*, and *E* in the population. These relations are connected with the quality of test scores where reliability becomes the most important concept, though its application is also found in equating and linking processes of examinees' scores.

True-score is defined in CTT in the context of a specific test. CTT is similar to IRT. For example, the assumption that is normally distributed, discrimination in the IRT two parameter model (2PL) model is approximately a monotonic function of the point-biserial correlation in CTT. In particular:

$$a_i \cong \frac{\rho_{it}}{\sqrt{1-\rho_{it}^2}}$$

where is the point biserial correlation of item *i*. Thus, if the assumption holds, where there is a higher discrimination there will generally be a higher point-biserial correlation.

Item difficulty (often denoted as p) is the proportion of correct responses to a particular item (Progar & Socan, 2008). Symbolically it is given as:

$$\text{Item difficulty index (p)} = \frac{\textbf{number of students who got the item right}}{\textbf{Total number of students who tried the item}}$$

Item Discrimination (usually denoted by D or r_{pbis}) is the ability of an item to differentiate between higher ability examinees and lower ability examinees. Under the CTT, there are several ways of assessing item discrimination. These include: (a) finding the difference in the proportion of high achieving and low achieving students' who score the item correctly. Mathematically, discrimination index $D = P_u - P_l$

Where P_u is the proportion of examinees in the high achieving group of students (usually the upper 27%) who answered the item correctly and P_l is the proportion of examinees in the low achieving group (usually the lower 27%) who answered the item correctly (Kelley, 1939 cited in Erguven & Erguven, 2014), and (b) point biserial correlation between a dichotomously scored item and the scores on the total score. Symbolically, it is given by

$$r_{pbis.j} = \frac{(\mu_j - \mu_x)}{\sigma_x}\sqrt{\frac{P_j}{q_j}}$$

Where is the mean total score among examinees who have responded correctly to item j, μ_x is the mean total score for all examinees, p_j is the item difficulty index for item j, $q_j = (1 - p_j)$ and is the standard deviation of the examinees' total score (Courville 2004; Hambleton & Jones, 1993).

Another similarity is that while IRT provides for a standard error of each estimate and an information function, it is also possible to obtain an index for a test as a whole which is directly analogous to Cronbach's alpha, called the *separation index*. To do so, it is necessary to begin with a decomposition of an IRT estimate into a true location and error, analogous to decomposition of an observed score into a true score and error in CTT. Let

$$\hat{\theta} = \theta + \varepsilon$$

where is the true location, and is the error association with an estimate. Then is an estimate of the standard deviation of for person with a given weighted score and the separation index is obtained as follows:

$$R_\theta = \frac{\text{var}[\theta]}{\text{var}[\hat{\theta}]} = \frac{\text{var}[\hat{\theta}] - \text{var}[\epsilon]}{\text{var}[\hat{\theta}]}$$

where the mean squared standard error of person estimate gives an estimate of the variance of the errors, across persons. The standard errors are normally produced as a by-product of the estimation process. The separation index is typically very close in value to Cronbach's alpha.

The traits are expressed on the following item parameters: (a) difficulty parameter (b) discrimination parameter. Any of these parameters (especially difficulty parameter) in the items of any two examination (test) forms written at different times by different testees can be equated under the same scale so as to allow for comparison between their results (or test scores). Since such comparison seems not to have taken place using IRT methods of assessment, this study will attempt to investigate the differences in difficulties of curriculum-reference test items multiple choice Basic Science and Technology examination questions of two different years and bringing together these differences in difficulties. The process of doing these is test equating.

Equating in CTT has been using several methods which include mean equating, linear equating and equipercentile equating whereas IRT equating methods depend on newly developed models that can handle polytomous items and multidimensional tests. Some of the models that have been thoroughly developed and used in practical testing programs include the three-parameter logistic (3PL) model (Birnbaum,1968), the graded response (GR) model (Samejima, 1969, 1972), the nominal response (NR) model (Bock, 1972), the generalized partial credit (GPC) model (Muraki, 1992), and the multiple-choice (MC) model (Thissen & Steinberg, 1984). In practice, these models are applicable to various formats of test items of different format.

Linear and Equipercentile equating are types of CTT equating approach. Linear equating is implemented by reflecting the ability level of the students and the spread of scores on to the reference scale scores (Beard and Pettie, 1979). It provides a transformation such that scores from two tests will be considered equated if they correspond to equal standard score deviates. To equate scores on the new form to scores on the reference form in a group of test-takers, each score on the new form is to be transformed to the score on the reference form that has the same number of standard deviations above or below the mean of the group. It is appropriate to implement the Linear equating procedure when the groups taking the different test forms to be equated have the same ability level (Donlon, 1984). When the abilities of the students who take the different test forms are not equal, Donlon (1984) suggested that another type of Linear equating called Levine Linear equating would be more appropriate. This procedure is based on the assumption that the test items in the different test forms are "randomly parallel to the set of equating items" (Dolon, 1984, p. 25) and the abilities of the students are statistically different.

Equipercentile equating provides a transformation such that scores from two tests will be considered equated if they correspond to the same percentile rank. To equate scores on the new form to scores on the reference form in a group of test-takers, scores on the new form is to be transformed to the score on the reference form that has the same percentile rank in that group (Livingston, 2004). Equipercentile equating methods are described as a two stage process. The first stage is carried out by tabulating or plotting the relative cumulative frequency distribution of the scores for the two forms to be equated. The second stage is to obtain the equated scores by smoothing to remove sample irregularities where the number of test takers is not large." The frequency estimation equipercentile equating procedure is employed by directly equating two test forms, tests X and Y. However, test X and test Y can also be equated indirectly

through a third test (test V). This procedure is referred to as the chained equipercentile equating (Dorans, 1990). Some of the equating software are Bigsteps SCORBATT, Bilog, Bilog-MG, Facets, IRTDIF, LOGIST, MULTILOG, PARSCALE, RASCAL, WINSTEP, XCALIBRE. Apart fromBigsteps and SCORBATT that can be used in CTT, the rest software are for IRT. Bigsteps is a DOS-based software that runs Rasch models. It is developed by John Linacre and Benjamin Wright. It can handles maximum of three thousands (3000) items and twenty thousands (20,000) examinees.

Statement of the Problem

The primary purpose of standardized tests is to provide a means of measuring a group of examinees' skills that is as fair and objective as possible. Among the uses of test scores are: assessment of the abilities and or skills of individuals who are competing for promotion. This evaluation of test scores may lead to a decision to exclude a student from some academic programmes. It is therefore essential that a standardized test scores provide a fair and equitable evaluation of the skills and ability that it purports to measure. Also it is virtually impossible to develop multiple forms of test that have exactly the same psychometric properties. That is why equivalence of the two tests administered to two different sets of students were equated.

Research Questions

This study provided answers to the following research questions:

1. What is the pattern of students' performance on the items of Junior Secondary School Basic Science and Technology multiple choice papers for the two years?
2. What are the results of linear equating of the 2013 and 2014 Junior Secondary School Basic Science and Technology multiple choice papers with the use of standard score deviates?
3. What are the results of equipercentile equating of the 2013 and

2014 Junior Secondary School Basic Science and Technology multiple choice papers with the use of percentile rank?

4. How invariant are the equated scores of the 2013 and 2014 Junior Secondary School Basic Science and Technology multiple choice papers across equating methods?

Methodology

The study adopted a vertical equating which is when two different tests of different difficulties are administered on same groups of testees at different times. This is a longitudinal research were the same set of students participated in two different examinations at different times. The two examinations scores that were equated were the JS1 promotion examination in 2013 and JS2 promotion examination 2014.

Population, Sampling Technique and Sample

The target population for the study consisted of all the junior secondary three (JS3) students of Basic Science and Technology in Oyo State, Nigeria.

Instrumentation

An initial 600 items for JS 1 and JS 2 each with four response options (that is, A, B, C, and D) were developed and moderated. After moderation 400 items for each of the classes were put together, these were trial tested in Osun State and the following characteristics: 0.3 = p = 0.7 and q = 0 . 3 (where p = difficulty index and q = discriminating power) were used in selecting 60 items for each of the classes. The 60 items each were derived from the Basic Science and Technology curriculum of JSS1 for 2013 and 2014. Each of the sets of 60 items was used for JS 1AND JS 2 in each of the years. The 60 items were inspected and are found to have the contents and objectives as shown in Table 1 on the test blueprint based on the first three levels of Bloom's taxonomy of educational objectives.

Table 1 Table of Specification use for JS 1 Basic Science in 2013 and 2014

	Knowledge (57.5%)	Understanding (35.0%)	Application (7.5%)	Total
You and Environment (33.75%)	13	5	1	19
Living and Non - Living Things (13.75%)	11	7	2	20
Science and Development (31.25%)	4	3	1	8
You and Technology (21.25%)	6	6	1	13
Total	34	21	5	60

At trial testing stage, the instruments were administered on 400 Basic Science and Technology Junior Secondary School students in Osun State, Nigeria. The researcher calculated a percentage-difference coefficient of correlation Abiri (2006) with a formula

$$r_{ts} = 1 - \frac{\sum |d|}{100}$$

Where r_{ts} is the correlation between test and syllabus contents, d is the difference (ignoring signs) between corresponding percentage weightings of each of the two tests. The following percentage-difference coefficients of content validity were obtained 0.77, 0.74 for 2013 and 2014 respectively. This implies that there is an agreement between the items and the syllabi. Thus, the instrument has content validity. Consensus of the experts (senior and experienced teachers in JS Basic Science and Technology) were sought on the keys to the items. The researcher and some research assistants administered the instruments (tests) to JS 1 students in the selected schools on a fixed date. The students were allowed to write the tests for 1hour after which the answer sheets and the question papers were retrieved from them.

Data Analysis Techniques

The data collected from this study were analyzed with descriptive statistics to answer the four research questions. Mean, T-score percentile rank and coefficient of variation statistic were used to answer research questions.

Results

Research Question One

What is the pattern of students' performance on the items of Junior Secondary School Basic Science and Technology multiple choice papers for the two years?

Table 2: JS1 Basic Science 2013 results

Contents and Objectives	No of items	Min	Max	SD	Mean %
You and Environment	19	2	17	3.156	32.2
Living and Non Living Things	20	0	16	3.596	44.7
Science and Development	8	1	6	1.434	24.5
You and Energy	13	0	6	1.284	27.7
Knowledge	34	2	17	3.224	44.2
Understanding	21	0	20	3.979	31.5
Thinking	5	0	8	1.850	32.5
Total	60	8	37	7.332	34.6

Table 3: JS2 Basic Science 2014 results

Contents and Objectives	No of items	Min	Max	SD	Mean %
You and Environment	19	5	15	2.723	32.9
Living and Non Living Things	20	1	8	1.534	44.6
Science and Development	8	0	5	1.162	25.3
You and Energy	13	0	7	1.445	28.1
Knowledge	34	2	11	1.829	44.4
Understanding	21	7	20	3.331	31.9
Thinking	5	0	4	1.01	32.9
Total	60	17	38	4.725	34.9

Table 4 t-test of 2013 and 2014 JS 1AND JS 2

	Mean	N	SD	t	Df	Sig.
2013 JS 1	34.6	108,690	2.830	-1.298	49	.097
2014 JS 2	34.9	108,961	4.178			

Although, there exist a slight difference in the performances of students in the two years under consideration, the difference was not significant ($t_{217,649} = -1.30$, $P>0.05$). This meaning that there is no difference in students' ability or proficiency, thus equating process can take place.

Research Question Two

What are the results of linear equating of the 2013 and 2014 Junior Secondary School Basic Science and Technology multiple choice papers with the use of standard score deviates?

Students' scores in each of the tests (2013 and 2014 Junior Secondary School Basic Science and Technology) were independently standardized using T-score. The T-scores was used as scale on which examinees raw score in each of the test form was compared.

Table 5: Linear Equating of 2013 and 2014 multiple choice papers

Raw Score	T-Score for 2013 Examination	T-score for 2014 Examination	Raw Score	T-Score for 2013 Examination	T-score for 2014 Examination
1	24.1	23.7	31	55.3	57.1
2	25.1	24.8	32	56.3	58.2
3	26.2	25.9	33	57.3	59.3
4	27.2	27.1	34	58.4	60.4
5	28.3	28.2	35	59.4	61.5
6	29.3	29.3	36	60.5	62.6
7	30.3	30.4	37	61.5	63.8
8	31.4	31.5	38	62.5	64.9
9	32.4	32.6	39	63.6	66.0
10	33.5	33.7	40	64.6	67.1
11	34.5	34.8	41	65.6	68.2
12	35.5	36.0	42	66.7	69.3
13	36.6	37.1	43	67.7	70.4
14	37.6	38.2	44	68.8	71.5
15	38.6	39.3	45	69.8	72.7
16	39.7	40.4	46	70.8	73.8
17	40.7	41.5	47	71.9	74.9
18	41.8	42.6	48	72.9	76.0
19	42.8	43.7	49	74.0	77.1
20	43.8	44.9	50	75.0	78.2
21	44.9	46.0	51	76.0	79.3
22	45.9	47.1	52	77.1	80.4
23	47.0	48.2	53	78.1	81.6
24	48.0	49.3	54	79.1	82.7
25	49.0	50.4	55	80.2	83.8
26	50.1	51.5	56	81.2	84.9
27	51.1	52.6	57	82.3	86.0
28	52.1	53.7	58	83.3	87.1
29	53.2	54.9	59	84.3	88.2
30	54.2	56.0	60	85.4	89.3

When the scores are transformed using t-score, the scores from the two examinations (2013 and 2014) were very close when the raw scores are low. For example, those who scored raw score of 1 to 16 have the same transformed scores (if round off to 2 sig. fig.). However, as the raw scores increased, there was a wide gap in the transformed scores of both examinations. For example, from raw

score of 17, there were variations in the transformed scores; those who scored 60 had different scores 85.4 and 89.3 respectively for 2013 and 2014 examinations. Since only 16 out of 60 scores of the two examinations correspond to each other, we cannot conclude that the two examinations are the same in all respects but the variations in the transformed scores are somehow negligible not to warrant their use for interchangeably for JS 1AND JS 2 exercise.

Research Question Three:

What are the results of equipercentile equating of 2013 and 2014 JS 1AND JS 2 examinations with the use of percentile rank?

The percentile rank of students' scores in each of the 2013 and 2014 examinations were independently computed and were used as scale on which examinees raw score in each of the test form was compared.

Table 6: Equipercentile Equating of 2013 and 2014 examinationsmultiple choice papers

Raw Score	JS1 2013	JS2 2014	Raw Score	JS1 2013	JS2 2014
1	.03	.02	31	79.30	71.97
2	.10	.06	32	81.67	74.81
3	.19	.11	33	83.77	77.44
4	.33	.18	34	85.60	79.91
5	.48	.27	35	87.20	82.16
6	.65	.42	36	88.62	84.17
7	.92	.63	37	89.98	86.15
8	1.28	.94	38	91.18	87.95
9	1.78	1.42	39	92.15	89.45
10	2.49	2.15	40	93.04	90.82
11	3.47	3.21	41	93.84	91.98
12	4.83	4.62	42	94.59	93.04
13	6.59	6.47	43	95.34	94.02
14	8.86	8.82	44	96.10	94.99
15	11.66	11.59	45	96.79	95.89
16	14.97	14.77	46	97.33	96.62
17	18.85	18.34	47	97.82	97.27
18	23.21	22.13	48	98.28	97.82
19	27.94	26.07	49	98.69	98.30
20	32.86	30.14	50	99.05	98.75
21	37.82	34.26	51	99.35	99.13
22	42.87	38.43	52	99.57	99.39
23	47.92	42.59	53	99.72	99.59
24	52.80	46.75	54	99.82	99.75
25	57.48	50.82	55	99.89	99.85
26	61.97	54.72	56	99.94	99.91
27	66.11	58.47	57	99.98	99.96
28	69.87	62.03	58	99.99	99.99
29	73.31	65.48	59	99.99	100.00
30	76.48	68.82	60	100.00	100.00

Unlike t-score where the transformed scored were closed when the raw scores were low, in percentile rank transformation, there were dispersions at the beginning and the gaps experienced at the beginning got closed up as we moved towards the ends of the continuum for example from 50 to 60, the transformed scores of the two examinations were the same but were different for transformed scores from 1 to 49.

Research Question Four

How invariant are the equated scores of the Junior School Certificate Basic Science and Technology multiple choice papers across equating methods for the two examinations?

Respondents' equated scores in each of the equating method were independently summed and means and standard deviations were computed in order to calculate co-efficient of variation of the equating methods. The normalized measure of dispersion of a probability distribution is called as coefficient of variation as often abbreviated as CV. In probability theory and statistics, it is also known as unitized risk or the variation coefficient. The CV is derived from the ratio of the standard deviation to the non-zero mean and the absolute value is taken for the mean to ensure it always positive. It is sometimes expressed as percentage, in which case the CV is multiplied by 100

Table 7: Invariance of equated scores of Basic Science and Technology Promotion Examinations for multiple choice papers across Equating Methods

	Equating Methods	Mean	S.D.	Coefficient of Variation
JS1 2013 results	Linear	50.0	10.0	20.0
	Equipercentile	50.0	28.9	57.7
JS 2 2014 results	Linear	50.0	10.0	20.0
	Equipercentile	66.6	23.6	35.4

Table 7 above revealed the same mean values for the 2013 examination using different equating methods but varying standard deviations and this produced a different coefficient of variation. The coefficient of variation of 20% and 57% were respectively obsereved for linear equating and equipercentile methods. The lower the coefficient of variation, the more precise the estimate, on the other hand the higher the coefficient of

variation the less precise the estimate. The same experience is observed for 2014 results. Thus, linear equating method is preferable to equipercentile equating method because it has lower coefficient of variation.

Discussion

There was no significant difference in the performance of students in the two examinations, suggesting that the average difficulty levels of the two examinations are the same. Hence, the two examinations could be used interchangeably. The finding corroborated those of Bandele and Adewale, (2013) where they submitted that there is no significant difference in the difficulty level, reliability and validity coefficients of mathematics items constructed by WAEC, NECO and NABTEB. However, this finding is contrary to the submission of Alfred (2013) that there is a significant difference in the difficulty level of Economics multiple choice items conducted by WAEC, NECO and NABTEB.

Scores of 1 to 17 are the same for linear method of equating for the 2013 and 1014 examinations. Variations among scores of the two examinations started from the score of 18. This implies that linear method is somehow stable in producing equal results for a large number of different scores. This study corroborated that of Olatunji (2015) where she found out that linear equating method equated some of the scores obtained in WAEC and NECO.

Equipercentile equating also revealed that scores from 50 to 60 were equal for the two examinations. This implies that 11 scores were produced to be similar using the equipercentile. This result is similar to that of Olatunji where she found that three scores of WAEC and NECO were similar.

It was found from this study that the equated scores of Basic Education Certificate Examinations in Basic Science and Technology multiple choice paper resulted from Linear equating method is different from that of Equipercentile equating method because it has lower coefficient of variation, thus linear equating method is found to be robust than Equipercentile method. This

finding is consistent with the submission of Hagie (2010) that standard error of equating was large for chain equipercentile equating. Beard and Pettie (1999) also affirmed superiority of Linear equating method with their submission that Rasch equating provided essentially the same results as Linear equating. On the contrary, a study on comparison of four procedures (equipercentile, Linear, one and three parameter Rasch models) for equating was carried out by Kolen and Whitney (1981) it was revealed in the study that asides three parameter Rasch method, the equating results of other three procedures were stable and accepted. This implies that both Linear and equipercentile equating methods produced acceptable equating results. Also, Skaggs and Lissitz (1986) recommended linear equating method out of the four commonly used equating methods investigated. Similarly, Olatunji (2015) established a superiority of linear equating method over the equipercentile method. Linear Equating method is better in this study.

Conclusion and Recommendations

Although, the two methods could be used for equating examinations scores, linear equating method is more robust than equipercentile equating method because it has lower coefficient of variation i.e. $20.0 < 57.7$ for the 2013 examination and $20.0 < 35.4$ for the 2014 examination. Hence, linear equating method is recommended for a classical test theory of equating different examinations scores.

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6

EFFECT OF PEER-ASSESSMENT STRATEGY ON PUPILS' ACHIEVEMENT AND RETENTION IN ALGEBRA

Chinyere N. Ihekwaba & E. C. Unamba

Introduction

Education is a systematic process through which an individual acquires knowledge, experience, skills and sound attitude. It makes an individual civilized, refined, cultured and educated (John, 2012). A nation's level of development is dependent on the level of educational attainment of its citizens. According to Duze (2011), the present Nigerian educational system seems to be far from achieving the desired educational goals and objectives as there are noticeable evidences of decline in the standard evidenced by poor results in public examinations. Evidence of the decline is observable in internal and external examinations especially in subjects like mathematics. It is believed that people can manage their personal life as well as professional duties when they are well educated in mathematics (Larbi & Okyere, 2014).

Ado (2012) stated that mathematics is a way of thinking that enables a learner to identify patterns and structures in order to solve problems. Mathematics is a necessary ingredient needed in the scientific and technological development of any nation. According to Odumosu, Oluwayemi & Olatunde (2001) mathematics has been regarded as the bedrock of science and technology. Altbach (2002) in Fasasi (2009) supported this fact when he noted that the progress of science could be determined by

the extent to which mathematics has entered into its methods and contents. Adeyegba (2005) in Odumosu et al (2012) observed that there is hardly any area of science that does not make use of mathematical concepts to explain its own concepts, theories or models. Mathematics in schools is taught as arithmetic, trigonometry, geometry and algebra among others.

Algebra is a branch of mathematics that uses mathematical statements to describe relationships among things called variables. The most important outcomes in the study of algebra include the ability to think logically, to use principles to see relationships, to pick out essentials, to analyze and to organise (Orji & Anaduaka, 2010). Morris (2009) cited in Adani, Eskay and Onu (2012) stated that, algebra as one of the major branches of pure mathematics concerns itself with the study of the rules of operations, relations, constructions and the concepts arising from them, including terms like polynomials, equations and algebraic structures. According to Koirala (2005) teachers, mathematics educators and mathematicians consider algebra to be one of the most important areas of school mathematics. It sharpens the critical thinking skills of the students and enables them to solve real-life problems logically as well. In spite of the high level of importance accorded on algebra in school mathematics curricula, many students find it abstract and difficult to comprehend (Witzel, Mercer &Miller, 2013; Amoo, 2001). It stimulates phobia among students.

Appeh (1999) in Anyichie and Onyedike (2012) observed that poor preparation of the students due to poor teaching methods, inadequacy of mathematics teachers, poor teaching facilities are considered as the main reasons for student poor performance at public examinations. Augustine (2010) observed that the field of mathematics has placed too little value on the importance of teaching methods and assessment in recent decades. He further opined that one of the ways to help students learn and understand concepts of mathematics is for the teacher to use appropriate teaching methods which should be student- centered and one of the methods being advocated is the peer-assessment strategy. Peer

Assessment is defined as a student's evaluation of the quality of responses provided by his/her peers against the acceptable answers to questions posed (Khadijeh, 2010). Peer Assessment is used to describe the process undertaken by students in assigning quality to the performance or answer in relation to a group task (Loddington, 2008). It could also be described as peer moderated marking of students work based on sets of success criteria from the teacher. One of the ways in which students internalize the characteristics of quality work is by evaluating the work of their peers. However, if they are to offer meaningful feedback, students must have a clear understanding of what they are to look for in their peers' work. The teacher must explain the expectations clearly to the students before they start assessing one another. For effective understanding of the Peer Assessment, the teacher will provide a sample of work done or assignments with instructional rubrics for practice to enable them grade each other. This will give both the teacher and the student's confidence in marking their scripts without being bias. Peer assessment is effected using the following steps:

1. The instructor provides a sample mathematics assignment.
2. As a group, students determine under guidance of the teacher
   i. what should be assessed and
   ii. how criteria for successful completion of the mathematics task should be defined.
3. Then the instructor gives students a sample completed assignment.
4. Students assess this using the criteria they have developed.
5. Students determine how to convey feedback clearly to the fictitious student.

In introducing Peer Assessment, the teacher would ensure that students become aware of the benefits for them because they need to see the value for themselves rather than the gains for their teachers. So it is important to introduce peer assessment to improve learning in Mathematics and to develop new skills to

solve mathematical problems The process also allows students to comment on and judge their fellow students work, and can serve as formative and summative assessment. One of the desirable outcomes of education is to improve the ability of the learner and to make the learner an independent judge of their own and other people's work. Peer Assessment exercises are seen as means by which these general skills can be developed and practiced. A peer rating format if used can encourage a greater sense of involvement and responsibility, establish a clearer framework and promote excellence, direct attention to skills and learning and provide increased feedback (Weaver and Cotrell, 1986).

According to Black and Williams (1998), peer assessment processes involve:

- Establishing rapport and creating awareness of the key processes.
- Giving out samples of students work from another class.
- Distributing instructional rubrics (success criteria) and explaining how to grade students' work to all participants.
- Allowing students to assess sample work using instructional rubrics as training.
- Plenary discussion of the sample work approaches and changes.

Peer assessment also encourages cooperative learning by making weaker students learn from stronger as students are enabled to appreciate why some responses are wrong and others correct and thereby removing their phobia in Mathematics. Some studies in Nigeria have shown the efficacy of peer assessment (Onuka, 2007) and use of feedback (Onuka & Oludipo, 2006). Differences in achievement by gender have been noticed (Bassey, Joshua & Asim, 2008) and Sprigler & Alsup (2003) in their own study found no gender difference on Mathematical reasoning ability at elementary level. Ding, Song & Richardson (2007) also found no significant difference in performance between male and female students in Mathematics.

Peer Assessment using Instructional Rubrics in teaching

Mathematics has been seen as one of the major assessment tools that contributes to excellent performance in Mathematics among secondary school students (Schafer, Ben & Newbery, 2001; Sadler & Eddie, 2006; Andrade & Du, 2005). Can it be equally effective at the primary school level with respect to achievement and retention? Consequently, this study addressed the following questions:

1. Is there a difference in the mean posttest achievement scores of students taught algebra and assessed using peer assessment strategy and those assessed conventionally using teacher –based assessment?
2. What is the difference in posttest achievement scores of male and female students taught algebra and assessed using peer assessment strategy?
3. Is there a difference in the mean retention scores of students taught algebra and assessed using peer assessment strategy and those assessed conventionally using teacher –based assessment?
4. Is there a difference in the mean retention scores of male and female students taught algebra and assessed using peer assessment strategy?

Methodology

A pretest posttest quasi-experimental design using two groups was used. The population of the study comprised of all primary six pupils in all the Demonstration schools in Owerri Municipal Council area of Imo State with a population size of three thousand and twelve (3,012). The sample of the study consists of 220 pupils from two randomly selected primary schools from the study area. The sample consists of 104 males and 116 females' pupils. In each of the schools selected, two intact classes were randomly assigned to experimental and control groups. The experimental group had 118 students made up 50 males and 68 female pupils while the control group had 50 male and 52 females. The instrument used for data collection was an Algebra

Achievement Test (AAT). It was a 30-item multiple choice objective test constructed by the researchers. The construction of the instrument was guided by a table of specification to ensure adequate coverage of the content area covered in the study as well as maintain even spread across the different levels of the cognitive domain. The face and content validity of the instrument were determined by three research experts, one of whom was a specialist in measurement and evaluation and the other two were specialists in mathematics education. The instrument was trial-tested on students of similar classes in another school which was not part of the study to determine the reliability of the items. A reliability coefficient of 0.83 was obtained using Kuder-Richardson formula 20. The researchers trained the four regular mathematics teachers in the two schools used as experimental group in the study for a period of two weeks on the use of peer assessment. In administering the instrument, the control and experimental groups were pretested to ensure equality in their cognitive background. The experimental group was exposed to training on peer assessment. The peer assessment involved the following steps:

1. The teacher provides a sample of algebra assignments.
2. As a group, pupils determined under guidance of the teacher
   i. what should be assessed and
   ii. how criteria for successful completion of the algebra task should be defined.
3. Then the teacher gives pupils a sample completed algebra assignment.
4. Pupils assess the completed assignment using the criteria they have developed.
5. Teacher and pupils reviewed what the pupils have done.
6. Pupils determine how to convey feedback clearly to the fictitious pupil whose assignment was assessed.

The control group was assessed using the conventional method of teacher based assessment. After six weeks of treatment, the AAT was re-arranged and administered to the entire subjects as posttest. After another two weeks after posttest AAT was further re-

The data collected were analyzed using mean and analysis of covariance (ANCOVA) at .05 level of significance.

Results

Research question 1: Is there a difference in the mean posttest achievement scores of students taught algebra and assessed using peer assessment strategy and those assessed conventionally using teacher –based assessment?

Table 1: Mean achievement scores and Standard Deviations of experimental and control groups in pretest, posttest and retention test

Group	N	Pretest		Posttest		Retention	
		Mean	SD	Mean	SD	Mean	SD
Experimental	118	32	14.8	72.00	15.31	66.10	12.80
Control	102	34	13.1	50.60	10.41	44.60	14.60

Table 1 shows the mean scores of pupils in experimental and control groups during pretest, posttest and retention test. From the table it is noticed that experimental group consistently had a higher score than the control in all three situations. The differences in means between experimental and control groups were pretest (1.7), posttest (21.40) and retention (21.50).

Research question 2: What is the difference in posttest achievement scores of male and female students taught algebra and assessed using peer assessment strategy?

Table 2 contains the mean and standard deviation of achievement scores of male and female students in posttest and retention test. The differences between them are in favour of females for the posttest (0.60) and males for the retention test (0.08).

Table 2: Mean posttest and retention achievement scores of male and female pupils in experimental group

Sex	Posttest			Retention	
	N	Mean	SD	Mean	SD
Male	50	72.50	4.01	68.10	6.01
Female	68	73.10	4.20	68.02	6.02

Research question 3: Is there a difference in the mean retention scores of students taught algebra and assessed using peer assessment strategy and those assessed conventionally using teacher –based assessment?

Table 3: ANCOVA pupils in experimental and control groups

Scores of variation	Sum of squares	Df	Mean Square	F	Sig.
Covariates	5.770	1	5.770	0.032	0.859
Pretest	5.770	1	5.770	0.032	0.859
Main effect	12400.383	2	6200.191	33.861	0.000
Method	10269.560	1	10269.560	56.085	0.000
Gender	6006.753	1	6006.753	32.805	0.000
2-way	54.567	1	54.567	0.297	0.586
Interactions		1			
MethodxGender	54.467	1	54.467	0.297	0.586
Explained	14432.591	4	3608.148	19.705	0.000
Residual	587777.268	321	183.107		
Total	73209.879	325	225.26		

With reference to differences between experimental and control groups on posttest mean scores, Table 3 shows that there was a significant difference between the groups ($F_{1, 321}$=33.861, p< .05). Thus as indicated in Table 1 the use of peer assessment was more efficacious. From Table 3, it is also realized that there was gender effect on posttest scores in favour of females ($F_{1, 321}$ = 32.085, p< .05.

Research question 4: Is there a difference in the mean retention scores of male and female students taught algebra and assessed using peer assessment strategy?

Table 4: ANCOVA Analysis of the pupils means retention scores.

Source of Variance	Sum of squares	df	Mean squares	F	Sig
Covariates	514.982	1	514.982	39.714	0.000
Pretest	514.982	1	514.982	39.714	0.000
Main effects	26943.814	2	13471.907	811.401	0.000
Methods	26481.417	1	26481.417	2419.845	0.000
Gender	22944	1	22944	706.312	0.000
2-way interaction	152.433	1	152.433	0.141	0.768
Methods xgender	152.433	1	152.433	0.141	0.768
Total	30338.59	325	114.485		

Table 4 displays shows significant treatment effect in the mean retention scores as indicated by the $F_{1,}$. Hence, hypothesis two is rejected as stated because the experimental group retained more than their counterpart in the control group. Conversely, the F - calculated for 2-way interaction between methods and gender

shows no significant effect. The ANCOVA analysis also showed no significant difference between achievement and retention on gender.

Discussion

The findings of this study showed that, peer assessment strategy is effective in enhancing pupil's achievement and retention in algebra. This was demonstrated through the high mean achievement gains of pupils in the experimental groups as against those in the control groups. Also the ANCOVA analysis showed that, a significant difference exists between the mean achievement and retention scores of those assessed using peer assessment and those assessed conventionally using teacher-based assessment. The findings of this study showed that, peer assessment strategy is effective in enhancing pupils' achievement and retention in algebra. This was demonstrated through the high mean achievement gains of pupils in the experimental groups as against those in the control groups. This is line with the finding of Onuka (2007) that guided students Peer Assessment programme improved learning assessment in Mathematics and English Language. The finding showed that those that received training on peer assessment did better in algebra mathematics test than the control group. Onuka and Oludipo, (2006) results in another study on Systematic school based assessment for an improved cognitive performance, revealed that the performance of students in the experimental group outweighed those from the control group. This shows that peer feedback, which is an outcome of evaluation, and systematic school based assessment, may assist in improving students' performance and in cognitive learning objectives respectively.

The above study also showed that, the male and female pupils improved on their mean achievement and retention scores. The ANCOVA analysis showed no significant difference between achievement and retention scores on gender. This result agreed with the findings of Sprigler and Alsup (2003) in their own study

on gender achievement. Their result showed no gender difference on Mathematical reasoning ability at the elementary level. Also Ding, Song and Richardson, (2007) results corroborated no significant difference between male and female students in Mathematics.

This result is in line with the findings of Umar, et al (2006) and that of Eze and Egbo (2007) whose reports revealed that students taught and assessed through students-centered method retained better than those taught with the traditional lecture method. Ukeje and Obioma (2002); Ezeamenyi (2004); Obodo (2004) and Azuka (2009) all made case for the adoption of instructional methods that promote students' involvement and activity in the teaching of pupils school mathematics so as to enhance students' retentiveness.

Conclusion and Recommendations

The result showed that peer assessment strategy improved the academic performance and enhanced the retention ability of the pupils in algebra. This implies that if peer-Assessment strategy is properly used by teachers, the academic performance of pupils will not only improved but it can also enable the students to better understand and retain the contents of the concepts taught, especially from their peers who were not part of this study.

Also, this study confirmed that gender is not a factor both in pupil's achievement and retention ability of concept taught.

Based on the findings of this study, the following recommendations are made;

1. Peer assessment strategy should be used in assessing most mathematics concepts in primary schools.
2. Primary school mathematics and science teachers should be trained through intensive seminars, workshops and in-service trainings on the use of Peer assessment as an effective assessment tool.

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7

ASSESSMENT OF STUDENTS' LEARNING: IMPLICATIONS FOR EDUCATIONAL PLANNING

Lara Ogunsola

Introduction

The benefits of education for national development, individual prosperity, health and social stability are well known, but for these benefits to accrue, children in school have to be learning. Despite commitments and progress in improving access to education at the global level, including Millennium Development Goal (MDG) 2 on universal primary education and the Education for All (EFA) Goals, levels of learning are still too low. According to estimates in the 2012 EFA Global Monitoring Report, at least 250 million primary-school-age children around the world are not able to read, write or count well enough to meet minimum learning standards, including those children who have spent at least four years in school (UNESCO, 2012). Moreover, the full scale of the crisis and this figure may likely be an under-estimate because measurement of learning outcomes among children and youth is limited and, relative to the measurement of access, more difficult to assess at the global level.

To advance progress for children and youths around the world, it is critical that learning is recognized as essential for human development. As EFA and the MDGs sunset in 2015, and with the onset of the Sustainable Development Goals (SDGs), the education sector has a unique window of opportunity to raise awareness of international education goals and ensure that

learning becomes a central component of the global development agenda. To achieve this, the global education community must work together to define global ambition on improving learning and propose practical actions to deliver and measure progress. The focus of this paper is to discuss the broad types of learning assessment (in terms of their meaning, purposes, and characteristics); when and where children learn; domains of learning to be assessed; and implications of assessment of learning of students' with disabilities, gender consideration, and conflict/emergency contexts for educational planning.

Types of Assessment

There are two broad types of assessment and they are briefly discussed as follows:

- Formative assessment
- Summative assessment

Formative Assessment

According to Crooks (2001), Huhta (2010); and Shepard (2005), formative assessment including diagnostic testing is a range of formal and informal assessment procedures conducted by teachers during the learning process in order to modify teaching and learning activities to improve student attainment. It typically involves qualitative feedback (rather than scores) for both student and teacher that focus on the details of content and performance. It is commonly contrasted with summative assessment, which seeks to monitor educational outcomes, often for purposes of external accountability. Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited. Formative evaluation gathered information to assess the effectiveness of a curriculum and guide school system choices as to which curriculum to adopt

and how to improve it (William, 2006; Black and William, 2003 & 2009). Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited.

Purpose of Formative Assessment

Formative assessment:

- provides feedback for teachers to modify subsequent learning activities and experiences;
- identifies and remediates group or individual deficiencies;
- moves focus away from achieving grades and onto learning processes, in order to increase self efficacy and reduce the negative impact of extrinsic motivation;
- improves students' meta-cognitive awareness of how they learn; and
- allows both for fine-tuning of instruction and student focus on progress.

Characteristics of Formative Assessment

According to Harlen and James (1997) and Cauley and McMillan (2010), formative assessment:

- is essentially positive in intent, in that it is directed towards promoting learning; it is therefore part of teaching;
- takes into account the progress of each individual, the effort put in and other aspects of learning which may be unspecified in the curriculum; in other words, it is not purely criterion-referenced;
- takes into account several instances in which certain skills and ideas are used and there will be inconsistencies as well as patterns in behaviour; such inconsistencies would be 'error' in summative evaluation, but in formative evaluation they provide diagnostic information;

- validity and usefulness are paramount in formative assessment and should take precedence over concerns for reliability; and
- requires that pupils have a central part in it; pupils have to be active in their own learning (teachers cannot learn for them) and unless they come to understand their strengths and weaknesses, and how they might deal with them, they will not make progress.

Summative Assessment

Summative assessment is used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period—typically at the end of a project, unit, course, semester, program, or school year (Abbott, 2014). Generally speaking, summative assessments are defined by three major criteria:

- The tests, assignments, or projects are used to determine whether students have learned what they were expected to learn. In other words, what makes an assessment summative is not the design of the test, assignment, or self-evaluation, per se, but the way it is used—i.e., to determine whether and to what degree students have learned the material they have been taught.
- Summative assessments are given at the conclusion of a specific instructional period, and therefore they are generally evaluative, rather than diagnostic—that is, they are more appropriately used to determine learning progress and achievement, evaluate the effectiveness of educational programs, measure progress toward improvement goals, or make course-placement decisions, among other possible applications.
- Summative assessment results are often recorded as scores or grades that are then factored into a student's permanent academic record, whether they end up as letter grades on a report card or test scores used in the college-admissions process. While summative assessments are typically a major

component of the grading process in most districts, schools, and courses, not all assessments considered to be summative are graded.

Purpose of Summative Assessment

Summative assessment is important to:

- grade or rank a student;
- allow progress to further study;
- assure suitability for work;
- predict success in future study and work; and
- signal employability and selection for employment.

Characteristics of Summative Assessment

According to Ayapana (2015) and Reed (2014), summative assessments should:

- be pre-defined by a group of teachers and involve the students;
- provide students with the opportunities to demonstrate what they know;
- challenge students to transfer what they have learned to specific and real-life tasks;
- correspond with important learning targets and essential questions so they yield true information about student progress;
- provide, in some cases, meaningful feedback to both the students and teachers. By doing so, assessments help increase student motivation to learn. Nonjudgmental feedback motivates students for further effort, while using grades as rewards or punishments decreases student motivation;
- incorporate 21st century skills and content into assessments; and
- not be limited to high-stakes tests.

When and Where Children Learn

The issues of when and where children learn are discussed under the following levels of education:

Early Childhood Setting

Globally, 164 million children are enrolled in preschool programmes, and the pre-primary Gross Enrolment Ratio (GER) is 48 percent (UNESCO 2012). However, access to pre-primary programmes is unevenly distributed — in low-income countries the GER for pre-primary is only 15 percent. The children least likely to be enrolled in pre-school are those belonging to minority ethnic groups, those with less educated mothers, and those who speak a home language different from the language used in school (UNESCO 2012). These are also the children who are most likely to benefit from high-quality pre-primary programmes.

While many children, especially in high-income countries, attend formal, regulated pre-primary programmes, the majority of the world's young children learn in non-formal contexts through unstructured or informal processes. For these children, learning typically occurs in the home and community through interactions with parents, siblings and other family members. Even when children are enrolled in pre-primary programmes, they may not be exposed to high-quality formal early learning opportunities.

Primary Education Setting

Partly as a result of the push for universal primary education, the majority (89 percent) of primary age children are now enrolled in school (UNESCO, 2012). Free, compulsory primary education is recognized as a fundamental human right (United Nations 1948), and primary education is compulsory in almost every country (UNESCO Institute for Statistics [UIS] 2012). Still, there are nearly 61 million out-of-school children of primary-school age, a number that has stagnated since 2008 (UNESCO 2012). While some children are either not enrolled in school or are enrolled in non-formal programs, the majority of children globally are learning in formal contexts. However, the degree to which formal processes are good enough to ensure children's right to a decent education depends in large part on the quality of the teachers, curriculum and materials found in the

school. In schools where there are enough qualified teachers and materials to respond to each individual child's learning needs, academic learning occurs through formal processes. In schools where teachers are not properly qualified, are overextended or do not come to work regularly, learning still occurs through peer-to-peer interactions—but not necessarily the types of learning intended by the school system (Wagner, Murphy & Korne 2012).

Post-Primary Education Setting

The category of post-primary refers to the various contexts in which children learn beyond primary schooling. For most children, post-primary refers to secondary education. Given the diverse areas of specialization students engage in after secondary school, the task force decided to limit its recommendations at the post-primary level to lower secondary. The UIS reports that in 2010, lower secondary education was part of compulsory education in three out of four countries reporting data, and upper secondary was included in compulsory education in approximately one out of four countries (UIS, 2012). It is estimated that globally, 91 percent of children who entered school stay there until the end of primary school, and 95 percent of those students transition to secondary school. However, for children in low-income countries, only 59 percent make it to the last year of primary school, and 72 percent of those students successfully transit to secondary school (UIS, 2012). For children who do not attend secondary school, learning occurs mainly through work, family and community experiences (that is, non-formal, unstructured contexts) (Wagner, Murphy & Korne 2012).

Domains of Learning to be Assessed

Given the diversity of structures, places, and times at which children and youth learn, it is a challenge to define what outcomes related to learning are important, especially at a global level. Furthermore, to develop a framework that would be relevant for the next 15 years, the Learning Metrics Task Force convened by UNESCO Institute for Statistics and the Centre for Universal

Education (2013) recognized that it would have to take a step back from what is measurable today and consider first what learning is important for the 21st century. Feedback from interviews with key stakeholders and global consultations points to a growing demand globally for measuring learning in multiple areas, not just literacy and numeracy. Accordingly, the task force proposes a broad definition of learning that encompasses seven domains, with corresponding sub-domains, as important for all children and youth to develop.

Table 1: Global Framework of Learning Domains

Domain	Description	Subdomain Examples
Physical well-being	How children and youth use their bod ies, develop motor control, and under stand and exhibit appropriate nutrition, exercise, hygiene and safety practices	➢ Physical health and hygiene ➢ Food and nutrition ➢ Physical activity
Social and emotional	How children and youth foster and maintain relationships with adults and peers. Also, how they perceive them - selves in relation to others.	➢ Social and community values ➢ Civic values ➢ Mental health and well - being
Culture and the arts	Creative expression , including activities from the areas of music, theater, dance or creative movement, and the visual, media and literary arts. Also, cultural experiences in families, school, commu - nity and country.	➢ Creative arts ➢ Cultural knowledge ➢ Self- and community identity ➢ Awareness of and respect for diversity
Literacy and communication	Communication in the primary language(s) of the society in which chil - dren and youth live, including speaking, listening, reading, writing, and under - standing the spoken and written word in various media.	➢ Speaking and listening ➢ Vocabulary ➢ Writing ➢ Reading
Learning approaches and cognition	Learning approaches describe a learn ers' engagement, motivation and par ticipation in learning. Cognition is the mental process of acquiring lea rning through these various approaches.	➢ Persistence and attention ➢ Cooperation ➢ Problem solving ➢ Self-direction ➢ Critical thinking
Numeracy and mathematics	The science of numbers and quan titative language used universally to represent phenomena observed in the environment.	➢ Number concepts and operations ➢ Geometry and patterns ➢ Mathematics application ➢ Data and statistics
Science and technology	Science is specific knowledge or a body or system of knowledge covering physical laws and general truths. Tec hnology refers to the creation and usage of tools to solve problems.	➢ Scientific inquiry ➢ Life science ➢ Physical science ➢ Earth science ➢ Awareness and use of digital technology

Source: UIS and Centre for Universal Education. (2013). Towards universal lear ning- what every child should learn

Implications for Educational Planning

With the global trend in assessment of learning, the following areas of assessment of students' learning have some implications for educational planning:

Assessment of Learning of Children with Disabilities

According to the World Health Organization and World Bank (20 11), an estimated 15 to 20 percent of students worldwide have special learning needs, and children with disabilities are less likely to enrol in and complete school than their non-disabled peers. In low-income countries, their exclusion from education can be very significant and result in lifelong discrimination. The learning domains framework covers a broad set of learning outcomes, allowing children who struggle with traditional academic or cognitive tasks to have an opportunity to demonstrate strengths in a variety of domains. Educational planning should target instructional support and accommodations so that children with disabilities can make progress toward learning goals in all seven domains. When assessing learning for children with disabilities, a focus on individual progress can be more relevant in measuring and improving learning outcomes than a focus on absolute learning levels. More frequent monitoring of progress may be necessary to capture improvements in learning for children with disabilities.

Assessment of Learning considering Gender

Gender may be more important in discussing the determinants of learning in the classroom than in making choices about outcome measures. Gender issues are important across all domains, but especially in the domains of physical well-being, social and emotional, and learning approaches and cognition. For example, under physical well-being, the fact that girls can get pregnant and boys cannot, compounded with a social and cultural

context of male power and female subservience, make necessary learning outcomes in this area quite different for boys and girls.
Most of the time, there is an implicit assumption that from level to level, children are developing and learning at a similar and steady rate. However, in many settings this is not always the case given delayed school entry ages as well as repetition rates. Thus particularly when looking at the physical well-being domain and the social and emotional domain, educational planning needs to recognize that physical and emotional development may also be affected by age as well as by level. This is compounded by the fact that girls tend to reach puberty about two years before boys do. While it could be reasonably assumed that all post-primary students are older adolescents or young adults, one cannot assume that all primary pupils are pre-adolescent. Therefore, the issue of gender should be seriously considered especially in the provision of child-friendly school environment which has significant effect on learning and consequently on learning outcomes.

Assessment of Learning in Conflict and Emergency Contexts

War and natural disasters can significantly disrupt a child's education and learning trajectory. When children are displaced due to these circumstances, they often are excluded from school for years, sometimes even generations. However, a high-quality education in emergency situations can provide physical, psychosocial and cognitive protection that can sustain and save lives (InterAgency Network for Education in Emergencies [INEE] 2010). In the physical well-being and social and emotional domains, education for example, can provide children with critical survival skills and coping mechanisms through learning about landmine safety, HN / AIDS prevention and conflict resolution strategies. During conflict and emergencies, learning may occur in formal schooling settings, but very often it occurs in informal ways. Therefore, educational planning should make efforts to

ensure that assessment of children's learning takes into account where school-age children are, what is being taught, mother tongue and language of instruction, and a variety of other factors (INEE 2010; and Pritchett and Beatty (2012).

Conclusion

The human right to education cannot be achieved simply by ensuring children attend school; they must also be learning while they are there. Setting goals and measuring progress have the potential to accelerate learning at the global level and building consensus around these goals and measures for learning is a crucial step toward ensuring a worldwide focus on access plus learning. The global framework of learning domains represents the vision for what every child everywhere should learn and be able to do, whether at the classroom, system, or global level, by the time they reach post-primary age. Therefore, educational planning should take into consideration the global framework of learning domains considering learners with disabilities, gender issue and conflicts/emergencies.

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8

ELECTRONIC (E) ASSESSMENT OF PHYSICAL EDUCATION PSYCHOMOTOR SKILLS AMONG DISTANCE LEARNERS IN NIGERIA

A. O. Fadoju

Introduction

Physical education as a subject is a type of education through physical activities that are selected to provide an environment, conducive for human growth, development and behavioural change, which in turn contribute to the development of a better citizen. It provides individual and group opportunities to live most effectively in the society and to actualize their potentials and capabilities. These are benefits accruing from participation and interpersonal integrated experiences for democratic procedures, which increase an appreciation and determination for a continuation of those processes necessary for the survival of human values; for the individual accomplishment of a strong mind, tender heart, and able body and for individual skills basic in effective use of leisure time (Amuchie 2003, Awosika, 2001,).

According to Egor, (2005), the broad philosophy of physical education programme is geared towards meeting the needs and interests, which challenges the abilities of each individual child within an integrated school system. The curriculum design in physical education has always reflected the needs of a dynamic society. Fadoju (2011) observed that currently, the perspective is gradually changing from its present status to the development of the total wellbeing. For this to be maintained, the need for enhancing objectivity in our mode and method of

practical assessment for all categories of learners, especially those on distance learning programme becomes more imperative.

Developments in Assessment of Practical Skills in Physical Education

A review of physical education curriculum guides attests to the emphasis placed on psychomotor objectives by Physical Education teachers in private and public schools. It is a universal goal of physical education programmes to produce permanent and measurable changes in the psychomotor behaviour of students, in many different types of motor skills ranging from soccer to modern dance, from volley to scuba diving. The origin of sports skill test has been lost to antiquity, but most scholars have acknowledged the efforts made by some individuals and bodies. Gettman (1993) identified the play ground and Recreation Association of America for the athletic Badge Test for Volleyball, Tennis, baseball and Basket-ball in 1913; Onowhakpor, Money and Eboh, (1998) listed Hetherington, for developing the California Decathlon 1918. Brace was first to use the T- scale method in establishing norms and standard in Basketball for boys and girls in 1924. The construction of such tests to measure play ability in particular sports increased rapidly. Since then, many other standardized skill tests have been developed and used extensively in physical education. Among those test that has survived the test of time are Hyde archery test, the French short serve and clear badminton tests, the Vanderhoof golf tests, fox swimming test and the dyer backboard tennis to mention but a few Strand & Wilson (1993). Currently the AAHPER is sponsoring and engineering a publication of skill tests for over fifteen sports. The primary purposes of the AAHPER sports skill test project are as follows:

- Improved grading
- Better teaching and
- Better motivation of pupils' improvement.

As the sport skills changed over the years, so also have the skill tests changed. For instance, the volleyball game of today, demands different techniques for proficient play than did the version of volleyball game of the 1950's: so also are changes necessary in the means of evaluating performance in the sports. The major objectives of sports skill test among physical educators are to offer an objective, reliable and valid method for evaluating performance in motor skills. That is, to determine the extent of learning that has taken place as a result of instruction (Baumgartner and Jackson, 1999). The goal of practicals in physical education programme is to produce such desired changes in students' behaviour leading to wellness, longevity and life long active sports participation.

Observation has revealed that there is no uniformity in the assessment of practical skills in physical education most especially in our tertiary institutions. There is the question of objectivity, reliability and validity for every score awarded as grades for performance in Physical Education practicals. There is the need to evaluate the current practice with an intention to provide guidelines for enhancing objectivity.

Practical assessment requires an environment similar to the game environment and standardized procedures for administration. The validity of the assessment is judged to some extent on the consistency between testing and performing environment; however, it must be developed for the same age, gender and experience level of students or learners.

Evaluation within the Context of General Education

Education, throughout the world, has been conceived of as a set of learning tasks, which presumably are more difficult as one proceeds from the first to the last year of formal education. Examinations of some kind have been used to make decisions about who is qualified to go to the next level of academic pursuits. As part of the process, the result of examinations and teachers judgment have been turned into a grading system in which all students are classified annually or periodically based on their

performance. Grading is used to determine the extent to which students have attained the objectives of the curricular units. There are two systems of grading for Physical Education students namely:

Norm-Referenced grading: Involves the use of test scores to appraise a student's achievement in comparison to other students' scores of similar opportunities. There is an established standard or acceptable performance set by group performance. The point of reference is not a task per se but the performance in some more reference group. In general, this system is used to detect individual differences. Non-referenced test are used in curricular, guidance and research decisions.

Criterion – Referenced grading: Criterion – referenced grading deals with the evaluation of students' level of mastery or performance on a specific skill in relation to expected class standard. It does not consider individual differences but focuses rather on reaching a standard of performance on the specific skill under consideration. In this kind of grading, a standard of performance is identified and in turn referenced to criterion behaviour. Students who score above the standard are given a grade (Excellent) and those below the standard, another grade (poor) depending on the grade categories.

A universal goal of physical Education programme is to produce permanent measurable changes in student psychomotor behaviour (Ladan, 2009). For the achievement of psychomotor objectives to be evaluated, the measurement procedure such as sport tests, rating scales or other instruments must be in line with the instructional objectives. The virtue of skill assessment as discussed earlier is a subject of debate. Many skill assessment tests offer an objective, reliable and valid method for evaluating motor skill objectives, while others do not. Many researchers have developed skill assessment tests that might be adopted or modified for use in testing programme (Baugartner & Jackson (1999). Skill assessment tests are mostly useful for the evaluation of learning,

but they can also be used for *Placement, Diagnosis, Comparative evaluation, Production Motivation* among others

Assessment of Psychomotor Skills in Physical Education and Sports in Colleges/Universities

In time past, colleges of education and Universities where Physical Education courses were offered have used a team assessment approach. (Udoh, 2001). In this approach, all lecturers will determine the standard based on approved criteria and award marks based on their perception of the student's ability to perform the task. At the end, all the scores will be collected and the mean score will be used as the true score of the candidate. Interviews with old professionals revealed that this practice was adopted from the German approach of measurement which places emphasis on rigorous approach to physical education patterned after the Spartan type of education. The trend, which is common today, is an individualistic approach, whereby the teacher uses his own perception to award marks based on his perception of the student ability to perform the assigned task. This approach was patterned after the American style of education where every individual has the right to be taught and assessed the way they want. The subjective nature of this approach has raised curiosity as to whether; it is actually measuring the true ability of students. This has necessitated the clarion call for a review of our assessment procedure. This call becomes more imperative now than ever before, as most of the graduates produced in our colleges and universities with excellent grades in sports skills, as can be found in their transcripts, can not impart such skills to children of primary and secondary schools.

Who Should Assess and Who Can Assess?

There are a number of potential ways to assess within physical education. In order for assessment to be successful, it must be practical. Assessment can be completed by the teacher, student, or peer.

S**elf Assessment**: Self assessment can be used throughout the instructional process. This provides both a quick and practical way for the teacher to collect information. Student progress can be recorded using one or more of the following tools – student journal, notebook, index cards – that are completed and submitted to the teacher.

Teacher Assessment: Simple checklists, rating scales, and/or rubrics can be used by teacher to assess student performance. In addition, the use of technology in the classroom or gymnasium can be used to assess student performance and student behavior. The videotape, CD and DVD can be viewed at a later time.

Peer Assessment: With clear directions from the teacher**,** peers can collect information that can indicate student progress. Again, checklists, rating scales, or rubrics can provide criteria for making judgments. Peer assessment requires students to focus on the criteria, allowing them to develop observation skills. For peer assessment to be effective, the teacher needs to teach the observational
process.

When Should Assessment Occur?

Assessment should occur on a continuous basis throughout the period of instruction. Assessment used prior to instruction (pre-assessment) could provide information about the students and help establish learning objectives. Assessment used during instruction can provide feedback to both the teacher and students. Finally, assessment at the end of instruction (post assessment) can determine if learning objectives were met and/or if changes or more work in a particular area is warranted.

1. **Formative versus Summative**:

a. Formative Assessment is done continuously throughout the learning and instruction period. This type of assessment provides feedback that can be used to alter, fine-tune, or modify

what has been done. Both teacher and student can use the information gained to improve either teaching practices or learning methods.

Traditionally, this is not graded but used as a diagnostic tool.

b. Summative Assessment occurs at the end of the learning unit. "The purpose of summative assessment is to measure how well students have learned key content and skills as defined by the unit's learning goals and objectives" Onowhapor, Money and Eboh, 1998)

Pre-Assessment versus Post Assessment:

a. Pre-assessment tools are used at the beginning of instruction. Results from pre assessment are used as a basis for setting reasonable and attainable goals. This allows teachers and students to identify and work on areas that need Improvement.
b Post assessment tools are used at the end of the learning unit to evaluate student progress and achievement. The post assessment results can be compared to the pre assessment results to measure how well individual students have mastered content and skills and to evaluate the effectiveness of instruction.
c. Some of the assessment tools may be used for both pre-assessment and post assessment. However, these assessments have to be on line for distance learners.

Electronic (e) Learning and Assessment in Physical Education

Technology and the Internet have dramatically changed education in the across the globe. Distance education, either in form of e-learning, interactive video or online courses has been a prominent feature of the global educational landscape. As a result, everyone seems to be examining the opportunities and challenges of online education for each subject matter area, including physical education. Online courses in physical education, if designed and implemented appropriately, may serve as an appropriate

programme of instruction for individuals who are unable to be in school-based settings, such as students located in remote geographical areas, students with special needs, or working students. A quality online course might serve as a vehicle to provide increased opportunities for physical education in a different and new learning environment.

Assessment is central to learning and teaching. What is assessed defines what is taught and how it is learnt. The process of assessment, in turn, shapes institutional practice and affects a learner's view of the value of engaging in learning. Getting assessment 'right' is essential to the wellbeing of learners and institutions, and instrumental to the achievement of national strategies for widening participation in e-learning. Given the potential importance of e-assessment, developing a clearer understanding of what constitutes effective practice in relation to its use is now of key importance.

E assessment has been defined in its broadest sense as both computer-assisted and computer based assessments which can increase the range of what is tested Lyons et. al. (2007). It can provide evidence of both cognitive and skill based achievements in ways that are durable and transferable. It can enhance the validity of assessment systems and encourage deeper learning. Adopting e-assessment has more radical implications than just changing the mode of assessment – it can challenge assumptions about the way the education system is structured and change patterns of work for staff and students. If examinations can be taken on demand or when a tutor feels the learner is ready – as is the case with many professional and vocational qualifications, individuals can be fast tracked when they excel in certain aspects of the curriculum. This represents a considerable challenge to the formal education system, but may increase the motivation of more young people to stay within it. It has also opined that when interactive online tests are available for formative assessment, there is evidence that learners retake tests voluntarily and that availability of these any time, anywhere, can help to establish more regular patterns of study (Attewell, (2005).

Interactive tests are a valuable means of engaging learners, as has been shown by innovative work with formative assessments on mobile devices designed for disaffected learners, that is, those who are dissatisfied with the way full time educational programmes are run or those studying in workplace environments. Assessments built around virtual worlds can remove the tedium associated with traditional examinations for all types and age groups of learners. For many, including those with cognitive and some physical disabilities, e-assessment can offer a richer, more engaging, and a potentially more valid assessment experience than paper-based testing. The challenge is to make more use of this motivational potential in high-stakes examinations. (Attewell, 2005) (NASPE (2006)submitted that,to ensure a fully inclusive experience, objective tests must provide built-in accessibility features that are customizable for each candidate in advance – a challenge that will increase in importance as e-assessment is more commonly used. This is especially the case when teaching staff are responsible for question authoring. Questions in item banks are to be assessed and indexed so that each candidate experiences a test of equal measure to their ability. While computer-based assessment may offer a reduction in the time spent marking, it will for these reasons shift the focus of effort for staff to before, rather than after, the examination period. However, a greater variety of methods used in assessment will undoubtedly benefit those disadvantaged by pen and paper tests. However, an understanding of the potential of e-assessment tools and systems needs to be matched by awareness of their pedagogic benefits and pitfalls.

Examples of ICT applications that can be used for evaluation in physical education

There are a range of hardware applications that can be used for evaluation in physical education. Some of them are:

Cameras

Video cameras can provide audio visual content of experienced performers in action and can be used to inspire, to

demonstrate correct techniques and to develop pupils' understanding and knowledge of the subject. Learners can also evaluate and improve their own games strategies, gymnastics sequences, trampolining routines or dance compositions, particularly if they are able to look at their performances in slow motion or from a different viewing angle.

Cameras can also be used as an assessment for learning tool and as a form of classroom management.

Mobile camera phones

Mobile phones can serve as an assessment tool if learners are allowed to use their mobile phones within physical education lessons. For example, during an orienteering unit of work learners can take photographs with their phones of the items they were trying to find and use the picture as evidence of completion of the course. They can also take photographs of certain postures/actions required for assessment and submit to the assessor. Pictures taken with their phones can be transferred to the computers for ease of assessment.

Motion analysis software

The use of motion analysis software within physical education is becoming a more mainstream means of evaluating pupil performance and enhancing learning. There are many software packages available. Software such as 'dartfish' can provide learners with visual images of their performances that can be slowed down but also enlarged. This allows teachers, using a digital camera, to split the screen into progressive frames and is therefore useful for highlighting techniques in some of the athletic field events or trampolining routines. Freeze-framing and overlay facilities are also a useful application. The footage can be saved and stored for moderation purposes.

Film editing in Physical Education

Video footage taken in one lesson can be edited and used at the beginning of the following lesson to highlight the

achievements of pupils but also to identify common faults. This enables teachers and learners to study individual and team performance across a range of activities.

Portable multimedia players

Portable multimedia players (**PMP**), sometimes referred to as a **portable video player** (**PVP**) or an Internet Media Tablet (IMT), are capable of storing and playing digital media. Digital Audio Players (DAP) that can also display images and play videos are portable multimedia players. Like DAPs, the data is typically stored on a hard drive. Micro drive or flash memory. Other types of electronic devices like mobile phones are sometimes referred as PMPs because of their playback capabilities.

Interactive whiteboards

An interactive whiteboard is a surface onto which a computer screen can be displayed through a data projector. As it is touch-sensitive it allows teachers to use a pen or finger like a mouse to control the computer from the board and save any changes for future lessons. In addition, multimedia resources can be used as well access to the internet and websites to support teaching and learning as well as evaluation. Interactive whiteboards are a useful teaching aid in classroom-based lessons as they can support learning through presentations, demonstrations and modelling, actively engage learners and improve the pace and flow of lessons. A laptop computer that is linked to a data projector can also enable you to use this type of resource in a sports hall or gymnasium.

Voice projection systems

The use of voice projection systems are an innovative way of communicating with pupils specifically within physical education. The FrontRow To Go system is one example of a portable voice projection that can be used wherever you teach/assess. The system includes a lightweight, wireless hand-

held radio microphone and head microphone which transmits a teacher's voice to a base-station. This then amplifies, enhances speech frequencies and broadcasts the voice from speakers to the whole class. It is simple to set up and very effective. The system can be used either from a mains electrical socket or has rechargeable batteries giving over six hours of power. The system can increase pupil attentiveness and concentration, improve teaching and learning and reduces voice strain.

Challenges of e Assessment of Psychomotor Skills in Physical Education

Physical education, as it is with many practical based subjects requires that learners have to showcase what they have learnt over a period of time. While some physical educators have embraced online courses, an equal number are unconvinced of such approaches. Online physical education is neither inherently good nor bad, and the value of any new educational technology or pedagogical strategy must always consider the question of learning. Commonly accepted types of technology (Internet, video, computer assisted instruction, heart rate monitors, pedometers, PDA's, etc.) are encouraged and should be considered by physical education teachers as tools to enhance learning (Baumgartner and Jackson, 1999). Nevertheless, many physical educators still advocate face-to-face teaching to ensure that learning takes place and that motor movements and exercises are performed efficiently, correctly, and safely. Paradoxically, many educators and parents see school physical education and physical activity in competition with the Internet and other visual media for a youth's precious time to learn (Lohman 2007): therefore any form of technology must be examined from political, economic, socio-cultural and ethical perspectives.

One of the greatest challenges of e assessment is the ability to choose the best and most appropriate ways of using these electronic tools. Given the fact that many computer-assisted or

computer based format abound, a teacher of physical education must be able to determine, and invariably choose the most appropriate form of e assessment to ensure both validity and reliability of the test.

Another very crucial element that poses serious threat to the adoption of electronic assessment is the adaptation of most psychomotor skills for online assessment. The face to face teaching and assessment of psychomotor skill in physical education, which has been used over several decades; despite the shortcomings in terms of subjectivity seems not to be giving way easily to e assessment. This is because; many teachers of physical education still find it difficult to comprehend how practical or psychomotor skills can be measured without seeing the examinees. In a similar development, many distance learning students live in very remote and rural settings where access to infrastructure is unavailable. How can one explain a situation whereby, the candidate has no access to personal computer, to say less about availability of internet service? It will therefore mean that physical education teachers require special training in the design and adaptation of instructional packages, including assessment to be able to meet the challenges posed by this new trend in e assessment.

However a review of the empirical literature by Russell, (2001) as regards online and distance learning in the field of education (Grades 7-12), showed no significant differences in learning when comparing face-to-face learning with online approaches. Similarly, there are no known empirical studies in physical education comparing face-to-face learning with online approaches, but the need to initiate future research in this area exists. Current physical education research for effective teaching and learning has been based on face-to-face student and teacher interaction (Fadoju, 2011) which implies that online physical education still remains an exciting and attractive, yet untested, alternative method to delivering quality physical education; perhaps because of the complexity of e-assessment

Recommendations

- The National Universities Commission should set up a committee for the review of assessment procedures in practical of Physical Education. The committee should also be empowered to work out standard achievable instruments for measuring psychomotor skills.
- Lecturers of physical education should be subjected to training and retraining to enable them learn and master modern techniques of measuring sports skill.
- Equipment and facilities that will enhance the online teaching of sport skills should be provided in all teacher training institutions where physical education is taught.
- There is need, also to review the current curriculum of Physical Education to meet the needs of our present society with emphasis placed on wellness, longevity and sports participation which can be learnt online rather than the current physical education teacher syndrome.

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9

TEACHERS' KNOWLEDGE OF TEST ITEM ANALYSIS AND STUDENTS' PERFORMANCE IN CHEMISTRY: IS THERE ANY CONNECTION?

J. A. Opateye

Introduction

Chemistry as a core science subject in the senior secondary school curricula is an important science subject for all science-based careers any student can specialize in. The objectives of teaching and learning chemistry at this level of education are to

- facilitate a transition in the use of scientific concepts and techniques acquired in integrated science to Chemistry;
- provide the students with basic knowledge in chemical concepts and principles through efficient selection of content and sequencing;
- show chemistry and its inter-relationship with other subjects;
- show chemistry and its link with industry, every day life, benefits and hazards;
- provide a course which is complete for pupils not proceeding to higher education while it is at the same time a reasonably adequate foundation for a post-secondary chemistry course. (Federal Republic of Nigeria, 1985, p. 76).

These laudable curriculum objectives cannot be achieved if the teaching approaches and students' evaluation modes are not well structured and tailored towards effective learning of chemistry.

To assess the students' performances in chemistry there must be an evaluation. Bandele (2003) described evaluation as a task which assesses students' attainment of the learning outcomes. The learning outcomes are what students are expected to know, understand or be able to do in order to be successful in the subject. The evaluation is very necessary and it is often based on what the students were taught. The essence is to ascertain the assimilation of subject taught and learnt. One of the keys to successful learning is the aligned curriculum (Grossman & Thompson, 2001). This means that learning outcomes are clear, learning experiences are designed to assist student achievement of those outcomes, and carefully designed assessment tasks allow students to demonstrate achievement of those outcomes. Even though the assessment of students has been a routine in school, because of the poor performance of students in the subject, there is need for the sincere teacher to consider his manner of assessment.

Anyanwu (2002) gave a suggestion by directing these questions to the teachers to be answered by them: How do you currently assess your students? List the methods you use; is each assessment worth doing and can/do you explain to your students why? Can you explain how the assessment methods you currently use are matched to the expected learning outcomes? What skills and capabilities do you want your students to leave your unit/course with? Approximately how much does each assessment process cost students and staff in terms of time taken and resources used? Do you feel you might be over assessing and how do you know? What criteria do you use? Are they yours, or can you involve students themselves in formulating them? Do the students know the criteria and do they really understand them? Is the feedback you give your students clearly related to your assessment criteria? How well does the feedback students receive on assessed work help them to know how they are doing? How much practice and guidance do students get in the chosen assessment methods? What assessments do students enjoy and why? How do you know that the students find your assessments useful? And, in what ways do the tests help your student learn? These questions are very

pertinent to answer by teachers in order to give unbiased evaluation of students' performance.

Adeiza (2011) emphasised that evaluating learners can profoundly shape the educational experiences of students. One of the challenges of effective assessment is to ensure that there is a close alignment between the learning goals, the teaching and learning activities aimed at meeting learning goals and the assessment tasks used to assess whether learning goals have been met. Current best practice includes assessment which is aligned to learning goals which focus not only on content knowledge but also on process and capabilities.

The evaluation of learning is a systematic process involving testing, measuring and evaluation. In the testing step, a teacher needs to choose the best instrument that can test the minds of students. According to Elvin (2003) testing will produce scores or marks with many variations either in homogeneous or heterogeneous forms that will be used to categorize the scores based on the level of achievement or what the teachers desire to measure the achievements of students. The evaluation will be done based on the categories of the measurement used in which the item is used to test the effectiveness of teaching and learning in achieving its objective. The principals of authenticity, reliability, linearity, practicality, objectivity and easy-evaluation are to facilitate recording results so that the final results will not cause any questionings of reliability (Bandele, 2003).

Based on the above view, Nitko (2001) had earlier affirmed that the process of evaluation consists of testing and measuring activities, beginning with determining the desired learning objectives and ending with evaluating how far the results obtained can be improved. It is a continuous process and not just by giving attention to certain components in teaching and learning, which means that the evaluation has to happen and be thought of during the beginning of teaching but not only during the end of the process.

Testing, measurement and evaluation are the few important concepts in the world of education. These terms are usually used indiscriminately replacing the true meaning of each term. For example, when some teachers give out test papers, they may say that they are measuring the performance of students or evaluating the performance of students in a classroom without thinking about what the real meaning or the specific meaning of the terms are. There are different assessment tasks a professional teacher can use to assess the students' performances, which basically depend on the skill he employs in setting his test items (Allison, 1984). The test items must clearly align with the learning outcomes and teaching and learning activities in chemistry. The methods a professional teacher can employ to evaluate the students' performance in chemistry include the following: Short form tests are also known as objective tests. They include multiple choice, completion, true-false and matching types, of which multiple choice is the most commonly used. A multiple choice test item consists of a statement, called the stem, and several alternative statements, one of which is the correct answer, while the others are distracters. The students are made to pick the correct answer and write it on the answer sheet. This kind of test is essential in one way in the sense that the question has the right answer, mixed up among the distracters.

For example:
Question: All these metals are alkali metals EXCEPT
A. lithium B. francium C. sodium D. aluminium

To set the short form test, known as multiple choice items, the following hints as stated by Bresnock (2000) and Hostetter (2005) would be worth considering. The stem should consist of a single, clear idea. It should make sense independent of the rest of the question. Stems stated in negative terms should be avoided as these are more difficult to understand and may cause confusion.

Also, all the alternatives should be grammatically consistent with the stem and similar in form and length to one another. In addition, the distracters should be made plausible by using common misconceptions and typical student errors. If you use the alternatives 'none of the above' and 'all of the above', it should be included as the incorrect answer about 75% of the time. And lastly, the correct answer should appear without pattern and equally often in each of the alternative positions.

The next is the short answer test. This simply requires a brief answer consisting of a phrase, sentence or short paragraph.

For example:
Question: *Write a brief definition of chromatography.*
Essays require students to select and organize material on a given topic. The essence of this method of evaluation is to attest their writing skill and the ability to develop an argument and use evidence to support the argument. Essays may vary by number of words to use from a single page (about 300 typed words) to major assignments of ten pages (3000 words). Essays may be written under timed examination conditions or set as research assignments. According to Ahuman (2001), under a timed examination conditions, the students find it difficult to write a convincing accurate essay on a given topic.

For example:
Question: Write a descriptive essay on 'organic chemistry'

Other methods available for assessing the students' performances include matching test, presentation, dictation, and project. However the method to be used and the teacher knowledge of selecting appropriate test item analysis is equally important. The same way teaching is accustomed to teacher, test item analysis is also a compulsory part of teaching which must be conducted at every lesson rendered periodically. It is a way of attesting achievable objectives of what was learnt during classroom lesson.

Through test item analysis, the students score and performances are determined. The results are used to decide on the fate of each student. What then is item analysis? Ajayi (2006), in a simple term said the analysis of students' responses to each item on the test is called item analysis. On the part of Haladyna (2002) item analysis is a process of examining class-wide performance on individual test items. Simply put, the investigation of the final results of the students based on the answers made on given set of questions.

There are three common types of item analysis which provide teachers with three different types of information. Haladyna (2002) listed the differences as difficulty index which is where teachers produce a difficult index for a test item by calculating the proportion of students in the class who got an item correct. The larger the proportion, the more the students who have learned the content measured by the item. The second one is discrimination index which is a measure of an item's ability to discriminate between those who scored high on the total test and those who scored low. Though there are several steps in this calculation, once computed, this index can be interpreted as an indication of the extent to which overall knowledge of the content area or mastery of the skills is related to the response on an item. Perhaps the most crucial validity standard for a test item is that whether a student got an item correct or not is due to their level of knowledge or ability and not due to something else such as chance or test bias.

In addition to examining the performance of an entire test item, teachers are often interested in examining the performance of individual distractors (incorrect answer options) on multiple-choice items. By calculating the proportion of students who chose each answer option, teachers can identify which distractors are working and appear attractive to students who do not know the correct answer, and which distractors are simply taking up space and not being chosen by many students. To eliminate blind guessing which results in a correct answer purely by chance (which

hurts the validity of a test item), teachers want as many plausible distractors as is feasible. Analyses of response options as cited by Duncan (2003) allow teachers to fine tune and improve items they may wish to use again with future classes. On the score sheet, the students can be rated in these grades based on performance and achievement of the test items. The importance of the test item analysis to the students' performances is highlighted by Ebel (2000) in these following points that, item analysis data are useful in improving the test, it serves as a basis for class discussion, it diagnoses the students' strengths and weaknesses, and also increases the skill of item construction.

Item analysis gives a teacher a way to exercise additional quality control over the tests. Well-specified learning objectives and well-constructed items gives an advantage in the process of test analysis, and also gives feedback on how successful a teacher is toward his teaching. Kelly (2006) said that a test as a whole is meant to estimate performance across the full domain of learning outcomes the teacher is targeting. The first step to be taken in the procedures for test item analysis is to consider the principles underlining setting good questions that will be needed for analysis of answers given based on the test item. Grossman and Thompson (2001) itemized the followings as the principles that should underline good question design. They are clarity, reliability, validity, authenticity, fairness, time schedule and classroom constrain.

Procedures for test item analysis can be done in a way that it will be easy for the teacher to assess his results or findings. Buchman (2000) suggested the following procedure for analyzing test items. Identify the upper 10 scorers and lowest 10 scorers on the test; construct an empty chart for recording their scores. The chart should lists the students down the left by name and group each item number across the top. For a 20-item test, there will be 20 columns for recording the answers for each student. Then the student data will enter into the chart just constructed, taking the top

10 scorers, and write each student's name down the left, one row for each student. Skip a couple rows, and then write the names of the 10 lowest-scoring students, one row for each. Going student by student, enter each student's answers into the cells of the chart and go back to the upper 10 students. Count how many of them got Item 1 correct and write that number at the bottom of the column for those 10. Do the same for the other 19 questions.

Difficulty index as described by Haladyna (2002) is just the proportion of students who passed the item. Calculate it for each item by adding the number correct in the top group to the number correct in the bottom group, the result is divided by the total number of students in the top and bottom groups, which are 20. Like this:

$$\frac{R_U + R_L}{20}$$

Record these 20 numbers in a row near the bottom of the chart.

Discrimination index is designed to highlight to what extent students in the upper group were more likely than students in the lower group to get the item correct. It is designed to get at the differences between the two groups. Calculate the index by subtracting R_L from R_U, and then dividing by half the number of students involved (10)

$$\frac{R_U - R_L}{10}$$

Record these 20 numbers in the last row of the chart and then enter these discrimination indexes into a second chart.

Next, construct a second chart and copy the numbers from the sample onto the chart. Copy the numbers from the first row of headings in the sample and pick up the first chart again, there you will find the discrimination indexes you need to enter into the second chart. Enter the last row of numbers into the body of the second chart. List each of these discrimination indexes in one and only one of the 20 columns. List each in the column corresponding to its difficulty level. For instance, if item 4's difficulty level is .85

and its discrimination index is .10, put the .10 in the difficulty column labelled ".85." This number is entered, of course, into the row for the fourth item.

Study the second chart and see how many of the items are of medium difficulty. These are the best, because they provide the most opportunity to discriminate (to see this, look at their maximum discrimination indexes in the first row of headings). Items that most everybody gets right or gets wrong simply can't discriminate much. The important test for an item's discrimination is to compare it to the maximum possible. How well did each item discriminate relative to the maximum possible for an item of its particular difficulty level? If discrimination index is near the maximum possible, very discriminating item. If discrimination index is negative it implied bad item (delete it if worse than -.10) (Kelly, 2006).

Examine whether all the distracters attracted someone. If some did not attract any, then the distracter may not be very useful. Normally you might want to examine it and consider how it might be improved or replaced. Look also for distractors that tended to pull your best students and thereby lower discrimination. Consider whether the discrimination you are asking them to make is educationally significant (or even clear). In constructing a test item, the following guidelines were established by Anyanwu (2002) and Elvin (2003), that teachers should consider their reason for testing, maintain consistency, use testing methods that are appropriate to learning goals, help students to prepare irrespective of the gender, use consistent and simple language, and should design the test item that will allow a range of learning by the students.

Other theories, of special interest here, suggest that much depends on the gender of the teacher. One theory asserts that the teacher's gender shapes communications between teacher and pupil, while another says the teacher acts as a gender-specific role model, regardless of what he or she says or does. According to this second theory, students are more engaged, behave more

appropriately, and perform at a higher level when taught by one who shares their gender. Tests of these theories have relied primarily on the teachers' gender (Brophy, 2000). School learning generally is never comprised of one gender teacher alone; every gender of the teaching staff is very important and has major roles that benefit the students, irrespective of the learning ability or learning disability of the students. Both male and female teachers are very important in school learning setting. As observe by Thomas (2001), the differences between male and female teachers are visualized in varied ways. For instance, the male teachers exhibit verbal skills which are different from the female teachers: likewise the voice pitches of the female teachers are usually higher than that of the males. It is not only gender that could influence teachers' knowledge of test item analysis but also type of school (private or public) might do the same.

The circumstance of school in Nigeria gave rooms for establishment of school by whoever, as a result, school in Nigeria is not predominantly own by the government as it was in the past. The two nature of school in Nigeria are private school and government school, which is known as public school. Ajayi (2006) contrast the difference between the public and private schools is basically on management, discipline, finance, staffing, and quality education. In his view, private schools got the pass mark. Beside the government and private own schools, schools are separated in types, there are single sex schools, mostly of girls only or mostly boys only ; and co-educational schools, where all student gender meet together for academic learning. It is believed that this type of school equally adds to the performances of students in school.

A study by Duncan (2003) found out that females frequently have more confidence in expressing themselves in the single-gender setting. This study also found out that girls found it easier to contribute to oral discussions and to ask questions without being ridiculed in a single gender setting. According to Haladyna (2002), critics of single-sex education argue that girls-only schools are unnatural social settings which isolate girls from boys. In well-

managed co-educational environments boys and girls learn to respect and value each other's ideas. They learn to listen and communicate with each other. Isolating girls and boys in single-sex schools is considered a barrier to them developing the effective interpersonal skills they will need to function as grown-ups in their society. Designing test is an important part of assessing students' understanding of a given lesson and their level of competency in applying what they have learnt. In chemistry, the assessment can take different forms like quiz, essay, matching test, multiple test, practical etc. In generating items for any of these test formats most teachers never considered or did not know the essence of test item analysis and were unable to construct a tangible test item that will benefit the students, which simply reflects their inadequacy in preparing the test item appropriately. On proper examination of the most classroom chemistry test items drawn and administer to students, one wonders if chemistry teachers possess requisite knowledge of test item analysis. It is believed that students' academic achievement in classroom tests could be judged by the proficiency of teachers in test item analysis. It is therefore pertinent to ascertain if any association exist between teachers' test item analysis knowledge and students' performance in chemistry.

Research Questions

The following research questions guided this study:

1. How does Chemistry teachers' test item analysis knowledge vary considering their gender and age?
2. To what extent do chemistry teachers' professional qualification and school type influences their test item analysis knowledge?

Research Hypotheses

1. There is no significant relationship between teachers' knowledge of test item analysis and students' achievement in chemistry.

2. There is no significant relationship between (i) male, (ii) female teachers' knowledge of test item analysis and students' achievement in chemistry.
3. There is no significant relationship between (i) public, (ii) private secondary teachers' knowledge of test item analysis and students' achievement in chemistry

Methodology

The study used a survey research design to collect data from the respondents. The population consisted of Senior Secondary school two chemistry students in education districts I and II of Lagos state. Six schools each were selected from each district from which chemistry teachers were used for the study. Twenty chemistry students from each of the twelve schools were selected to make two hundred and forty chemistry students used with a simple random sampling. Two instruments were used; the teachers' knowledge of test item analysis test (TKTIAT) and chemistry achievement test (CAT) students. TKTIAT had two sections A and B. Section A elicited teachers' background information while section B consisted of 30 item analysis based items to test teachers' knowledge using Yes/No response format. The reliability coefficient of the instruments was 0.77 using Kuder Richardson 20. Chemistry achievement test (CAT) contained 30 items on five topics in chemistry: Periodic table, mole concept, state of matter, oxidation and reduction and hydrocarbon. Content validity was ascertained by experienced chemistry teachers who modified the items. After pilot testing, the reliability coefficient was 0.81 using Kuder Richardson 20. Each of the ten schools was visited to administer the instruments to the teachers and students and the data were collected within three weeks.

Data collected were analyzed using relevant statistical tools, frequencies, percentages and descriptive were used to answer research questions 1 to 3. Hypotheses 1 to 4 were tested using Spearman Rank Order Correlation to establish relationship. Each of the hypotheses was tested at 0.05 level of significance.

Results and Discussion

Research question one: How does Chemistry teachers' test item analysis knowledge vary considering their gender and age?

Table 2: Descriptive of chemistry teachers' test item analysis knowledge by gender and age

Variable	Category	N	Mean	Standard Deviation	Standard Error
Gender	Male	7	18.20	2.235	0.182
	Female	5	18.67	1.896	0.200
Age	31 – 35	3	19.20	1.605	0.131
	36 -40	5	15.50	0.504	0.065
	Above 40	4	20.00	0.000	0.000

From Table 2, the mean value of male teachers' test item knowledge was 18.20 while that of female teachers was 18.67. Female teachers slightly had higher knowledge of test item analysis than the male teachers. Considering the teachers' age, those whose ages were above 40years had highest test item analysis knowledge of mean value of 20.00. They are followed by those with ages between 31 and 35years having a mean of 19.20 while those between 36 and 40 years of age had the least test item analysis knowledge. Therefore, it is deduced that female teachers had better knowledge of test item analysis and also older chemistry teachers had best knowledge of test item analysis. The higher knowledge of test item analysis of female chemistry teachers was evident in Thomas (2007) report that female teachers are more careful in constructing test items than the male teachers. This implies that male teachers are not always careful when generating test items for students.

Research Question 2: To what extent do chemistry teachers' professional qualification and school type influence their test item analysis knowledge?

Table 3: Descriptive of teachers' test item analysis knowledge by qualification and by school type

Variables	Category	N	Mean	Standard Deviation	Standard Error
Qualification	Professional	8	19.20	1.605	0.131
	Non-professional	4	17.00	2.172	0.229
School Type	Public	7	17.75	3.132	0.350
	Private	5	19.67	3.158	0.288

Table 3 shows that chemistry teachers who are professional obtained mean test item analysis knowledge of 19.20, while non-professional chemistry teachers had a mean of 17.00. This implies that professional chemistry teachers had better knowledge of test item analysis than non-professional ones. Also, the table reveals that chemistry teachers from private secondary schools had higher knowledge of test item analysis with a mean of 19.67 as against those from public secondary schools with a mean of 17.75. Mertler (2003) also revealed that trained teachers always bring their test item construction skills to play when assessing learners so as to develop items that are understandable to all testees. But since the untrained teachers lacked such knowledge and skill they would tend to generate items that confuse the learners when attempting the items without considering the difficulty and discriminating levels of the questions.

Testing of Hypotheses

Hypothesis one (HO_1): There is no significant relationship between teacher's test item knowledge and students' achievement in Chemistry

Table 4: Correlation of Teachers' Test Item Knowledge and Students' Achievement in Chemistry

Variables	N	Mean	Standard Deviation	Df	R	P
TIAK	240	18.38	2.122	238	0.185	0.004
SAC	240	15.89	4.713			*

* = Significant at P < 0.05

Key: TIAK = Test Item Analysis Knowledge
SAC = Students' Achievement in Chemistry

Table 5 reveals that the mean test item analysis knowledge of male teachers was 18.20 and mean students' achievement in Chemistry was 15.93. The R value of 0.238 with P value of 0.003 showed that there existed significant positive low relationship between male teachers' test item analysis knowledge and students' achievement in chemistry. This implies that if the male teacher's knowledge of test item analysis is enhanced, there is also tendency for students' achievement in chemistry to be increased. It is also

shown on Table 5 that female teachers' test item analysis knowledge mean was 18.67 while the mean achievement in chemistry for students was 15.82. The correlation coefficient (R) of 0.022 depicts a very low positive relationship between female chemistry teachers' knowledge of test item analysis and students' achievement. The P value of 0.835 reveals that the relationship is not significant. Therefore, there was no significant relationship between female teachers' test item analysis knowledge and students' achievement in Chemistry.

Hypothesis Three (Ho_3): There is no significant relationship between (i) Public (ii) Private secondary school teachers' test item analysis knowledge and students' achievement in Chemistry

Table 6: Correlation of Public and Private School Teachers' Test Item Knowledge and Students' Achievement in Chemistry

School Type	Variables	N	Mean	Standard Dev'n	Df	R	P
PUBLIC	TIAK	90	17.00	2.172		0.127	0.233ns
	SAC	90	13.09	4.077	88		
PRIVATE	TIAK	50	19.20	1.605		-0.127	0.121ns
	SAC	50	17.57	4.256	148		

ns = Not Significant at P < 0.05
TIAK = Test Item Analysis Knowledge
SAC = Students' Achievement in Chemistry

In Table 6, the mean score of public school chemistry teachers' knowledge of test item analysis was 17.00 and the mean for students' achievement in chemistry was 13.09. The correlation value (R = 0.127) implies that the relationship between public school chemistry teachers' knowledge of test item analysis was positive, low and insignificant due to P value of 0.233 which is greater than 0.05. Therefore, there is no significant relationship between public secondary school teachers' test item analysis and students' achievement in chemistry.

Also, in Table 6, it is revealed that the mean private school teachers' test item knowledge was 19.20. The mean students' achievement under the private school teachers was 17.57. The correlation coefficient (R) of -0.127 was not significant as P >0.05.

This means that there is no significant relationship between private school teachers' test item analysis knowledge and students' achievement in chemistry. Ajayi (2006) also found out that school type influence the quality of teachers and invariably would affect knowledge of teachers test item analysis which would also have positive effect on students' performance. Private school authorities monitor teachers to use their knowledge of test item analysis when generating questions for both formative and summative purposes.

Conclusion and Recommendations

In order to evaluate learning outcome, a teacher measures performance of students using tests tools constructed and item analysis to ensure quality of such tools. The relationship between measurements and evaluation in education is very important to interpret the result of the students' learning. In ensuring the interpretation of a test to be of good quality, the teachers need to ensure that the standard value of discrimination index, difficulty percentage level and distracter level are at the best levels. The findings showed that private secondary school teachers were more proficient in test item analysis than those in public schools. By implication, it is evident that significant positive relationship existed between teachers test item knowledge and students' performance in chemistry. Gender difference in test item analysis knowledge has serious ramifications in the assessment of the students and the educational system as a whole. Therefore the following suggestions are essential to improve the knowledge of practicing chemistry teachers in test item analysis. Educative programmes or training should be organized for all teachers and female chemistry teachers in particular to enlighten them better on test item analysis. This would increase their knowledge on test item construction thereby bringing them into equal level with the male chemistry teachers. Public school chemistry teachers should be encouraged and monitored to use the knowledge of test item analysis when generating test items for students.

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10

SOME INDICES FOR MEASURING THE ADEQUACY OF ADOLESCENT AND YOUTH BEHAVIOUR

A. I. Ojeme

Introduction

Adolescent and youth behaviour have been described as complex response patterns. This may not be unconnected to the fact that adolescence is a period of life where the individual still experiences developmental changes in his/her social, interpersonal relationship with peers and encounters with parents, teachers and significant others. At this stage of life, adolescents and youths could pose a lot of challenges or problems in their adjustment bids, which result in a variety of inappropriate emotional responses or feelings or behaviour. Akinboye (1987) asserted that emotional responses of the adolescent and youth are so dynamic, and therefore, could not easily be tracked down by the systematic assessment models suitable for children and adults. Many scholars consider 12 or 13 years to 18 or 19 years as a period of adolescence. It marks the transition of childhood to adulthood and is characterized by stress. Adolescents want to establish their own identity, resist parents' authority and strive to identify with their peers. They want to love and be loved. The emotional states seem to reach a new intensity. Affection, aggression and fear are most likely to cause problem. The emotional changes could partly be due to the changes in the body chemistry and environmental factors such as the use of mass media, electronics and conversation with peers and so on. In this context, the adolescent period is

viewed as a period where the individual is involved in anti-social behaviour often referred to as 'delinquency'. Unachukwu and Igborgbor (1991) posited that delinquency tends to increase slowly up to about 15 years, increases rapidly up to age 19 and slowly again up to 25 years. There are other observed adjustment behaviours which are sex related, job-related, personal concerns and other psychological problems.

The measurement of the adequacy of human behaviour**,** especially that of the adolescent and youth are said to be very challenging as a result of the dynamic nature of their emotional responses. Measurement is a vital element especially in Guidance and Counselling activities. Oramah (2012), asserted that measurement or testing is tremendously useful in establishing the problem, the ability and the personality of the client, so as to obtain useful information about the clients for needed behaviour modification therapies to be effective. Inadequate systematic study of the adolescents and youths may result in the inability to obtain basic information which is needed for proffering solutions to the adolescents and youths problems. Scholars have always addressed the deviant behaviour problems of adolescents and youths with little emphasis on the indices for measuring the adequacy of adolescents and youths' behaviour. The implication of this is that solutions to adolescent and youths' misdemeanor may not be effectively proffered, without first identifying the status of the clients. It is observed that the analysis of adolescent behaviour by counsellors overly focuses on their left-side characteristics i.e. the negatives of adolescents. While this is crucial, it is also considered important that behaviour modification of the adolescent would be facilitated by benchmarking the indices of adequate adolescent behaviour. This paper is conceived and configured to fill this gap

The thesis of this paper therefore, is that considering the importance of helping the adolescents to grow up properly or acquire socially acceptable behaviour, the counsellor will be well aided and achieve better results in his or her task by providing a

battery of indices useful to ascertaining the adolescent adequate behaviour. This paper will therefore, examine the following:

i. The emotional, mental and social characteristics of the adolescents and youths.
ii. Implications for counselling practice.
iii. Conclusion and recommendation.

The Emotional, Mental and Social Characteristics of the Adolescents and Youths

It is common knowledge that prevention of a problem is better than allowing the problem to occur with consequent search for solutions. This is truein the management of adolescents and youths misdemeanor. It is difficult to change undesirable behaviours once they have been acquired. Psychologists have described adolescents and youth to be highly prone to juvenile behaviour. As remarked in the introduction, this may be due to the many developmental changes and adjustment behaviour patterns of the adolescents.

The Emotional Characteristics

Emotion refers to response patterns or behaviours or feelings. Feelings manifest in different behaviour patterns such as fear, happiness, worry, range, depression, love, sadness and so on. Adolescents' emotions change so frequently in their manifestation at short intervals. They are sensitive and respond to changes in their environment as often as it occurs. Their moods change rapidly, swinging between happiness, distress, self confidence and worry. Akinboye (1987), opined that adolescents' emotions are disorganizing affective behaviours such as threats, conflicts, frustration, depression, fears and possible anxieties. It is therefore considered that the elements of adequacy of adolescent emotional behaviour could be profiled as follows:

i. Minimal expression of fear and anxiety.
ii. Manifest emotional stability.
iii. Mood control.

iv. Manifesting meaningful self confidence and control.
v. Avoidance of unreasonable and unwanted emotions towards others and oneself.

A healthy personality is one, who is emotionally stable, well adjusted and also function efficiently. Iwuama and Maduka (2014), opined that an emotionally stabled individual enjoys a balanced level of all pleasures and adventures of life and is blessed with a great presence of mind and self confidence. If adolescents and youths are emotionally stable, they would live a more fulfilling, rewarding and life devoid of antisocial behaviours which is very common among adolescents and youths in the Nigerian society today.

Mental Characteristics

Psychologists have discovered that adolescents manifest different modes of thought from that of children. Their intellectual abilities increase more rapidly until the age of 20 years or slightly older. However, as the adolescents approach the close of this period, the rate tends to slow down. Unachukwu and Igborgbor (1991) stated that the adolescent period brings changes in breath of knowledge, understanding and judgment. It's a period that marks improvement not only in the ability to think of the past but also in terms of the future. According to Kuhn, Kingston, White and Toomey (1975), the adolescents develop the ability to think about themselves, what is, what might, their future, work life or career, eventual role in the world and critical issue of competence. In the same vein, Osa-Edoh (2015), posited that adolescents at this period are marked by the following mental characteristics:

i. Increased ability to generalize the fact, understand and deal with abstraction.
ii. Be able to solve problems, communicate with other persons and make decisions.
iii. Understand moral concepts and development of memory and imagination.

The elements of adequacy of a mentally healthy adolescent therefore, could be profiled as follows:

i. Think positively and constructively.
ii. Identify opportunities and inspiration.
iii. Seek solutions without giving up easily and
iv. Develop confidence in whatever he/she embarks on.

A mentally stable adolescent would live a fulfilling and productive life.

Social Characteristics

Interpersonal relationship is a process and experience of relating to one another in a given group. This could be among peers in the school, in the family or the community at large. Many adolescents and youths who interact with their peers tend to gravitate to what they see others do for good or bad. The social problems exhibited by the adolescents range from running away from home, occasional drinking or use of hard drugs, skipping school, stealing amongst others. Many scholars Akuezuilo, (2015), Ofole, Awoyemi, Siokwu and Ojukwu, (2015), Myers, (2008), Osa-Edoh, (2015), Akinboye, (1987), Unachukwu and Igborgbor (1991) and Kuhn, Kingston, White and Toomey (1975), have posited that this period of adolescence is marked by interpersonal relationship and criminal activities which include:

i. Violating constituted rules and authorities.
ii. Resisting parents' authority.
iii. Resisting school authority.
iv. Truancy, stealing, assault and robbery.
v. Involvement in students' unrest, protest and vandalism activities.
vi. Use of hard drugs and involvement in alcoholism.
vii. Conflicts with peers.
viii. Developing unhealthy sexual feelings.

ix. Gambling and cultism.
x. Kidnapping and raping.
xi. Insurgency activities.

These behaviour patterns are not just deviant but terribly delinquent in the sense that they create problems for the society.

The elements of adequacy of a socially appropriate and legal behaviour of adolescents could be profiled as follows:

- ❖ Acceptance of parental authority and control.
- ❖ Acceptance of school authority and control
- ❖ Mindful of negative peer influences.
- ❖ Not sexually adventurous
- ❖ Adherence to normative values.

Adolescents and youths, who exhibit socially desirable behaviour, will live a fulfilling, rewarding and productive life.

Implications for Counselling Practice

Recognizing the fact that a behaviour pattern may be caused by some environmental or interacting factors, a counsellor could be guided to manage deviant behaviour. The major implication for counselling adolescents and youths misdemeanor is that professional counsellors must move the adolescents and youths from the left sided behaviour pattern usually associated with them to the right sided more desirable behaviour pattern, characterized by the behaviour adequacy indices as analyzed in this paper. The guide for the realization of this is shown in the Table below.

Table I: Iconic Table of Adolescent Behaviour Modification Direction.

LEFT ⟶ RIGHT

Typical Adolescents' Behaviour Patterns (TABP)	Desirable Adolescents' Behaviour Patterns (DABP)
a. Emotions	
Fears, worries and possible anxieties.	Minimal expression of fears and anxiety
Anger, frustration and depression.	Manifest emotional stability.
Happiness, sadness and rage.	Mood control.
Threats and conflict.	Manifest meaningful self confidence and control.
b. Cognition	
...	Thinks positively and constructively.
Thinking and worrying about one's future.	Learns to set personal vision and goal.
Think about work life.	Vocational preparation.
Thinking about one's role in the world.	Develop confidence in whatever he/she embarks on.
Poor communication skill.	Ability to communicate with other.
Thinking and worrying about problems.	Seek solutions without giving up.
c. Interpersonal relationship	
Disobedience to parents.	Acceptance of parental authority and control.
Conflict with peers.	Mindful of negative peer influences.
Conflict with teachers.	Acceptance of teachers' authority and control.
Relationship with opposite sex.	Not sexually adventurous.
Truancy, stealing, drug use, smo king, cultism and other criminal activities.	Adherence to normative values.

The job of the counsellor in providing counselling intervention strategies for the adolescents' and youths' negative behaviour patterns as described in this paper and shown in the Table above, is to adopt behaviour modification strategies to modify the adolescents' behaviour patterns in the right direction as shown in the foregoing . The following counselling techniques which are aimed at reinforcing adaptive behaviour in adolescents and youths, are considered appropriate:- positive reinforcement, contingency contracting, modeling, shaping, conflict resolution skills, cognitive restructuring, assertiveness training, group and individual counselling, emphatic moral instruction, self management and youth empowerment.

Conclusion and Recommendations

In the foregoing pages of this paper, some modest attempts have been made to examine emotional, cognitive and social characteristics of the adolescents and youths. These include amongst others:- feeling of fear, worries, aggression, anxieties,

frustration, depression, happiness, love, sadness, dealing with abstraction, problem solving, decision making, conflict with parents, teachers and peers, truancy such as stealing, robbery, raping, protest, insurgency, cultism and vandalism activities. Considering the negative impact of these maladaptive behaviour on the adolescent and society, every effort must be made by all concerned stakeholders particularly the professional school counsellors, being members of the regular school system, to assist the adolescents and youths, to acquire adaptive behaviour patterns. This paper has provided an Iconic paradigm of behaviour modification strategies to solve this problem.It is the author's hope that the counselling techniques and behaviour modification therapies, put forward in this paper would be found useful in ameliorating the rampaging adolescents' and youths' misdemeanor.

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DEVELOPMENT AND VALIDATION OF A MARITAL STABILTY SCALE

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Introduction

People all over the world have expressed different types of biases against marriage (Iwu, 2000). However, strengthening marriages is essential to building strong societies. The Pew Research Centre (2010) as cited by Gabel (2012) found that about 40% of unmarried adults think that marriage is becoming obsolete; this indicates that while marriage is on the decline, co-habitation is on the rise. Marriage is indeed becoming an endangered species (Lamble; 2014). Various Courts of Law have been flooded with divorce cases. The News Agency of Nigeria (2012) revealed that some Lawyers in Lagos expressed their concern over the increasing rate of divorce cases in Nigeria. It was also reported that many marriages are collapsing with the customary courts terminating a large number annually. An example is the dissolution of the one year old marriage between a twenty eight year old female Youth Corper and her husband. As reported by the News Agency of Nigeria,(2012), the petitioner began co-habiting with the respondent as a prelude to marriage after which her bride price was paid. She told an Ojo Customary Court in Lagos that "we have never agreed on an issue as a couple, it has always been quarrels and fights. In a nutshell, I think we are not compatible at all."

Issues like the above mentioned have been very disturbing and this has led to the concern of citizens over the increasing number of young couples seeking marital dissolution in Nigerian courts. This spin-off sets the motion for the biases and

discouragements which some unmarried people have about making a commitment to marriage. Wilcox (2010) claimed that the dramatic increases in co-habitation, divorce and non-marital child-bearing patterns in the Americas, Europe and Oceania over the last four decades suggest that the institution of marriage is losing its relevance.

In spite of these and other unfavorable views expressed about marriage, people still marry and their expectations are stirred towards stability (Festinger, 1957) and satisfaction. Marriage is a socio-culturally sanctioned union between a man and a woman, to be father and mother to any child their union produces (Anderson,2013) and is also expected to endure beyond the birth of offsprings (DeBurger,1977). It is a partnership without an escape route (Denga, 1986). Kaufmann (2011) has defined marriage as a universal human institution which has formed the foundation of the family throughout history. He also added that marriage has been recognized as the primary institution which is essentially necessary for raising children in an economical, legal, spiritual and social sphere. Gove (1986) as cited by Animasahun and Fatile (2011), described marriage as the state of being united with a person of the opposite sex as husband or wife. Furthermore, marriage is generally accepted as a relationship of mutual economical and emotional support merged with nurturing and training of children. Wilson (1993) stated that in virtually every society, the family is defined by marriage; that is, by a publicly announced contract that makes legitimate the sexual union of a man and woman. For these reasons, marriage is predominately observed as being between one man and one woman.

For marriage to make any impact, it must be stable and include some measure of satisfaction. Marital satisfaction, therefore, is the mental state which reflects the perceived benefits and costs of a marriage to a particular person in a relationship (Stone and Shackelford, 2006). This means that the more costs a marriage partner inflicts on a person, the less satisfied the individual becomes with the marriage partner and the relationship.

On the other hand, the greater the perceived benefits are, the more satisfied the individual becomes with the partner and marriage as a whole. Marital stability can be defined as the status of marriage being intact or non-intact; that is the state of being married or divorced (Burns and Scott, 2013). Marital stability means being "stably married" (Arango-Lasprela, Ketchum, Dezfulian and Kreutzer, 2008). It is the ability to maintain equilibrium in marriage which involves the quality of being secure and resolute. Marital stability is the act of remaining married without the thought of being divorced or separated. Remaining married is important for several reasons. One of such reasons is child wellbeing. Children living with their parents express better educational, social, cognitive and behavioural outcomes than those from non-intact homes (Artis, 2007). The benefits of marital stability are verified in a child's life even lasting through adulthood (Amato, 2005). Married couples who are preoccupied with marital conflicts may be less able to be competent parents (Sun, 2001), and similarly, divorced couples lack the partnership, support and cooperation of the unified force derived from stable marriages to enhance the quality of decision making for their children's wellbeing (Coontz and Folbre, 2002). Therefore, stable marriages enable parents to provide their children with the economical and emotional functions which characterize the support and protection they ought to receive from the home.

Another reason is that remaining married has been associated with better mental health outcomes (Horwitz, Raskin & Howell-White 1996; & Uecker, 2012). Simon (2002) expounded this view further by stating that there is an evidence of emotional wellbeing present in marriage and a decline subsequently when the relationship breaks down and is terminated. Marital stability also has the ability to give a couple marital satisfactions in terms of sexual gratification, higher level of psychological and emotional wellbeing through intimacy, companionship associated with having a common goal and interest. A thriving society needs the stability of homes to grow and develop since the home is the basic

unit of a community. Stable marriages are responsible for a flourishing community (Howard and Reeves, 2014) in the sense that it enhances productivity, decreases the rate of crime, organizes and structures healthy life style, good leadership and governance.

Most couples enter marriage expecting to succeed, however, some of these marriages stay stable while others crumble. Social psychology has shown that publicly declared opinions enhance stability, yet this is contrary in marriage (Karney, 2010). After two people stand before a number of witnesses (majorly consisting of people important to them) declaring that they intend to remain together forever, it is bewildering that the opposite often occurs. In most cases, Karney (2010) concluded, this represents a drastic and unwanted change in a highly valued system of belief. Even in marriages that remain intact, newlyweds' initially high levels of marital satisfaction tend to decline and reduce over time (VanLaningham, Johnson &Amato, 2001) as cited by Karney(2010). This propelled Karney (2010) to ask these questions; how is it that marital satisfaction declines so frequently despite a couple's best efforts to maintain the positive feelings that motivate their marriage in the first place? What is it couples are doing to sustain their satisfaction which in turn stabilizes their marriages? Marital satisfaction is a germane ingredient to the stability of any marital union. Varieties of factors contribute to the satisfaction and stability of marriage. Heaton (2002) stated that increase in education and rising age at marriage is associated with marital stability. Also striving to maintain the initial positive feelings which married couples experience that characterises satisfaction in a relationship in spite of disappointments and stressful circumstances of life, could enhance marital stability (Karney, 2010). Another factor is common interest. Couples who share common interests are more likely to participate in activities together. Participation would build intimacy, understanding and empathy. Studies like Call and Heaton (1997); Lee (2001) have consistently shown that religious participation and marital stability are related. Similarly, according to Wilcox and Nock (2006)

couples with high level of religiosity and who received premarital education, have the likelihood for greater marital stability. They also have a tendency to have a higher quality of relationship with their children and less likelihood for domestic violence (Wilcox & Nock, 2006; Wolfinger, 2003; Previti & Amato, 2003).

Furthermore, couples who have a strong commitment to marriage are most likely to remain married. However, the offsprings of divorced parents generally have more negative attitude towards marriage because they are less optimistic about the prospects of having long lasting healthy marriages (Whitton, Rhoades, Stanley & Markman, 2008). Therefore, D'Onofrio, Turkheimer, Emery, Harden, Slutske, Heath, Madden and Martin (2007) as cited by Whitton (2008), maintained that there is a strong research base supporting the intergenerational transmission of divorce. Cooper (1988) indicated that not seeing divorce as an option serves as a good foundation for the longevity of any marriage. In highlighting the five key approaches to making marriage work, Cooper (1988) also explored some factors which enhance marital stability. These are: 1. Similarity of values, 2. Love, regard and mutual respect that goes beyond sexual gratification; 3. Willingness to compromise and share responsibilities acknowledging that marriage is a relationship involving give and take, 4. Consciously committing to marriage as a long-time relationship and 5. Better information about marriage inform of pre-marital education, sex education and other forms of preparedness to ensure a lasting relationship.

In addition, Rogge (2012), in his research on preventing marital discord and dissolution examined outcomes on studies involving marital stability. He observed that the couples' behaviour toward one another in terms of communication, sex, support and empathy in relation to environmental factors in terms of life stress events, socio-economic status and demographics are indicators of marital stability. On the other hand, there are factors that contribute to instability of marriage such as disrespect, quarrel and domestic violence due to lack of understanding (Ngbede, 2013). According

to Adesanya (2002) as mentioned by Dimkpa (2010), marital stability is perceived in relationships as couples living together in marriage, enjoying a fulfilling union with no intention of terminating the relationship which in contrast to marital instability is the pre-disposition which a couple has toward divorce. This is determined by the presence of thoughts and more accepting attitudes towards severance which may eventually lead to marital dissolution (Daniel, 2008). In other words, a stable relationship will tend to predict marital longevity while an unstable one may be on the pathway to divorce (Gottman, 1999). Marital instability is apparent in a number of ways, such as; marital dysfunction which is often displayed by deficit in commitment to a marital relationship, low levels of caring behaviour between partners, problems with communication and corrosive conflict resolution skills (Fals-Stewart and Lam, 2010). Dysfunction as postulated by Creek (2002) occurs as conflicts that are not dealt with as the individual grows and develops. These surfaces as anxiety; this means that the individual is unable to contain the anxiety because the conflicts are overwhelming. Consequently, there is an interference with function. Marital instability is the process of dysfunction which a relationship expresses as it failed to function in an expected manner. There is a need for the development and of a validation marital stability scale and this is the focus of this paper.

Research Questions

Four research questions guided the study.

1. What are the characteristics of the Marital Stability Scale?
2. What factors are indicative of Marital Stability?
3. What is the concurrent and construct validity of the marital stability?
4. How tenable is the new model?

Methodology

The population of this study was the married men and women in Ibadan land. Ibadan land is made up of five Local

Government Areas (LGAs): Ibadan North, Ibadan North East, Ibadan North West, Ibadan South East and Ibadan South West. Married men and women in churches, mosques and market places were targeted (note that it is not compulsory that a man and his wife must participate in the study).

A combination of accidental (i.e. those who were available and willing to participate in completing the scales) and snowball (those who completed the scales were asked to nominate others) sampling techniques were used in selecting the samples in each of the five LGAs. Specifically, samples were selected from the LGAs Headquarters.

A sample of 600 respondents (120 per LGA) was proposed, however, only 553 respondents returned their completed questionnaire. This gave a response rate of 92.2% and 7.8% mortality.

Instrumentation

Marital Stability Scale

This scale was adopted from the work of Adewale (2015). Adewale (2015) adapted it from Child Trends which is a compendium of empirical and evaluation studies prepared by Carrano, Cleveland, Tinkew and Moore (2003). A total of 16 items were adapted from Spanier, (1976), Olson, Fournier, and Druckman; (1985) and Gottman, (1999) while 12 were developed by the researcher from consulting and appraising various journals, articles and recorded documents, such as, Klagsbrun (1985), Laur and Laur (1986) also Rogge (2012). The response format used was 1 = Strongly Disagree, 2 = Disagree, 3, Agree and 4 = Strongly Agree for positive statements. Initially, there were 35 items. However, 7 items were deleted because they had a correlation less than 0.3 after trial testing. They were not suitable for the Nigerian setting. Cronbach-Alpha was used to establish the internal consistency and construct the validity of the scale. The outstanding 28 items yielded an alpha of 0.932. Although, at this level, we are not interested in the information provided to judge a school as

effective or not, but we are interested in developing the instrument and also to validate it for future use. Principal factor analysis with orthogonal rotation was used to extract three factors as presented in the result. Maximum likelihood factor analysis was used for confirmation of the factor model.

Results

Research Question 1

What are the characteristics of the Marital Stability Scale?

Both descriptive and reliability survey analyses were performed on the 28 items. Items with item total correlation less than 0.3 (Shiarella, et al 2000) were dropped in order to increase the homogeneity of the items. This is consistent with the procedure recommended by Nunally and Bernstein (1994). After Nunally and Bernstein's advice has been taken note of, none of the items was deleted.

Table 1 Characteristics of the Marital Stability Scale

S/N		Scale Mean if Item Deleted		Corrected Item-Total Correlation
1.	I would have left my spouse but for my religious belief	1.71	.978	.507
2.	I would have left my spouse but for what people will say	1.57	.874	.606
3.	I would have left my spouse but for our children	1.77	1.054	.537
4.	My spouse and I hardly laugh together at the simple issues of life.	1.72	.959	.518
5.	I wish my spouse and I could work on projects together.	2.84	1.007	.033
6.	I have nothing to gain from my relationship with my spouse.	1.46	.820	.664
7.	I wish I could be a bachelor/ spinster again.	1.71	.865	.647
8.	My spouse and I quarrel frequently.	1.74	.887	.575
9.	I feel disrespected and insulted after a quarrel with my spouse.	2.06	.926	.585
10.	I feel most of what we quarrel about is my spouse's fault	2.07	.917	.646
11.	I have often wished I could quit this marriage.	1.59	.839	.785
12.	Time spent together is on arguments and abusive words.	1.68	.802	.723
13.	I am angry each time my spouse talks to me.	1.65	.939	.580
14.	My relationship with my spouse has not met my expectations about marriage	1.97	.950	.612
15.	I do not enjoy my spouse's company	1.61	.818	.750
16.	My spouse and I keep malice often	1.65	.788	.734
17.	My spouse and I use hurtful and abusive words when we quarrel.	1.71	.797	.721
18.	I feel my spouse attacks my character each time we quarrel	1.89	.857	.691
19.	My spouse and I use a lot of destructive criticism.	1.66	.771	.743
20.	I blame my spouse often for all our marital issues.	1.84	.843	.718
21.	I feel my spouse is explosive and out of control whenever we have a misunderstanding.	1.81	.835	.687
22.	I feel my marriage is in trouble.	1.52	.812	.709
23.	My spouse and I hardly touch each other affectionately.	1.68	.880	.708
24.	There are no passionate moments in our relationship.	1.66	.858	.760
25.	My spouse and I find it difficult to support each other emotionally.	1.65	.830	.721
26.	My spouse and I have alternatives for our relationships, e.g. reading, travelling, watching television or busy with office work.	2.18	1.048	.429
27.	My spouse and I have talked about divorce	1.58	.800	.641
28.	Thoughts of separating from my spouse flash across my mind.	1.59	.851	.644

Research Question 2

What factors are indicative of marital stability?

This research question was answered by subjecting all the items into the exploratory factor analysis.

Exploratory Factor Analysis

In order to assess the structure of Marital Stability scale, all the 28 items were factor analysed, by means of principal components analysis with orthogonal (Varimax) rotation. The initial factor solution for the Marital Stability using the varimax rotations resulted in 3 factors with Eigen values greater than 1. The 3 factors accounted for 58.7% of the variance. This is presented in Table 2. In order to select items for the final scale, the pattern of factor loadings was examined. Items with factor loading less than 0.4 were discarded. Since Shiavella et al (2000) had all their items with factor loadings greater than 0.40, while Shore et al (2000) adopted the factor loading of 0.30 recommended by Nunnaly (1978) as a guideline for considering the items that should be in the factor analysis, it thus appears that there is no specific method of purifying the structure of a scale, therefore, in this study all the factor leadings that are less than 0.40 were discarded. Thus the number of items comes to 60 items. Moreover, for further purification of the list, items with factor loadings of 0.40 or more in two factors were eliminated (Shore et al 2000) from the list. These reduced the total item from 28 to 26 items with 3 factors having Eigen values greater than 1.

Table 2: Rotated Component Matrix

	1	2	3
SB11	.689		
SB15	.686		
SB16	.640		
SB13	.633		
SB7	.606		
SB12	.592		
SB8	.540		
SB19	.540		
SB6	.538		
SB17	.513		
SB9	.508		
SB10	.499		
SB14	.481		
SB25		.712	
SB23		.690	
SB24		.687	
SB27		.615	
SB28		.608	
SB22		.593	
SB20		.507	
SB21		.503	
SB26		.493	
SB1			.810
SB3			.799
SB2			.795
SB4			.630

Factor 1 reflected the *quarrel and physical separation*and included 13 items (e.g "I feel most of what we quarrel about is my spouse's fault", "I have often wished I could quit this marriage"). Factor 2 reflected relationship of *blame and psychological separation* and included nine items (e.g. "I blame my spouse often for all our marital issues", "My spouse and I find it difficult to support each other emotionally"). Factor 3 reflected *religious/social barrier and intimacy* and included four items (e.g. "I would have left my spouse but for my religious belief", "My spouse and I hardly laugh together at the simple issues of life").

Research Question 3

What is the concurrent and construct validity of the marital stability scale?

The concurrent and construct validity of marital stability scale is presented in Table 3.

Table 3: Concurrent and Construct Validity of the Marital Stability Scale

	Quarrel and separation	Blame and psychological separation	Religious/social barrier and intimacy
Quarrel and physical separation	0.927		
Blame and psychological separation	0.814	0.892	
Religious/social barrier and intimacy	0.543	0.490	0.872

The final set of items derived from factor analysis was tested for their reliability by subjecting them to item analysis using item-total correlation. We analysed the items for each scale separately. The internal consistencies were:
Factor 1 = .927 (i.e. Quarrel and physical separation)
Factor 2 = .892 (i.e. Blame and psychological separation)
Factor 3 = .872 (i.e. Religious/social barrier and intimacy)

The overall internal consistency of marital stability scale is .932. In this study, the construct validity of the marital stability scale was established by determining the correlation of the three factors on each other. The Pearson Product Moment Correlation was used on the three factors and none of the three factors correlate up to 1.00 at the 2-tailed significant level. For example, factor 1 which is quarrel and physical separation correlates with other factors with correlation coefficients of .814, .543, respectively and at the 2-tailed significant level of .001 at each level. Moreover, blame and psychological separation correlate significantly with religious/social barrier and intimacy.

Research Question 4

How tenable is the new model?

This research question is answered using the confirmatory factor analysis approach.

Confirmatory Factor Analysis

In order to verify the factor structure of the teacher's evaluation of school effectiveness first obtained from the exploratory factor analysis, a confirmatory factor analysis was conducted. Maximum Likelihood solution was used to verify the relationship between the observable variables and latent constructs. The chi-square (X^2) statistic was significant for this model indicating on inadequate fit of the confirmatory model to the data X^2 (df = 1051.42; N = 553), Df= 272; P<0.05 = 0.00.

Goodness of-fit-test

Chi– Square	Df	Sig.
1051.420	272	.000

With the table above the scale is reliable with significant level of .0000. From the teachers Evaluation Scale, we obtained maximum likelihood solutions by using chi-square to find the relationship between the seven factors. The confirmatory factor model accounted for about 57% of the variation for the three factors in teachers' evaluation scale, indicating reliable factors. The internal consistencies of factors 1 through 3 were .927, .892 and .872 respectively. Hang and Michael (2000) pointed out that a statically significant value of X^2 index indicates that the entries for the proposed model deviate from those obtained. Thus, the hypothesised model should be considered untenable. However, it is important to note here that one of the limitations associated with the use of X^2 value is its dependency on sample size. A large sample size (like in this study) would be expected to lead to a rejection of a model. Since the discrepancies between the model

and the data were accounted for by the large sample size, we cannot conclude here that the hypothesised model is untenable.

Discussion

The relationship between the three factors show that they are highly significant at =0.05 (95%). The relationship /correlation between one set (quarrel and physical separation) and the other set (blame and psychological separation) is 0.814, the correlation indicated that if married couples are always blaming one other by means of some psychological neglect and rejection, there is the likelihood that this behaviour will lead to quarrelling and physical separation which is against the tenets of marital stability. Marital stability according to Burns and Scott (2013) is the status of marriage being intact or non-intact; that is the state of being married or divorced. Marital stability means being "stably married" (Arango-Lasprela, Ketchum, Dezfulian and Kreutzer, 2008). It is the ability to maintain equilibrium in marriage which involves the quality of being secure and resolute. One of such reasons why marital stability is important is child wellbeing. Children living with their parents express better educational, social, cognitive and behavioural outcomes than those from non-intact homes (Artis, 2007). The benefits of marital stability are verified in a child's life even lasting through adulthood (Amato, 2005). Married couples who are preoccupied with marital conflicts (quarrel, physical and psychological separation) may be less able to be competent parents (Sun, 2001), and similarly, divorced couples lack the partnership, support and cooperation of the unified force derived from stable marriages to enhance the quality of decision making for their children's wellbeing (Coontz and Folbre, 2002).

Conclusion and Recommendations

Many factors could be responsible for marital instability, in this study, when a spouse blames his/her failure on the other partner, the other partner would be offended and he/she may

deliberately withhold any piece of information which could be useful to him/her. This in turn could lead to fault finding and psychological separation which could manifest when they are not sensitive to each other's emotions and other psychological needs. If these conditions (blame and psychological neglects) are not curbed, it could lead to quarrel, abuse, assaults, fighting and physical separation. However, marital instability could be inhibited by such factors as religious belief, social responsibilities and intimacy. It is therefore recommended that couples who are experiencing marital conflicts should see counselling psychologists and/or any other relevant professional body who are well trained in handling issues of marital instability. Couples are also enjoined to see to their social responsibility towards their children as a task that requires joint effort. Although, the target population used in this study were married individuals, those who are proposing to be marry can forestall the trauma of divorce and separation by attending premarital counselling sessions.

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CONTINUAL ASSESSMENT: A TOOL FOR TRUE SCORES IN NIGERIAN SECONDARY SCHOOLS

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Introduction

There was a debate on the old nomenclature – continuous assessment into a new one – continual assessment at the AEAA conference last year (2015). Basically, continuous assessment and continual assessment are the same. So in this paper continual assessment was used. Educational assessment experts are of the view that assessment is an integral part of every teaching-learning process. This is because it provides feedback to learners, teachers and policy makers in the decision-making process in education. Cone and Foster (1991) pointed out that good measurement and assessment resulting in accurate data is the foundation of sound decision making.

However, the major problem associated with the assessment of learners has been in the approaches or methods. One of the approaches that has been in use in the school system over the years is the continual assessment of the school subjects at classroom level. The National Policy on Education (NPE) in Nigeria of 2004 opines that final grading of students at the end of year examination and school programme must be based on their scores derived from continual assessment of their classroom work and school examination.

The National Examinations Council (NECO) since its inception in 1999 has incorporated the scores of its candidates both

at the Basic Education Certificate Examination (BECE) and Senior Secondary Certificate Examination (SSCE) levels respectively into the final grading before the release of its results. The use of scores derived from the continual assessment of students' school subjects in determining their final grade at the end of the year examination and school programme has its attendant problems. There are a lot of challenges in deriving valid and reliable continual assessment scores which among others include: lack of comparability of scores among students from different schools and teaching differences arising from the conditions of administering the assessment instruments and scoring them by teachers as well as the methods of developing test items and other assessment instruments.

The resultant effect of these challenges as highlighted above is that students may not obtain the true scores expected of them if they are not well controlled. There is the need to develop strategies that will help in searching for true scores of students through the use of Continual Assessment. It is against this premise that this paper is hinged upon.

Concepts of Continual Assessment

Continual assessment according to Wranx (2014) occurs when a student is evaluated and tested on a daily or fixed interval basis instead of at the end of their teaching experience. It is more or less built into the teaching-learning process and is formative in approach because it helps to monitor the learner's (student's) progress in realizing the objectives of instructions (Harrington 1980).

Some other experts in educational assessment see continual assessment as an approach of assessment which should depict the full range of source and methods teachers use to gather, interpret and synthesize information about learners such that the information could be used to help teachers understand their learners, plan and monitor instruction and establish a viable classroom culture (Airasian 1991). Baker and Stites (1991) opines

that continual assessment should involve a formal assessment of learners affective characteristics and motivation in which they will need to demonstrate their commitment to tasks over time, their work-force readiness and competence in team or group performance contexts.

From the above definitions, one could infer that continual assessment should involve the use of a variety of assessment instruments, assessing various components of learning (not only the thinking process) including behaviours, personality traits and manual dexterity. It also takes place over a period of time and must be holistic in representing the learner in his/her entirety. It begins with the decisions that the teachers perform on the first day of school and end with the decisions that the teachers and administrators make on the learners regarding end-of-year grading and promotion.

Advantages of Continual Assessment in Schools

The advantages and benefits inherent in the use of continual assessment in schools are enormous and includes among others:

- Provision of guidance for both the teachers and students (learners) that is, since it involves getting data on the learner over a period of time, it will yield more accurate data reaching the teacher early enough to modify his/her instruction.
- Information or data derived from continual assessment in the school classroom setting helps to diagnose and remediate areas of learners' weaknesses if properly anchored on what occurs in classrooms. It helps in monitoring the progress of each learner in the class in order to attain his optimum level of achievement.
- It places teachers at the centre of all performance-assessment activities that is; it encourages more teacher participation in the overall assessment or grading of his/her learners (Paris, Lawton, Tumer and Roth 1991). By this procedure, teacher would be able to integrate assessment and assessment results into instructional practice.

Problems Associated with Continual Assessment in Schools

The problems associated with continual assessment in the schools are majorly caused by the teachers. These problems range from lack of teachers skills in test construction and administration to inadequate record keeping of assessment scores. They are discussed as follows:

- Continual assessment requires availability of varieties of assessment instruments such as tests, questionnaires and checklists. There is the need to construct these instruments following established procedures and practices. To make the results comparable across the schools, teachers need to be equipped with skills on test construction and administration. Unfortunately, most teachers in the various levels of the school system are ill equipped to carry out this task.
- Another major problem is teacher's negative attitude towards continual assessment and teaching work. The successful implementation of continual assessment approach requires teachers to give more tests and develop other instruments. This demands more time to administer, mark, and record them. All these mean more work for the teacher, more demand on his/her time and more responsibility on him/her. It also requires that they should be professionally and attitudinally prepared for operating the system. What we have in the teaching profession these days are crop of teachers that are very lazy, unprofessionally trained and unprepared to face the challenges of teaching. In the face of this problem, continual assessment may not be religiously carried out.
- The problem of record keeping is another issue of concern in the smooth use of continual assessment scores in schools. There is high population of students/pupils in Nigeria schools and teachers are expected to adequately and meticulously keep these records over a long period of time. More so, the records should be properly stored and easily retrievable. Some of the teachers lack the skill of collation of scores involving simple additions and multiplication even when calculators are made

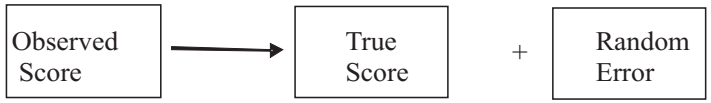
handy. They are not computer literate to store these scores for future use. This is a critical problem facing the effective implementation of continual assessment in schools.

The Concept of True Score

Measurement of learners' activities in school subjects and other forms of learners' characteristics are not always perfect. They are flawed with errors which may be associated with the way and manner the measurement was carried out. This is very much experienced in continual assessment where individual teachers develop and administer their own tests and other measurement instruments.

When test are conducted, the results of the tests give three component outcomes: Observed Score, True Sore and Random Error.

The definition of True Score of a learner in an assessment task could be understood using the True Score Theory. This is explained using the model presented below.



We can now define the terms as follows:

Observed Score: This isthe sum of the true score of a learner and random error (error due to measurement). This is the score of the learner on the test, that is, what he or she scored on the test script. The simple equation of the observed score of a learner in a test is given by

$$\mathbf{X = T + e_x}$$

We do not observe the True Score (T) and the Random Error (e_x).

True Score (T): A learner's True Score measure is his/her true ability in a given test being administered. It is the difference

between his/her observed score (x) and the random error (e_x). That is,

$$t = x - e_x$$

When the True Score is equal to the Observed Score, then the Random Error (e_x) is equal to zero. This is a perfect measurement which is very hard to come by in educational measurement. True Score tells us the level of reliability of a test, that is, if $e_x = 0$, then the test is highly reliable since T – x=ex, and if $x = e_x$, then T = 0, then the test is not reliable at all.

Random Error (e_x): The random error otherwise called Standard Error of Measurement (SE_m) is an estimate of how repeated measures of a learner on the same instrument tend to be distributed around his or her "true score". The Random error or standard error of measurement (SE_m) is directly related to the reliability of a test. This means the larger the standard error of measurement (SE_m), the lower the reliability of the test and the less precision there is in the measures taken and scores obtained. Since all measurement contains some error, it is highly unlikely that any test will yield the same scores for a given person each time they are retested.

Strategies to Ensure True Scores in Continual Assessment in Schools

There can be no true scores of students' performance in continual assessment procedure if there is no effective teaching and learning taking place in the classroom. No matter the mode of assessment, there is the need to examine some critical factors that will generate true scores of students in continual assessment procedure. The following factors must be considered:

- The assessment must be conducted to be within the students' level. The items must be of good difficult level within the age and disposition of the student;
- the learning experiences of the students being assessed must be covered, that is, the items must cover what they have been taught and learnt in the given subject;

- there should be specific time in terms of the period and duration for which the assessment should last. The time must be commensurate to the amount of tasks (number of questions) expected of them to do in the course of the assessment;
- the instrument must be administered using laid down procedures in measurement and assessment profession. Instructions on how to use the instrument (test) must be spelt out and the environment for administering the instrument must be relatively good. Simply put, the instrument must be valid, reliable, consistent and user-friendly;
- schools must rebuke lazy pupils who would want to pass their examinations through nefarious activities; (that is, they must shun incidences of malpractice of any form during school examinations);
- teachers should be encouraged to exhibit high level of professionalism and victimization of students/pupils during instructional measurements, assessment and evaluations must be eschewed. Pupils' records should not be faked on the basis of gender, tribe, religion, personal relationship, family etc.
- schools should desist from faking pupils' internal records just to produce good results for glorification sake. This creates bias in school assessment and makes the results there-in to be spurious.
- Teachers are meant to administer their own quizzes, class tests, homework and project works under the supervision of Head teachers. The Head teachers must be knowledgeable and sound enough to provide leadership in judging the quality of the teachers' assessment procedures and results.
- Parents and guardians should desist from bribing the subject teachers of their words to award them marks when they did not deserve them. Such marks earned in this way produces spurious observed scores of the students thereby rendering the assessment results null and void.
- Teachers should not leak their examination questions or test items to their students or keep them very loose to the sight of the students. When students have the knowledge of the

examination questions or test items before the administration, it does not produce heir genuine or true scores. Hence, their true abilities are not actually assessed leading to high level of measurement errors which makes their scores very spurious.

Conclusion and Recommendations

This paper has tried to show that continual assessment in schools if not properly coordinated by teachers and School administrators will produce high degree of errors which may affect the true score of students. Continual assessment is a veritable tool that produces results of students' abilities in school subjects with a view of using these results to improve teaching and learning in the classroom. If the conduct of continual assessment in schools is not well coordinated, the results of students in the school subjects may be spurious thereby not producing the True Scores of their abilities.

The search for True Score of students' abilities in continual assessment could be approached if and only if teachers are trained and retrained, valid and reliable assessment instruments are used and parents, students and teachers be counseled to desist from encouraging cheating in school examinations.

In the light of the above, the following are recommended in the search of true score of students in continual assessment in Nigerian schools:

- There must be serious effort in training and retraining of teachers in the development and use of assessment instruments such as tests, quiz, projects;
- The Government should sanction any teacher, Head teacher, or Principal and students from every act of cheating during school examinations and other assessment activities;
- Students and teachers must be properly counseled to exhibit high sense of morality and integrity in any school activity especially in assessment practices;
- Parents should behave very well and desist from showing bad examples to their children/wards through bribing of their teachers to fake marks/grades for them;

- Effective teaching and learning activities must be ensured in schools. Classroom assignment should be thoroughly marked during and after lessons. Students activities must be observed and teachers" work well inspected by Head teachers and Inspectors from the Ministry of Education. Committed and knowledgeable teachers should be employed as well as being encouraged by regular/prompt payment of their salaries and allowances.

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13

COST ANALYSIS IN EDUCATIONAL EVALUATION

O. A. Afemikhe & W. A. Iguodala

Introduction

Evaluation is a pervasive concept which is used by everybody; though not everyone would realize that it is being used. In the introduction to one his books Popham (1993:1) indicated that:

> *Once upon a time there was a word. And the word was evaluation. And the word was good. Teachers used the word in a particular way. Later on other people used the word in a different way. After a while, nobody knew for sure what the word meant. But they all knew it was good. Evaluation was a thing to be cherished. But what kind of a good thing was it? More important, what kind of a good thing is it?*

It is probably because of this that Weiss (1998:3) indicated that it is an elastic concept which can be stretched to cover judgments of many kinds with the uses implying a notion of judgment of merit. In all cases, the judgment involves comparison of the entity in question against a standard. This standard may be easily identifiable or it could be implicit. Different standards have been used and they include aesthetic, effectiveness, efficiency, justice and equity, use of community standards, enjoyment and satisfaction, contribution to social harmony (Weiss, 1998: 4). When it is applied to educational programmes, evaluation may not utilize all the standards enumerated above.

The journey of educational evaluation to its present state has been tortuous but illuminating. For classroom teachers, evaluation is classroom testing. This is probably because most evaluation efforts rely on students' achievement as indicators of programme success. Education evaluation is more than student testing. It involves an appraisal of the quality of something and in this case educational programmes. There is however no known universally accepted definition of quality. This according to Westerheijden (1999) is as a result of a lack of an acceptable theory of quality. However, when there is quality one knows. Quality can be viewed from the angle of the stakeholders; different interest groups have different priorities and therefore the emphasis will vary. For example, students and teachers will focus on process of education while employers will emphasis the outputs. The criteria that each stakeholder uses when judging quality have to be considered in any situation where quality is of interest. The processes of assessment, accreditation, audit, and external examinations (Harvey &Newton, 2005) are quality mechanisms and they could be of interest in quality assessment.

As a concept, quality can be categorized in many ways. According to Afemikhe (2013) quality can be categorized as exceptionality or excellence, perfection, fitness for purpose, value for money and as transformation. As excellence quality connotes use of league tables, benchmarks and standards checking with assurance provided through external examiners, accreditations and audit. As perfection process, standards are applied in quality measurement; quality as fitness for purpose focuses on how good the product or service is for the stated purpose or institution fulfilling its mission.Quality as value for money emphasizesprovision, processes, or outcomes, judged against monetary cost; return on investment by stakeholders. These may be evaluated using performance data such as student retention/completion/employment).Quality could also be seen as transformation which involves the development or empowerment

of students through learning process; institutional changes leading to better learning; external examination of certificates evaluates transformation.

Evaluation according to Bhola (1990) serves the purposes of informational, professional, socio-psychological, political and historical functions. The informational function becomes obvious when it is realized that evaluation is expected to provide information for decision–making. This information function is particularly so when alternative actions are possible. Evaluation provides feedback and information which can be used to improve the implementation of programmes. When evaluations are conducted to highlight the strengths and weaknesses of the programme, it provides professional information. In this way, it helps to understand the means and ends of the programme through provision of effectiveness and failures of plans and strategies used. At the organizational level it helps to examine the goals and purposes of the programme thus making clear the operational procedures which may not be visible as part of the day to day running of the programme. Through evaluation accountability can be enhanced or the programme could even be killed. Hence evaluators normally talk of whitewash, submarine evaluation. It can be used to legitimize the programme. Finally, the need for information on past events can be provided by evaluation of programmes as it acts as a useful tool to document actions, events and results.

In executing evaluations two main paradigms have been utilized; these to wit are the quantitative and qualitative. The approaches are different. While the quantitative utilizes numbers the qualitative depend more on use of words in addition to use of videos, none-text data and photos. The quantitative schoolof thought is of the opinion that the information they collect is credible, hard, rigorous and scientific. Those in the qualitative camp posit that they provide more detailed, sensitive and context base information.They attempt to answer different questions; qualitative focuses on the *why* and *how* of the programme and the

quantitative addresses the *what*, *who* and *whenquestions.* Statistical analysis are usually applied in quantitative with survey greatly relied upon. The qualitative focuses on thematic approach and collect information through observation, interview and focus-groups. Very often these two approaches are used and this is seen as a mixed method though either of them could be more dominant in use.

Evaluation implementation involves the use of strategies and models. Payne (1994) and Trochim (2006) have categorized the models into four, namely, management, judicial, anthropological and consumer. The management models are designed to provide information to management to make decisions; for example programme evaluation and review technique (PERT), critical path model, the utilization focused evaluation and the CIPP (Context, input, process and product) which Stufflebeam (2001) has rechristened decision/accountability–oriented evaluation. The judicial model utilizes a metaphor of the judicial process which advocates providing the pros and cons of the programme. A judge eventually provides a verdict on the programme. The anthropological model is basically a group of qualitative approaches and it includes the goal free and naturalistic methods. The consumer approach utilizes the consumer metaphor. This is more or less like producing a *consumer report* such that through it one can learn about the programme to see whether it is good or not and how well it stacks up against similar programmes so as to decide to use it or not.

We have come this far to refresh the reader'smindon some basics in educational programme evaluation. Educational programmes involve use of resources. These are usually procured with funds expended at the planning, implementation and even at the evaluation stages. These are costs but experience shows that the analysis of costs as part of the programme evaluation is rarely carried out. Rather the emphasis is mainly perceptual and linking the perception with outcomes. One wonders if this lapse is

unrelated to knowledge of cost analysis by evaluators. It is in this wise that the remaining part of this chapter addresses the issues of cost analysis and the alternatives.

Cost analysis

In the lame man's language cost is how much money is expended in obtaining an item, product or service. It is very real in situations where no money actually changes hands and additional resources are not expended. Economists use the notion of opportunity cost as it is known that resources (time, money, energy, etc) are limited. Thus, Yates (2009) sees cost as monetary value of resources used to implement a programme. Scriven (2008) succinctly indicated that 'cost of X is defined as the value of the most valuable alternative that had to be forsaken in order to obtain X'.

Normally there is a consideration of the true cost of something as something one gives upin order to get the thing. The thing in question could bea physical item, a potential life choice, etc. What is given up could be explicit cost which involves explicit monetary outlays, that is money directly spent or even an implicit cost such as cost of volunteers, donations, etc. The value of resources that are given up to effect the programme is normally called ingredients of intervention. One needs to identify all the relevant ingredients and determine their individual costs. The ingredients most common include personnel (full time and part time), facilities, equipment, materials and indeed all other materials used. The cost of these ingredients must be based on market value (Watts, 2008).

This conception of the value of something forsaken has implications for the evaluator. One must first of all determine the cost of at least one thing that is forsaken; estimation of cost comes in here. When this is done for one or more things one can be sure of the benefit that is forsaken. The costs are normally tied to decisions. When an employer for example employs, it is not the

employee that is the cost but the decision to use the employee in one way or the other. The purchase of a computer is not a cost but the decision to buy it and forego other items. With opportunity cost, costs occur in the future and hence they have to be estimated. The evaluator has to do a proper estimation to ensure that the decisions eventually made are dependable.

Cost analysis has to be integrated with evaluation. This is well illustrated in Figure 1. It shows the relation among cost, process, outcomes/impact evaluation (Calculating the Costs of Child Welfare Workgroup, 2013). The cost analysis focuses on information about programme implementation by looking at the components of activities, resources used in terms of type and quantity, characteristics of people served and number and quantity of services rendered by the programme. Thus, cost information has to accumulated different objects or situations. When cost cannot be compare with other subjects there is no way to directly measure it; cost measurement is always an indirect process, sometimes extremely indirect. Generally, cost is represented in monetary value such as Naira and kobo. If this is the impetus then one has to outline all resources needed to execute two or more programmes. Based on these monetary values when any of the programmes is chosen, one is sure what was actually given up. Another approach to cost determination is to specify programmes which one is interested in choosing from. The advantages and disadvantages of each one are then clearly delineated and values assigned to them. The difference between the values of the advantages and values of the disadvantages is a net value. The cost of the alternative selected according to Popham (1993:298) is the value of the next best alternative to it.

Cost Analysis Alternatives

The measurement of cost and attempting to link this with outcomes/impact of programme yield some potent ways of determining the efficacy of educational programme. This relationship is displayed in Figure 1. Programme inputs, outputs

and outcomes/impact must be valued for purposes of comparison. When this is to be done, cost feasibility, cost effectiveness, cost benefit and cost utility have proved to be useful in the work of an evaluator. Each of the analytic procedures serves different purposes. This section will attempt an elucidation of how they can be applied in educational evaluation.

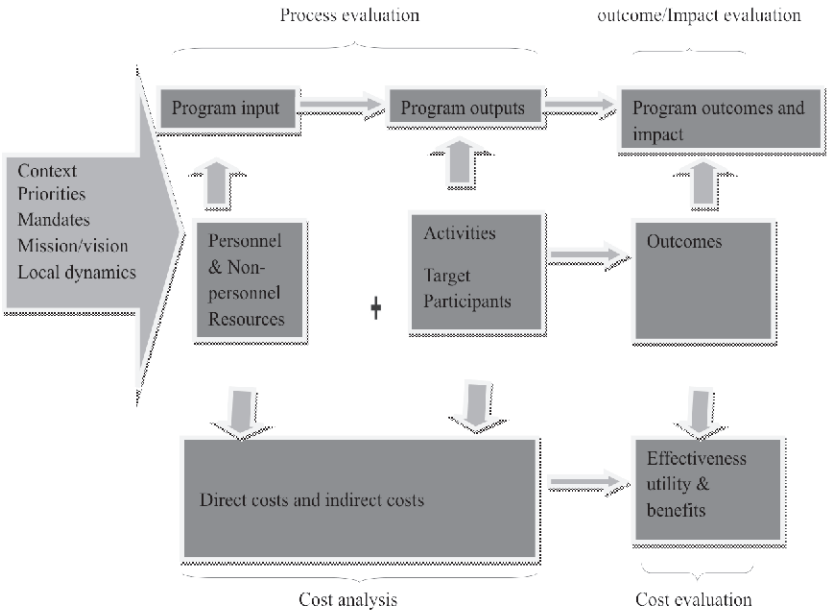

Figure 1*: Logic model integrating cost analysis with program evaluation
* Source: Calculating the costs of Child Welfare Workgroup (2013 :2)

Cost feasibility is the easiest of the cost-analysis procedures. All cost analysis methods are generally helpful in choosing among competing educational programmes by considering the payoff. In cost feasibility the focus is on one educational programme with the intent of finding out whether the programme is affordable. For example, an organization may want to train its staff and consultants are requested to send in proposals to run the programme. Let us assume that the budget estimate for the organization has provided N10 million. Suppose further that the following quotes where obtained:

Otejaco Consult Ltd	N12 million
Ojetaco Consult Ltd	N9 million
Femik Enterprises	N11 million
Kemif Enterprises	N7.5 million

From the above quotations, the organization within the limits of its budget cannot afford a training mounted by both Otejaco Consult Ltd and Femik Enterprises. It can however afford the training by Ojetaco Consult Ltd and Kemif Enterprises. Which company is eventually selected to run the training programme will however depend on other considerations. Thus cost feasibility can only help the organization to eliminate certain options within the limits of available resources.

Cost effectiveness is an approach for determining which approach for executing a programme is most effective. To utilize this approach one needs to be aware of the indicators for effectiveness which generally depends on the programme objectives. For example, if the interest is on completion of a programme,then a measure of effectiveness would be number that actually completed; if objective is student learning, the indicator could be test scores utilizing appropriate test information. In cost effectiveness, we determine cost and effect of each alternative programme and select the one with greatest impact (Lewin, 1995). It can only be used in situations where outcomes and benefits can be expressed in monetary terms. This is because it attempts to find out which programme can attain the objectives at minimum cost. To execute a cost effectiveness analysis, it is imperative to know the ingredients required to implement the programme. The costs for the respective ingredients are utilized to find the overall cost of the intervention. In situations where gain is in terms of students, the cost is normally converted to per student measure otherwise called average cost. Effectiveness can be expressed as cost-effectiveness ratio; this is the effectiveness divided by cost. This has been found useful in curriculum evaluation, teacher training, and educational television to mention a few.

For illustrative purposes, let assume there are four competing programmes which we believe can enhance mathematics achievement. To execute a cost effectiveness analysis we need to first and foremost determine the costs of implementing each programme. This entails determining the monetary outlays on the ingredients required for the respective programmes. These could include personnel, facilities, equipment, materials and other ingredients; the costs have to be determined or estimated. The total cost for each programme can then be determined. We may decide to convert the programme cost to cost per student. With cost determination completed the evaluator would now focus on effectiveness. A valid achievement test has to be produced to yield measures of effectiveness which could be gain scores. The cost effectiveness can now be found.

Table 1 shows data for the hypothetical programmes in the discussion.

Table 1: Cost effectiveness data for four mathematics achievement program mes

Progamme	Cost (per student)	Effectiveness (test scores)	Cost effectiveness
I	₦ 5000	10	₦500
II	₦ 6000	8	₦750
III	₦ 4700	6	₦ 783.3
IV	₦ 4500	7	₦ 642.9

From Table 1 it is observed that cost per student was lowest for programme IV and had a cost effectiveness of N 642.9. For programme I the cost per student was N5000 but the cost effectiveness was N500. The least effective was programme III. In fact programme I would be the most preferred one from the analysis.

While cost effectiveness looks at different programmes with the same goals and objectives in mind, **cost benefit analysis** examines different programmes with varying goals using different measures of effectiveness. It looks at the different programmes by

comparing their costs and benefits which are measured in money terms. The conversion of the benefits to monetary values is one great difficulty in this analysis. As in the case with cost effectiveness the cost of each ingredientis determined and from there the total cost. Next the monetary values have to be assigned to each benefit.This can be tricky; for example, the increase in earning power as a result of exposure to a programme could be used or one could actually monitor earnings over time (Popham, 1993). Let us assume that the results in Table 2 emerged from a study of three programmes designed to increase scientific literacy.

Table 2: Cost benefit data for three programmes on scientific literacy

Programme	Cost ('000)	Benefits ('000)	Cost/benefit ratio
Progamme I	₦ 200	₦ 450	.44
Programme II	₦ 150	₦ 350	.43
Programme III	₦ 250	₦ 500	.50

From Table 2 the most expensive programme was programme III and programme II was least expensive. In terms of benefits programme III yielded the most benefits followed by programme I and programme II was least. When the cost benefit ratios are compared programme III was most valuable and programme II was less than programme I. Note that cost benefit analysis can be applied to different programmes; its beauty lies in the ability to translate the benefits to monetary values.

Cost-utility analysis is the last cost analysis method which can be applied in educational evaluation. Programmes are designed to achieve certain outcomes. The question that may be asked is what is the utility of the programme outcomes? If the utility is known then one can compare it with associated costs. This is the focus of cost-utility analysis. It is appropriate when the benefits cannot be expressed in monetary terms (Dernovsek, Prevolnik-Rupel&Rok Tavcar, 2007). The utility in cost-utility analysis are in fact

preferences of each person, a select group, or the whole population. Unfortunately, an issue with cost-utility analysis is one of an appropriate unit for measuring output in utility analysis. Four approaches that have been used are the trade-off, person trade-off, rating scale and magnitude estimation (Richardson, 1994). The easiest to use is the rating scale method.

In utility analysis we can assign values on a 10-point utility scale. The values are based on actual programme effects or anticipated effects. The process starts with cost determination as done in cost-benefit analysis. Utility determination is based on the programme providing the greatest happiness to the largest number of individuals. Thus, when individuals estimate the utility of a programme they are attempting to indicate the usefulness, value or even contribution to social happiness (Morimoto& Fukui, 2002). With the use of the rating scale procedure in measuring utility it is assumed that utility is measured with an interval scale such that the utility of a value of 4 is twice that of a value of 2. Those that judge the utility should be those people actually exposed to the programme under scrutiny. The ratings obtained can then be aggregated to get a mean rating.

Utility analysis involves costing the programme, selecting programme participants to rate the utility of the programme using a scales of 1 to 10 with respect to attaining programme goals. The ratings are aggregated and an average computed to estimate the utility of each programme in question. Table 3 presents results from three programmes.

Table 3: Cost-utility analysis data for four programmes

Programme	Cost ('000)	Utility	Cost-utility ('000)
I	₦ 40	7.3	5.48
II	₦ 20	4.3	4.65
III	₦ 15	8.0	1.88
IV	₦ 30	5.6	5.36

From Table 3, programme III has lowest cost-utility ratio. Hence cost of level of utility of programme III is lower than the other programmes. Thus programme III would be chosen rather than programmes I, Programme II and programme IV.

Conclusion

In this chapter, an attempt was made to explore the concept of evaluation as it is related to educational programme. The concept was explained and some reference was made to models which have found applicability in the evaluation of educational programmes. It was felt that in this era where resources are not easy to come by that educational programme evaluation should not only focus on perception of programme effectiveness. The need to also consider cost-analysis has become very necessary and urgent. This is more so as all educational programme implementation involves some financial outlay. Evaluators cannot fail to appreciate the fact that the cost of programmes is equally important and so should also focus on them.

The four cost analysis procedures can be applied in evaluations; all that one needs to do is to consider what is of interest. Is the interest on whether available resources can be used to procure what is needed? If it is then cost-feasibility is the essence. When effectiveness of different programmes designed to attain the same set objectives is of interest then cost-effectiveness should be attempted. When the programmes are different and focus on different goals and the benefits can be translated into monetary values Cost-benefit analysis is the applicable procedure. Finally, when the focus is on utility value of programmes, cost-utility analysis is applied

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14

AN ASSESSMENT OF INDIGENOUS KNOWLEDGE IN PRIMARY SCHOOL SOCIAL STUDIES PROGRAMME

I. A. Salami &Oluwatoke K. Osawe

Introduction

Patriotism is frequently defined as love of and loyal support for one's country. In this study, the term refers to those behaviours (including speech) which reflect love of or loyalty towards one's political community. The altruistic character of patriotism is reflected in its definition as one who disinterestedly exerts himself to promote the well-being of his country. Patriotism is a major concern of all democratic nations including Nigeria. Patriotism is imperative tonation building and education is an important tool which can be used to build its spirit in citizens. However, both education and patriotism depend upon historical, social, political, and economic contextual factors. This no doubt has influenced the premium place don't he education of citizens by the state for active participation in democratic governance and general well-being of the society (Ayeni, 2009).

In Nigeria, education is seen as the pivot of any meaningful development, be it social, economic, technological and political (Ezekwesili, 2006). Evidently, it is perceived not only as an instrument for accelerated national development but also the basis for the integration of individuals into sound and effective citizen (FRN, 2004). Education is the process of providing informationtoaninexperiencedpersontohelptheindividualdevelop physically, mentally, socially, emotionally, politically and

economically (Offorma, 2009).AChineseproverbsupportsthis in its saying that whatever a society desires for its citizens should be thrown into the schools. This means that anything a society desires to see her citizen do must be embedded in the school curriculum and if the curriculum is adequately implemented, the society will see the desired results in her citizens. In other words, some specific school subjects play a major role in the development of patriotism in pupils. Social Studies as a school subject is one of such.

Social Studies is one of the core subjects in the Nigerian primary school education. Its inclusion at the primary education level in Nigeria and its subsequent elevation to the status of a core subject is a clear reflection of its perceived importance (FRN, 2004).Social Studies is generally defined to as the study of man's interaction with his environment– physical and social (NERDC, 2007). Similarly, the National Council for Social Studies (NCSS, 2007) defines Social Studies as the integrated study of the social sciences and humanities to promote civic competence. This subject is concerned with the reciprocal relationship between man and his environment in respect of how he is influenced by it and vice-versa. This position is further collaborated by Ajiboye (2008) in Nwaubani and Azuh, (2014) who argued that the ultimate goal of social studies education is citizenship training and that civic issues had always been part of the subject since its inception.

Since Social studies is the interaction of man with his environment- physical and social- indigenous knowledge plays a key role in the way man will understand and interact with his environment. Indigenous Knowledge (IK) systems are defined as the knowledge, values, and practices of indigenous groups and are known as traditions in local communities and rarely considered universal (Kubow,2007). Kubow further submits that IK's epistemological assumptions on reality are based on intuition, experience, inspiration, and revelation and that these knowledge systems developed in African societies are composed of particular orientations to life, ethics, human development, social relations, and institutions.

The IK has accumulated over generations within an exceptional space or territory, allowing a community to develop concrete understanding of natural and social environments, framing a circular worldview (Deiand Asgharzadeh, 2005;Mkosi, 2005). Ultimately, IK articulates education which serves the purpose of imparting key values, norms, and social mores which, together,comprisethecommunity'sculturalfocalpoint,forthepurpos eofcreating social responsibility within the community (Deiand Asgharzadeh 2005).

Although indigenous knowledge systems varied from one society to another, the goals of these systems were often similar. Indigenous learning was essentially an education for living. Its main purpose was to train the youth for adulthood within the society. Emphasis was placed on normative and expressive goals. Normative goals were concerned with the accepted standards and beliefs governing correct behaviour, while expressive goals were concerned with unity and consensus. There were also elements within the system, which encouraged competitiveness in intellectual and practical matters, but these were controlled and subordinated to normative and expressive goals (Erny, 1981). Indigenous learning in its various forms had a many-sided character intimately intertwined with social life. What was taught was related to the social content in which people were called upon to live.

It is note worthy to state that Social Studies provides knowledge, skills, competencies, attitudes and values which enable the youth to be good citizens (Ajiboye, 2009) thereby serving as a vehicle to impact the Indigenous Knowledge. Even though, Social Studies has been made a core subject, pupils still fail to demonstrate patriotic attitudes. There is therefore a need to examine various forms of Ik in social studies curriculum that can influence patriotism. The various forms are discussed in the next few paragraphs.

The IK has been passed down from generation to generation through traditional education, with adults teaching practical knowledge of culture, the environment and survival

through demonstrations and through a wide range of ceremonies, stories, songs, village meetings and taboos. IK is stored in culture in various forms, such as traditions, customs, folk stories, folk songs, folk dramas, legends, proverbs, myths, and so on. These cultural items can be very effective in bringing indigenous knowledge alive. It would help to conceptualize places and issues not only in the local area but also beyond immediate experience. It is expected that for Social Studies to bank and transmit these cultural practices from one generation to the next, there should be topics in the subject that reflect the cultural practices mentioned above.

The IK, due to its nature of transmission, is embedded with experiences of the past. Relieving these experiences of the past is the same thing as getting to know about the past heroes and heroines of that particular culture, the experiences they had, the lessons to be learnt from those experiences and how to relate the experiences to our present day life in a way that will yield results. A Yoruba proverb says any river that forgets its source is ready to dry up. In the same way, past heroes and heroines of our cultures must be celebrated and their experiences relieved so that children will be able to identify with different people in their culture who lived in the past but are still relevant as of this present age. It is therefore expected that Social Studies as a subject dedicate some topics to the heroes and heroines of our culture so that pupils can learn and relate past events and people to present day occurrences.

The IK systems have been employed in resource-use and management since time immemorial by indigenous communities around the world. Despite being transformed over time, IK systems have maintained their core values which were used before and which can still deal with contemporary environmental issues (Kawagley and Barnhardt, 1999). The knowledge and values embedded in taboos, myths, folklore, cultural practices and traditional institutions govern the relationship between nature and humanity and also assist in preserving natural resources (Etetegwum, 2006).Social Studies should highlight topics that

teach the use of indigenous knowledge in presenting contemporary environmental issues we are faced with.

The IK focuses on the culture and the uniqueness of that culture in away that makes the culture second to none because of the peculiarities and uniqueness that characterizes the said culture. It is expected that Social Studies as a subject should include topics that celebrate the uniqueness of our culture in such away that each pupil will feel a sense of belonging and a sense of duty and pride in preserving our cultural values and showcasing it anywhere all over the world.

Both IK and Social Studies are very essential in breeding patriotic pupils. This is because patriotism involves special affection for one's own country, a sense of personal identification with the country, special concern for the well-being of the country and willingness to sacrifice to promote the country's good image. All these are wrapped up in both civic competence and citizenship training as stated earlier on. Can this description aptly fit any Nigerian pupil? The extent to which foreign culture is dominating the lives of primary school leavers now is alarming in that it is gradually pushing indigenous cultural practices into extinction. One can hardly see the love of Nigeria, identification with it, and special concern for its well-being and that of fellow citizens in pupils nowadays. This is a sign that our education has failed to inculcate the expected knowledge that relates to our ways of life which is more in indigenous knowledge.

Past studies have worked on areas like, Social Studies pedagogy; Social Studies teachers' perceptions and practices; relevance of IK; implications of IK in Social Studies curriculum and others. There is dearth of literature, to the best knowledge of the researchers, in Nigeria on the quantity and quantity of IK content in social studies curriculum that can engender development of patriotic pupils, hence this study.

Research Questions

The following research questions were answered in the course of this study:

1. What are the topics in the curriculum of Social Studies in lower primary schools that relate to patriotism?
2. To what extent does the content of the social studies curriculum present the Nigerian nation as equal (and never inferior) to any other nation?
3. To what extent are the primary school pupils being exposed to past heroes and great Nigerians in the content of social studies curriculum?
4. To what extent does the content of the social studies curriculum promote and expose the primary school pupils to Nigeria's culture?
5. To what extent are the primary school pupils being exposed to the beauty of the Nigerian nation and her vast natural resources in the content of social studies curriculum?
6. What is the perception of social studies teachers about the influence of language of the immediate environment (LIE) on development of patriotism in the lower primary pupils?

Methodology

This study adopts a mixed method research design of the triangulation research design type. In a triangulation design, there searcher simultaneously collects both quantitative and qualitative data, compares the results and the nuses those findings to see whether they validate each other(Ary, Jacobs and Sorensen, 2010).Intheprocessoftriangulating,thisstudyemployedabout 70% of qualitativeand30% of quantitative data hence the QUAL+quan type of triangulation is adopted. The qualitative data was collected from review of relevant documents such as lower primary social studies curriculum and the two most widely used social studies textbooks (Each with book I, II and III) in South West part of Nigeria. The quantitative data was collected through a self-

designed questionnaire distributed to sampled lower primary social studies teachers.

The target population for quantitative aspect of the study is the entire social studies teachers in lower primary classes in both private and public schools in Nigeria. For the qualitative aspect, the curriculum for lower primary Social Studies as well as all textbooks available for the subject for Primary I to III forms the population. A Multistage sampling technique was used to select the samples for the study. Ibadan metropolis was purposively selected for the selection of the teachers because of the presence of all categories of school needed for the study – the public/private, urban/semi-urban/rural and highly/low populated schools. The second stage is the selection of Five Local Government Areas out of the11that make up the metropolis such that the three location types (urban, semi-urban and rural) as well as the population levels (High and low) are all represented. The next stage was the stratification of the schools into two strata (private and public) using a stratified random sampling. Ten (10) schools were selected from each Local Government Areas consisting of 6 public primary schools and 4 private primary schools using disproportionate random sampling which resulted to 50 schools (30 public and 20 private schools). In the final stage, 2 teachers each from the lower primary classes (Primary I, II, III) in the public schools and 1 teacher each from the lower primary classes (Primary I, II, III) in the private schools were purposively selected based on the criteria that these are the teachers handling Social Studies at the lower primary classes. At the end of the selection, a total of 180 Social Studies teachers in public schools and 60 from privately owned schools were sampled for the study. But out of the 240 teachers sampled, 230 questionnaires were well filled and returned. Majority (90%) of lower primary school teachers are female while only 10% are male. Disaggregating this data according to school type, in public schools, (91%) are females while (9%)are male; in private schools, (87%)are female and (13%)are male. The distribution of respondents according to level of qualification

reveals that (64%)of respondents hold NCE certificate while (29%) possesses a Bachelor Degree in Education. Interestingly, one of the respondents (0.4%)holds a PhD certificate.

A self-designed instrument titled 'Social Studies Teachers' Perception and Language of Immediate Environment Questionnaire' (0.84) was used to gather the quantitative data. Qualitative data was obtained by a thorough analysis of the content of the curriculum and the two most common social study textbooks available. To this end, content analysis was employed as the qualitative analytical tool to achieve the general objectives of the study. Krippendorff (1980) defined content analysis as a research technique for making replicable and valid inferences from data to their context. Both explicit (manifest) and implicit (latent) contents of the text data (curriculum and textbooks) were analysed qualitatively covering the words, phrases, symbols, pictures and other notations. Descriptive statistics and charts were used to analyse the quantitative data collected in this study. Descriptive statistics such as frequency count and percentages were used to analyse the demographic data and to answer the research questions where appropriate.

Results

Research Question 1:

What are the topics in the curriculum of Social Studies in lower primary schools that relate to patriotism?

The revised social studies curriculum and two widely used social studies textbooks (Spectrum Social Studies for Primary School, books I-III and Melrose Social Studies for Primary Schools) were analysed in answering this research question.

The revised social studies curriculum is now termed *Religion and National Values* where social studies curriculum is subsumed as presented by the revised version. Patriotism in this

study is depicted with attributes such as understanding of the Nigerian culture, moral values and respect for elders, exposure to past heroes and heroines, love and sacrifice for the country. Table 1 present the data.

Table 1: Adequacy of Patriotic Attribute Content in Lower Primary School Social Studies Curriculum

	Topic	Percentage Representation ofPatrioticAttribute
PRIMARY I	Meaning of Social Studies	4 topics out of11 (36.4%)
	The Family	
	Qualities of a good Family	
	Meaning and Types of Culture	
	Values that show good Morals in our Society	
	Reasons for Taking Substances into the Body	
	Overdose: Too Much Eating, Drinking &Smoking	
	Food	
	Food Safety	
	Risk Factors in Food	
	Sources & Uses of Water	
PRIMARY II	Scope of Social Studies	3 out of10 (30%)
	Physical Environment	
	Food We Eat in our Culture as Family Members	
	Importance of these Foods to our Growth	
	Greetings & Respect to Elders in our Culture	
	Keeping our Environment Clean	
	Accidents in the School/Home	
	Drugs	
	Drug Abuse	
	Harmful Substances & How to Avoid Taking Them	
PRIMARY III	The Nuclear & Extended Family	5 out of8 (62.5%)
	Types of Marriages in our Community	
	Various Ways of Getting Married Objects used in the Ceremony	
	Common Drugs in our Community & the Right People to Take them	
	Ways of Identifying Someone who has Abused Drug	
	Ways of Preventing Common Illness	
	Causes of Road Accidents	
	Giving First Aid Treatment to Road Accident Victims	

Table 1 presents the analysis of the topics as presented in the social studies curriculum revealed that there are 11, 10 and 8 topics in the curriculum for primary I, II and III classes respectively. Only 4 topics out of the 11 in primary I (36.4%) have patriotic attribute. In primary II curriculum, only 3 out of the 10 topics (30%) are related to patriotism. In primary III, 5 out of the 8 topics (62.5%) are related to patriotism. Some of the common topics assessed in the curriculum that relates to patriotism include topics on culture and social values and social and health issues. But other topics that could promote patriotism such as past heroes, beauty of Nigeria and her natural resources and others are not present. Therefore, it could be inferred that topics that can develop patriotism in the pupils are not adequate in the curriculum. This finding might be as a result of the expertise of those who package the lower primary school curriculum. It might be that because of wide coverage of Social Studies, some of the topics were sparsely represented. But according to the submission of Ajiboye (2008), that Social Studies' ultimate goal is citizenship training, there should be a huge presence of topics that directly and indirectly influence patriotism among the pupils in lower primary classes.

Research Question 2: To what extent does the content of the social studies curriculum present the Nigerian nation as equal (and never inferior) to any other nation?

In answering this research question, analysis of the social studies curriculum as seen in the Religion and National Values Curriculum was used. Analysis of curriculum showed that in all the levels of the lower primary school, no topic specifically presented Nigeria as a nation being equal and never inferior to any other nation whether implicitly or otherwise (SeeTable1). This quite reinforces the argument of colonialism and the western forms of knowing that were handled down to the country. The western colonial ideas that everything about African including our culture, value system and indigenous knowledge system are inferior to the western forms of knowledge is still being propagated in our

educational system. This might be the reason Bamgbose (1984) emphasises that if we are not planning to lose our national identity together with our rich indigenous culture then we must begin to pay much attention to the teaching of IK more effectively thereby regarding Nigerian culture more valuable than any foreign culture.

Research Question 3:

Towhatextentaretheprimaryschoolpupilsbeingexposedtop astheroesandgreat Nigerians in the content of social studies curriculum?

Having critically examined the curriculum, one can conclude that there is no content that tends to expose primary school pupils to past heroes and great Nigerians. Table 2 presents the themes and the topics of the Social Studies curriculum meant for Primary I, II and III as seen in the Religion and National Values curriculum.

Table 2: Sub-themes and Topics in the Social Studies Curriculum in Religion and National Values Curriculum

	Sub-Theme	Topic
PRIMARY I	Fundamentals of Social Studies	Meaning of Social Studies
	Family as the Basic Unit of Society	The Family
		Qualities of a good Family
	Culture and Social Values	Meaning and Types of Culture
		Values that show good Morals in our Society
	Social & Health Issues	Reasons for Taking Substances into the Body
		Overdose: Too Much Eating, Drinking
		Food
		Food Safety
		Risk Factors in Food
		Sources & Uses of Water
PRIMARY II	Fundamentals of Social Studies	Scope of Social Studies
		Physical Environment
	Family as the Basic Unit of Society	Food We Eat in our Culture as Family Members
		Importance of these Foods to our Growth
	Culture and Social Values	Greetings & Respect to Elders in our Culture
	Social & Health Issues	Keeping our Environment Clean
		Accidents in the School/Home
		Drugs
		Drug Abuse
		Harmful Substances & How to Avoid
PRIMARY III	Family as the Basic Unit of Society	The Nuclear & Extended Family Taking Them
	Culture & Social Values	Types of Marriages in our Community
		Various Ways of Getting Married & Objects used in
	Social & Health Issues	Common Drugs in our Community & the Right People to Taken them
		Ways of Preventing Common Illness
		Causes ofRoad Accidents
		Giving First Aid Treatment to Road Accident Victims

Table 2 reveals that the available sub-themes and the topics in the curriculum of Social Studies for lower primary classes feature no information about Nigerian heroes and great individuals. It was expected that the names of Nigerians that appear on the naira notes as well as other great Nigerian men and women will feature under a sub-theme such as *Nigerian heroes and heroines* in at least one of the classes but this is missing. Also, none of the two textbooks analysed (In the three series – Book I, II, III of each) feature any of the names. It could be inferred that there is little or no information about past Nigerian heroes exposed to pupils in lower primary schools in the content of Social Studies.

But two of the objectives of Social Studies which state that (i) teaching Social Studies is intended to ensure the acquisition of knowledge that is relevant and regarded as the essential prerequisite to personal development to positive personal contribution to the betterment of mankind and (ii) to develop in the children's positive attitude to citizenship and a desire in them to make a positive personal contributions to the creation of a united Nigeria (NERDC, 2007) cannot be achieved if the current social studies curriculum and the textbooks lacked these basic contents. This means that as far as the current social studies curriculum is concerned, it cannot be relied upon to make pupils aware, understand and appreciate the exploits of the heroes and heroines and how the pupils can be inspired through these great Nigerians. This finding is not in total tandem with Lawal and Oyeleye (2003) submission on the values of Social Studies, that through Social Studies the child acquires knowledge of self, others, environment, community, state, country and world in that if 'other' as used by these authors referred to the heroes and heroines in the society.

Research Question 4:

Towhatextentdoesthecontentofthesocialstudiescurriculu mpromoteandexpose the primary school pupils to Nigeria's culture?

Table3: Frequency Counts of Pictures, Topics and Sub-topics on Culture as Present in Three Series of the Two Common Textbooks

Textbook Description	Pictures	Topics	Sub-topics
Brand A Social Studies for Primary I	20	2	19
Brand A Social Studies for Primary II	32	3	22
Brand ASocial Studies for Primary III	38	4	24
Brand B Social Studies for Primary Schools, Book I	35	4	25
Brand B Social Studies for Primary Schools, Book II	20	6	36
Brand B Social Studies for Primary Schools, Book III	23	4	28

Table 3 reveals how the six textbooks (From two authors) analysed feature topics, sub-topics and pictures on culture. It is revealed that the two brands of textbooks have many pictures on culture, this range from 20 to 38 pictures per a textbook. The topics also range from 2 topics to as many as 6 topics in a textbook all on culture. The least number of sub-topics in a textbook is 19 and there are as many as 36 sub-topics in one of the textbooks. This implies that culture is adequately exposed to lower primary school pupils by the textbooks used. These support the goal of Social Studies that it is to develop a sense of comprehension towards other people, their culture, history and those fundamental things that make them human and develop an appreciation in children, the nation's cultural heritage and a desire to preserve such heritage (NERDC, 2007)

Research Question 5:

To what extent are the primary school pupils being exposed to the beauty of the Nigerian nation and her vast natural resources in the content of Social Studies curriculum?

To answer this question, the highlight of all the topics featured in the textbooks is presented to give insight to those that feature beauty of the country and her natural resources. The topics are represented in table 4.

Table4: Description of Topics in the Social Studies Textbooks Reviewed

TOPICS		
PRIMARY I	PRIMARY II	PRIMARY III
Family	Family	Family
Culture	Culture	Culture
Social Issues and Problems	Social Values	Health Issues
HealthIssues	Science, Technology&Society	SocialIssues and Problems
Substances taken into Body	Social Issues	Science, Technology and Society
National Economy	Storage	NationalEconomy
Transportation	National Economy	
	HealthIssues	

The analysis revealed that topics that should expose pupils to the beauty of the Nigerian nation and her vast natural resources were not explicitly stated in the textbooks and even when they were implied, they were sparingly discussed or described in the textbooks. It was expected that under the topic, *National Economy,* the issue of natural resources will be discussed but this was not. This quite shows that the Social Studies curriculum and the textbooks lacked the requisite topics that should expose pupils to the beauty of Nigeria as a nation. This finding supports the position of Nwabuani and Azuh (2014) that social studies curricula lack substantial civic contents, it is therefore expected that appropriate measures should be taken to infuse more civic education contents into the Basic Education social studies curricula whenever it is reviewed.

Research Question 6: What is the perception of social studies teachers about the influence of LIE on development of patriotism in the lower primary pupils?

Table 5: Perception of Social Studies Teachers on the Influence of LIE in the Development of Patriotism in the Lower Primary School Pupils

S/n	Item	S	A	D	SD	MEAN	STD.
1	Speaking the language of imm ediate environmentis closely related tobeing patriotic.	24	128	66	12	2.71	0.721
2	Teaching lower primary Social Studies usinglanguageofimmediateenvironment creates awareness forcultural values.	45	149	30	6	3.01	0.657
3	The foundation forin-depth und erstanding of the Nigeriancultureandvaluescould on ly bebuilt by usingthelanguageof imm ediate environmenttoteachatthe lowerprimaryclasses.	46	103	60	21	2.76	0.878
4	Mypupilsdonotknowalotaboutthe history of Nigeria because I teachin EnglishLanguage	14	55	129	32	2.78	0.758
5	My pupilsdo not know a lot about Nigeria's cultural heritage and values becausetheyalways speak in English.	33	58	115	24	2.57	0.863
6	Thelanguageofimmediateenvironment is inadequate to teach the values and culture fordevelopingpatriotism.	22	82	83	43	2.64	0.894
	Weighted Average	**2.75**					

Table 5 reveals that the social studies teachers agreed with the following: that speaking language of immediate environment is related to being patriotic (mean=2.71); that teaching lower primary Social Studies using language of immediate environment strongly creates awareness for cultural values (mean =3.10); that the foundation for in-depth understanding of Nigerian culture and values could be built by using the language of immediate environment to teach at the local primary classes (mean =2.76). The table also showed that the Social Studies teachers disagreed with the following negative statements: that pupils do not know a lot about the history of Nigeria because they teach in English Language (mean=2.78); that pupils do not know a lot about Nigeria's cultural heritage and values because they always speak in English (mean=2.57); that the language of immediate environment is inadequate to teach the values and culture of developing patriotism (mean= 2.64).

The weighted average of the table is 2.75 which is a numerical indicator that the social studies teachers perceived that LIE can influence the development of patriotism in lower primary school pupils positively.

This points to the fact that the language of any people is the medium through which they perceive, understand and relate with their environment. It is also in line with the submission of the British Advisory Committee on Native Education in Tropical African who recommended in 1927, that the native languages should serve as medium of instruction in the lower years of primary education (Bamgbose, 1989). According to Bamgbose, the introduction of formal education and the subsequent adoption of English as the medium of instruction hindered the exclusive use of indigenous languages as media of instruction at the primary school in Nigeria. Cummins (2000) argues that the destruction of language of immediate community and culture in primary school are highly counterproductive for any society and it is only to squander the linguistic resources of the nation by discouraging or by depriving the children from learning from their indigenous language. Moreover, it is in the official policy document in Nigeria that the medium of instruction at the lower primary (the first three years) should be the indigenous language of the child or the language of his/her immediate environment (FRN,2004).

Conclusion

Based on the findings of this study, it can be concluded that although the Social Studies teachers have a positive perception on the use of language of immediate environment to teach and its influence on patriotism, the current social studies curriculum content is somewhat inadequate in helping to develop patriotic pupils. Many aspects of Nigerian cultural life that could promote patriotism in the pupils are missing in the curriculum and also the adopted social studies textbooks do not feature these topics. Pupils in the lower primary school, therefore, are not being educated to be patriotic individuals.

Recommendations

In order to make primary education more effective in the area of developing in the pupils the spirit of patriotism, the following are recommended based on the findings of this study:

- The curriculum developers should ensure that Social Studies achieve its goal as a core subject in the school curriculum by planning for its review as soon as possible. Since Social studies has a mammoth task to equip students with intellectual skills in order to develop effective citizens, the required content for this to be achieved must be reflected in the curriculum.
- The curriculum developers must ensure that a more of indigenous knowledge content is added to the social studies curriculum. This will enable the school, not only to expose thepupilstotheculture,normsandvaluesthataresacrosancttoour society but also to develop in them the feel of a strong sense of belonging to the Nigerian community and become functional members of our society.
- The publishers of social studies textbooks must be mandated by curriculum developers to strictly follow curriculum guidelines in the writing and publishing textbooks. Also, pictorial representation in the textbooks must reflect the Nigerian community where the pupils reside and not foreign junks that pupils would not be able to relate with.
- The Federal and State Ministries of Education should ensure that the policy on language of immediate environment in lower primary schools be strictly adhered to. Because for IK to be well communicated to the pupils, the language of the community must be considered as the best means of communication.

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15

EVALUATION OF THE MOTHERS' LEVEL OF AWARENESS OF SAFETY, HEALTH AND NUTRITION FOR NIGERIAN CHILDREN: EFA GOAL 1

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Introduction

The 1990 World Declaration on Education for All, (EFA) stated that learning begins at birth. It also encourages the development of Early Childhood Care and Education. The World Education Forum at Dakar in 2000 also reaffirmed the importance of Early Childhood Care and Education in reaching basic education goals, as did the United Nations special session on children in 2002. These ground-breaking legal and political commitments recognise that children are born with the right to have their learning needs met through approaches that promote their holistic development. This is the broad, holistic scope of Early Childhood Care and Education as captured in the policy objectives associated with it all over the world. The scopes include:

- *Providing health care, immunization, feeding and nutrition;*
- *Supporting new parents through information sharing and parenting education;*
- *Creating a safe environment for young children to play and socialise with their peers;*
- *Compensating for disadvantaged and fostering the resilience of vulnerable children;*
- *Promoting school readiness and preparation for primary School;*

- *Providing custodial care for children of working parents and family members;*
- *Strengthening communities and social cohesion;*

(Kamerman 2005; UNESCO- IBE, 2006, UNICEF, 2006.UNESCO, 2010).

The 2000 Dakar Framework for Action (Paragraphs 30 and 31) articulated several core components of early childhood programmes. They should be appropriate to (the children's) age and not mere downward extensions of formal school systems and comprehensive, focusing on all of the child's needs and encompassing health, nutrition and hygiene as well as cognitive and psychosocial development. Many children in the world grow up in poor environmental conditions, have limited or no access to health services and live in impoverished households. These children are especially susceptible to water borne disease, are more likely to have deficient diets and stunted growth, and are less likely to survive childhood and enter school (UNICEF, 2006). In most countries, Ministries of Health have the sole responsibility for the health of children from birth to age 3. While immunization campaigns have expanded worldwide, coverage is still unsatisfactory, particularly in the poorest regions. For example, in sub-Saharan African, one-quarter of all 1-year old are not immunized against tuberculosis, one-third have never received the vaccine against diphtheria, and two thirds have not received the hepatitis B vaccine (UNESCO, 2007).

The under – 5 mortality rate (U-5MR) the number of children per 1,000 (0/00) live births who died before reaching age 5 is generally considered the most robust indicator of all childhood survival. More than the infant mortality rate, the under 5 mortality rate captures the accumulated impact of the quality of the birthing experience, neonatal care, disabilities, breast feeding and vaccination, as well as the effects of gender discrimination, mal-or under nutrition and inadequate health care. According to UNICEF, (2005a) of all the Millennium Development Goals, reducing child mortality remains the farthest from being achieved. Factor

analyses indicate that among variables such as stunting, underweight, vitamin deficiency, breastfeeding and vaccination, the under 5 mortality rate loads strongest on an underlying factor. Millennium Development Goal 4 (United Nations 2005) calls on countries to reduce by two thirds the under -5-mortality rate between 1990 and 2015, Nigeria inclusive (Pitan, 2015).

It is noted in EFA Global Monitoring Report, (UNESCO, 2007) that the health and nutrition Joint United Programme on HIV/AIDS, 2006 Report on the global aids epidemic A UNAIDS 10th anniversary special edition. Geneva: *UNAIDS*. (Immunization of 1-year old from diseases such as tuberculosis, DPTs, and HEP B) are useful for assessing regional levels of children's well-being. While immunization campaigns have expanded worldwide, coverage is still unsatisfactory particularly in the poor regions such as Nigeria. The reports emphasised poor diet and malnutrition as the main reasons why more than one-quarter of all children "under 5 in sub-Saharan Africa are moderately or severely underweight. In addition, one third of African children in the age group suffer from moderate or severe stunting. Both problems weaken children and make them more vulnerable to illness and disease. Chronic hunger and stunting directly affect a child's ability to learn, but because coverage of early childhood provision in sub-Sahara Africa is limited, therefore timely detection and treatment of health problems due to under nutrition are reduced (Akinmokun, 1989).

However, the E-9 countries {nine highly-populated countries {Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan}have made remarkable progress in reducing the under -5-mortality rate (U-5MR) over the last couple of decades. The average rate dropped from 218 in 1960 to 72 in 2001, lower than the world average of 82. But for Nigeria, whose U-5MR of 183 in 2001 remained higher than the average for least developed countries (157), there is no room for complacency. Both Nigeria and Pakistan are considered "far behind" in progress towards meeting the Millennium Development Goal of reducing U-5MR by two-thirds (UNESCO, 2003).

The understanding of early childhood as a time of sensitive periods leads naturally to the notion that early childhood programme can supplement the care and education that young children receive at home, in their families and communities. Moreover, recent publications emphasise the flexibility and adaptability of humans, as well as their resilience to trauma (Masten 2001, France and Utting, 2005). This implies that early childhood programmes cannot only benefit all children but also compensate for young children's negative experiences because of conflict (within the family or society) and nutritional or emotional deprivation. To sum up, participation in comprehensive early childhood programmes of good quality can significantly alter the developmental trajectory of a child. Health, nutrition and education are areas where such benefits have been consistently identified.

According to Jukes (2006), young children are particularly fragile, therefore reducing infant and child mortality has long been a key public health priority. Vaccination campaigns have reduced child mortality considerably, yet more than 10 million children aged 5 or under still die every year. More than half die from one of five transmittable diseases that can be prevented or treated. Diarrhea, pneumonia, malaria, measles and HIV and AIDS (Joint United Nations Programme on HIV & AIDS, 2006 (UNAIDS)). Extending the provision of safe drinking water and proper sanitation would reduce infant and child mortality dramatically, especially when complemented by parenting programmes that facilitate improvements in breast-feeding and weaning practices. Whether formally classified as ECCE or not, measures designed to reduce mortality are certainly first steps towards establishing comprehensive early childhood programmes (UNESCO, 2007).

Nutrition and education reinforce each other combined nutritional and educational interventions are more likely to be successful than interventions that focus on nutrition alone. Studies in Guatemala and Viet Nam (Watannabe, Flores, Fujiwara, and

Lien, 2005) found that nutrition packages had a much larger and longer lasting impact on children receiving sufficient cognitive stimulation. An important implication is that, where health nutrition problems commonly recur (for example, with seasonal variations in nutritional intake or disease transmission, or where communities are constantly exposed to diseases for which no simple preventive measures exit) educational interventions are as important as those for health.

Under nutrition has a negative impact on school participation and achievement. Studies in Pakistan (Alderman, Behrmn, Lavy, and Menon, 2001) and the Philippines (Mendez and Adair, 1999) have shown that stunted children (those who are short for their age) are less likely to enroll in school, and more likely to enroll later and to drop out. Poverty explains part of this correlation. Children from poor families are more likely both to be undernourished and to remain out of school but there is also a direct, causal impact of under nutrition on schooling. Parents of stunted children may consider them less mature and favour their healthier siblings instead in enrolment decisions. Stunted children may also find it more difficult to walk to school and, once there, may suffer from discrimination and stigma.

Given the links between health and nutrition on the one hand, and education on the other, a holistic view of child development is gaining ground, with early childhood programmes designed to address both issues. For example, a programme providing iron supplementation and deworming treatment resulted in increased attendance at pre schools in Delhi, India (Bobonis, Miguel, and Sharma, 2007 and UNESCO, 2007). A pre-school feeding programme in Kenya had a similar impact (Vermeersch and Kremer, 2004).

Comparably, rigorous evaluations of early childhood programme in developing countries are less available but evidence has started accumulating over the past decade (Jukes, 2006). A pre-school health programme in Delhi increased average school participation by 7.7 percentage points for girls and 3.2 for boys

(Bobonis et al, 2007). In developing countries, studies though lacking experimental design, also suggest high returns. In Bolivia, the *proecto integral de Descarrollo infantile*, a home based programme of early childhood development and nutrition, had benefit/cost ratios between 2.4.1 and 3.1.1., with higher ratios for children from groups with high infant mortality; high malnutrition and low school enrolment (Vander and Tan, 1998). Other economic analyses in Colombia and Egypt find ratios of about 3:1, and the benefits in Egypt could be as high as 5.8.1 if ECCE programmes are targeted to children most at risk (Arnold, 2004).

Early childhood programmes can also reduce gender inequality. In some cases, the impact of participation on health has been found to be higher for girls than for boys (Jukes, 2006); indeed, early childhood programmes can compensate for the priority that is given to boys' access to basic health care in some societies. Similarly, girls who participate in early childhood programmes are much more likely to begin school at the appropriate age and complete primary school than girls who do not (Arnold, 2004). Among the Nepalese children who took part in an ECCE programme, an equal proportion of girls and boys began first grade, compared with 39% of girls and 61% of boys who did not participate (Arnold et al, 2000). The study is limited to the first three aspects of EFA Goal 1 (Comprehensive Early Childhood Care and Education). It has long been recognised that the health of the child, especially the pre-school child is a matter of universal concern as children are the most precious assets any nation can have. Their well being reflects the future of the nation. However, maternal mortality is in the increase in our nation. There is urgent need to create awareness on safety, health care and nutrition of the child since these are germane to the survival and growth of children. The study therefore assessed the level of mothers' awareness of the indicators of safety, health care and nutrition in three states in South West, Nigeria.

Research questions

1. What is the level of mothers of children from birth-3 years awareness of indicators of (i) safety,(ii) health care and (iii) nutrition?
2. What is the level of mothers of 4 to 6 years awareness of indicators of (i) safety, (ii) health care and (iii) nutrition?
3. Is there any significant difference in mothers' awareness of indicators of (i) safety, (ii) health care and (iii) nutrition across the states used?

Methodology

Sampling and Sample

Multi-stage sampling technique was employed in the study. There are 6 states that make up the South West Nigeria viz: Oyo, Ogun, Osun, Ondo, Ekiti and Lagos. These States have 137 local governments areas altogether. Due to time and financial constraints, three States were randomly selected. Three local government areas were also randomly selected from each of the three states, making a total number of 9 local government areas. The researchers made use of four hundred and fifty mothers of children from birth to 6 years and 450 children selected from 36 public and private pre-nursery schools and 18 day care centers in South West, Nigeria. The parents of the children selected were involved in the study. 450 homes were visited; after much effort, 441 of the questionnaires were collected from the mothers and analysed (Mothers of children from birth to 3years-86 while those of children 4 to 6 years -355). Parental Awareness of Early Child hood Care and Development Provision Questionnaire (PAECCDPQ) for mothers of children from birth to 3 years and those from 4 to 6 years and Structured Interview Schedules were used to correlate the responses.

Instrumentation

Four instruments were developed by the researchers for data collection. The first Parental Awareness of Early Childhood Care (from birth to 3 years) with reliability coefficient of 0.92

using Cronbach Alpha. It was responded to by parents of children from birth to three years and the second, Parental Awareness of Early Childhood Care (4 to 6 years) with reliability coefficient of 0.90 using Cronbach Alpha. Both instruments were accompanied by interview schedule for both cohorts. Interview schedule for mothers of children from birth to 3 years (ISMB). It was developed by the researchers to elicit information on some aspects of child's care during ante-natal and post-natal periods. It also contains a checklist to check the availability of some materials in caring for the child in the child's home environment. It was given to experts in early childhood education and evaluation for content validity. It was handled by the researchers and assistant during home visit. Interview schedule for mothers of 4 – 6 years (ISM) was developed by the researchers to elicit information on some aspects of child care during antenatal and post natal periods. It also contains checklist to check the availabilities of some materials in caring for children. It was given to experts in early childhood education and evaluation for content validity. It was completed by the researchers and assistant during home visit.

Data Analysis: Data was analysed using frequency counts, percentages and Pearson correlation coefficient.

Results

Table 1:Level of Awareness of mothers (from birth to 3 years) on indicators of safety, health care and nutrition

Objective Indicator	Not Aware	Partially aware	Aware	Very much Aware	Total
Primary Health care services e.g. dispensaries/hospitals within your locality	**11(12.8%)**	**5(5.8%)**	**20(23.3%)**	**50(58.1%)**	**86(100%)**
Provision of preventive measures for childhood deadly diseases	**16(18.6%)**	**4(4.7%)**	**17(19.8%)**	**49(57.0%)**	**86(100%)**
Provision of food to children at school	**48(55.8%)**	**9(10.5%)**	**10(11.6%)**	**19(22.1%)**	**86(100%)**
Government supply of food supplements for children e.g. vitamin A	**24(27.9%)**	**7(8.1%)**	**17(19.8%)**	**38(44.2%)**	**86(100%)**
Information that parents should keep a care profile of their children's immunization	**7(8.1%)**	**5(5.8%)**	**18(20.9%)**	**56(65.1%)**	**86(100%)**
Health talk during pregnancy	**9(10.5%)**	**1(1.2%)**	**21(24.4%)**	**55(64.0%)**	**86(100%)**
Growth monitoring from birth to 3 years	**12(14.0%)**	**4(4.7%)**	**20(23.3%)**	**50(58.1%)**	**86(100%)**
Correct diagnosis of illness during pregnancy and after delivery	**15(17.4%)**	**4(4.7%)**	**19(22.1%)**	**48(55.8)**	**86(100%)**
Tetanus Immunization	**7(8.1%)**	**3(3.5%)**	**27(31.4%)**	**49(57.0%)**	**86(100%)**
Iron supplement on daily basis	**20(23.3%)**	**6(7.0%)**	**20(23.3%)**	**40(46.5%)**	**86(100%)**
Use of insecticide treated nets by both mother and child	**8(9.3%)**	**3(3.5%)**	**11(12.8%)**	**53(61.6%)**	**86(100%)**
Correct treatment of illness such as malaria	**12(14.0%)**	**3(3.5%)**	**16(18.6%)**	**55(64.0%)**	**86(100%)**
Monitoring of blood pressure during pregnancy	**10(11.6%)**	**4(4.7%)**	**20(23.3%)**	**52(60.5%)**	**86(100%)**
Urine test for pregnant mothers	**8(9.3%)**	**5(5.8%)**	**27(31.4%)**	**46(53.5%)**	**86(100%)**
Counseling on family planning	**5(5.8%)**	**2(2.3%)**	**24(27.9%)**	**55(64.0%)**	**86(100%)**

The result in Table 1 reveals that majority of the respondents indicated being aware of Nigeria Government provision of primary Health Care services as indicated on the table.

Table: 2 Mothers Awareness of safety, health care and nutrition during Antenatal and Post Natal

Item	No		Yes	
	F	%	F	%
Were you ever educated by health workers on: Benefits of breast feeding for both mother and child?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: Advantages and disadvantages of breast milk substitutes?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: Various types of weaning foods?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: Preparation of various weaning foods?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: The type of food you should introduce first in weaning?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: How to identify symptoms or signs of malnutrition?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: The importance of cleanliness with respect to preparation of children's food?	**-**	**-**	**86**	**100%**
Were you ever educated by health workers on: Childhood related diseases?	**-**	**-**	**86**	**100%**

Mothers of less or equal to three years children were asked whether they were educated by Health care workers on the above indicators of objective of EFA Goal 1.As shown in Table 2, there were 100% agreements among the mothers across the States that they were educated. This showed that Health care workers across the states performed their duties.

Table 3: Level of Awareness of mothers (4 -6 years) on safety, health care and nutrition

Objective Indicator	Not Aware	Partially aware	Aware	Very much Aware	Total
Health talks during pregnancy.	29(8.2%)	31(8.7%)	4(34.9%)	171(48.2%)	355(100%)
Growth monitoring from birth to five years.	48(13.5%)	43(12.1%)	109(30.7%)	155(43.7%)	355(100%)
Correct diagnosis of illness	43(12.1%)	67(18.9%)	114(32.1%)	131(36.9%)	355(100%)
Tetanus immunization.	34(9.6%)	44(12.4%)	114(32.1%)	163(45 .1 %)	355(100%)
Iron supplement on daily basis	58(16.3%)	52(14.6%)	108{30.4%)	137(38.6%)	355(100%)
Use of insecticide treated nets by both mother and child.	52(14.6%)	45(12.7%)	96(27.0%)	162(45.6%)	355(100%)
Correct treatment of illness such as malaria.	27(7.6%)	33(9.3%)	118(33.2%)	177(49.9%)	355(100%)
Monitoring of blood pressure during pregnancy.	65(18.3%)	29(8.2%)	108(30.4%)	153(43.1%)	355(100%)
Urine test pre -and post -natal.	63(17.7%)	34(9.6%)	110(31.0%)	148(41.7%)	355(100%)
Counseling on family planning.	68(19.2%)	34(9.6%)	97(27.3%)	156(43.9%)	3655(100%)
Acceptance of child's company.	36(10.1%)	41(11.5%)	134(37.7%)	144(40.6%)	355(100%)
Friendliness with the child.	24(6.8%)	28(7.1%)	114(32.1%)	189(53.2%)	355(100%)
Warmness to the child	30(8.5%)	44(12.4%)	120(33.8%)	161(45.4%)	355(100%)
Responsive to the child's need.	22(6.2%)	40(11.3%)	108(30.4%)	185(52.1%)	355(100%)
Monitoring the child when interacting with peers.	30(8.5%)	37(10.4%)	123(34.6%)	165(46.5)	355(100%)
Monitoring the child when interacting with objects in the environment.	30(8.5%)	37(10.4%)	123(34.6%)	165(46.5%)	355(100%)
Performing activities such as telling stories to the child.	42(11.8%)	45(12.7%)	128(36.1%)	140(39.4%)	355(100%)
Fostering positive interaction between the child and others.	35(99%)	59(16.6%)	118(33.2%)	143(40.3%)	355(100%)
Recognising individual differences of each child.	40(11.3%)	43(12.1%)	127(35.8%)	150(41.3%)	355(100%)
Unhealthy comparison of the child.	136(38.3%)	107(30.1%)	57(16.1%)	55(11.5%)	355(100%)

The result in Table 3 reveals that majority of the respondents indicated being aware of Nigerian government provision of Health talks for expectant mothers and all other items as indicated in Table 3 However, more than 60% indicated that they are not aware that they should not practice unhealthy comparison among children {Item 20}.

3. Is there any significant difference among mothers of children from birth to 3 years awareness on safety, health care and nutrition across the states?

Table 4: Chi-square showing the difference in awareness of safety, health care and nutrition by Mothers of children from birth to 3 years across the States.

State	Parents of less or equal to 3yrs level of awareness of EFA			Total	^{2}	d/f	P. value	Rmk.
	Low	Moderate	High					
Ogun	11(36.7%)	14(46.7}%	5(16.7}%	30(100.0%)	15.161	4	.004	S
Osun	3(10.3%)	11(37.9%)	**15(51.7%)**	29(100.0%)				
Oyo	**6(22.2%)**	**17.63.0%)**	**4(14.8%)**	27(100.0%)				
Total	20(23.3%)	42(48.8%)	24(27.9%)	86(100.0%)				

S = Significant at 0.05 alpha level.

From table 4.c^2={4} =15.161, P< 0.05. Therefore, there is a significant difference in mothers from birth to 3 years children level of awareness of some aspects of EFA Goal 1 across the States; Ogun, Osun and Oyo. It is noted from the Table 4 that majority of the mothers {48.8%} indicated moderate level of awareness of EFA Goal 1across the States while 23.3% and 27.9% of the mothers revealed that they are not aware and very much aware of these programmes mounted by Nigeria government. The implication of the study is that mothers of children in that age bracket may not be benefiting from the programmes since they are not aware. The results would be that the EFA Goals which is a global issue to be achieved by the year 2015 would be far from reality since children would still be vulnerable to deadly diseases.

Table 5: Chi-square showing the difference in level of awareness of safety, health care and nutrition of 4-6 years children on safety, health care and nutrition across the States

State	Level of awareness of EFA Goal 1 by parents of 4 – 6year			Total	^{2}	d/f	P. value	Rmk
	Low	Moderate	High					
Ogun	31(26.3}%	67(56.8}%	20(16.9}%	118(100}%	18.143	4	.001	S
Osun	34(26.3}%	44(36.7}%	**42(35.0}%**	120(100}%				
Oyo	**19(16.2}%**	**67(57.3}%**	**31(26.5}%**	117(100}%				
Total	84(23.7}%	178(50.1}%	93(26.2}%	355(100}%				

S = Significant at 0.05 alpha level.

From Table 5 c2={4}= 18.143, P< 0.05. There is a significant difference in parents of 4-6 years children level of awareness of EFA Goal 1 across the States. From Table 5 a smaller number of parents indicated to be aware of the EFA programme as well as those provisions made by the government for mothers of children aged 4-6 years; while majority {50.1%}indicated moderate awareness and high awareness {26.2%}. Those who lack awareness are many. The implication is that those categories of mothers will not participate with their children in the programme, thus maternal and infant mortality rate that Nigeria government is trying to eradicate will still be on the high side.3.

Table 6. Correlations of mothers questionnaire {less or equals to three years children} and the interview schedule

Parameter	Value
Pearson Correlation Coefficient { r}	-.072
N	86
P Value	508

P > .05

Attempt was made to correlate the responses of the mothers in parents' questionnaire with the interview collected during home visit as in Table 6. Despite the fact that parents of children less or equals to 3 years claimed the knowledge and great extent of implementation of some aspects of the indicators of ECCE, the interactions the researcher had with them during interview proved that they were not aware and implemented the indicators as they had claimed. For instance, if they had been enlightened on the benefits of breast feeding for both mother and child during pre and post natal, they were expected to be able to say the importance. The correlation coefficient estimated was -.072 {p> .05}. This showed there was low correlation between the responses and the observation made.

Table7: Correlation of mothers questionnaire {4-6 Years Children} and the Interview Schedule

Parameter	Value
Pearson Correlation Coefficient { r}	.384
N	355
P Value	.000

P < .05

Attempt was made by the researcher to correlate the responses of the mothers of children aged 4-6 years with the interaction during home visit as in Table 7. Majority of the mothers of 4-6 years children claimed to be aware and very much aware and implemented the indicators of some aspects of ECCE. However, information gathered from the mothers was correlated with the interview of the mothers during home visit. The correlation coefficient estimated was .384 {p<.05}, although, it is not significantly strong, the implication is that the level of awareness and implementation may not be as strong as the mothers have claimed. Those indicators they claimed to be aware of and

implemented were asked during interview and majority was unable to provide answers.

Discussion

The findings showed the level of awareness of Nigerian mothers (from birth to 3 years) on some aspects of objectives of EFA Goal 1 However, the mothers sampled claimed not to be aware and partially aware of Government provision of food to children at school. This is in line with the works of Oduolowu, (2004) who advocated for other child care services such as nutrition, health and safety. She further stated that the objective of child survival, comprehensive development, socialization, rehabilitation and improvement of childcare were critical; to support young children and help them strive, it is important to take care of these other needs. If the human environment is one of poverty, apathy and low self-esteem, the child may be marked by the same characteristic unless the parents and community can be helped to achieve some measures of creative control over the child's micro-environment. This showed that if mothers were really aware of the indicators of ECCE it would enhance better child care.

Mothers were further asked for their awareness of some indicators of objectives of EFA Goal 1. For instance, they were asked if they were ever educated by health workers on the following benefits of EFA Goal 1: (Comprehensive Early Childhood Care and Education) breast feeding for both mother and child, advantages and disadvantages of breast milk substitutes and other items. It was observed that all the parents unanimously agreed that they were educated on all the indicators of EFA Goal 1 stated on Table 2. Thus, if they were aware of those indicators, it was expected to lead to better child Care. Nevertheless, Dr. Kayode Obembe, a former Oyo State Medical Association Chairman and a consultant obstetrician and gynecologist, explained that Nigerians could only have access to effective,

efficient and quantitative care anywhere and at all times with a functional health insurance scheme in place. He suggested that community based health insurance schemes also needed to be vigorously pursued so that farmers, cattle rearers', petty traders and others could start to benefit from them. (Tribune 3rd October, 2008).

The findings showed among the sampled mothers of 4 – 6 years, majority claimed to be aware and very much aware of the indicators of objectives of EFA Goal 1. If mothers of children 4-6 years were aware and very much aware of the following indicators, it should lead to better child care and reduction in maternal and childhood mortality rate. Nevertheless, the stakeholders claimed not to be aware that unhealthy comparison of the child as an essential aspect of ECCE. The realisation of EFA Goal 1 in Nigeria by 2015, World Bank Group President, Robert Zoellick said, was also tied to the control of material, in a statement issued by the bank. Zoellick was quoted to have said that Nigeria and Democratic Republic of Congo accounted for 30 percent to 40 percent of deaths from malaria in Africa. It could be deduced from the above that mothers in the light of being highly aware, the resources to meet the needs might not be available as a result of poverty and poor funding by the Government. For instance, insecticide treated net was supposed to be given free of charge to mothers from birth to five years and pregnant women but in Nigeria, the reverse is the case. This took another dimension recently when the government of Lagos and Oyo State distributed mosquito treated Nets free to households. However, how effective is the use by individual mothers?

Conclusion and Recommendations

Based on the findings of the study, mothers were not aware and did not implement the three aspects of EFA goal 1 to the extent claimed. Mothers should be concerned about their health and the health of their children during pre-natal and post-natal periods, since a healthy mother brings forth a healthy baby. All the health

care precautions should be strictly adhered to in order to reduce maternal and child mortality rate.

It is recommended that health care workers should be integrated into the school system to create awareness to mothers through Parents' Teachers' Association (PTA). More awareness on maternal mortality during antenatal clinics should be created by Health care workers. Government should provide all the vaccines for children from birth to six years free of charge within the locality of the parents so as to encourage parents, most especially indigent ones to take their children for health care. Adequate health care services should be created by the government through social media. This will in turn increase the survival rate of children and mothers.

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16

TEACHERS AS AN INSTRUCTORS, ASSESSORS AND EVALUATORS: IMPERATIVE TO NATIONAL DEVELOPMENT.

Christiana I. Agi & Magaret O. Aduloju

Introduction

Education is a conscious and deliberate process to impart knowledge so as to bring about desired changes in the learner. Education as a process can be achieved through the activities of the teacher and the learner in a classroom. The aim of teaching and learning is to achieve some set of objectives which are stated in measurable terms. To achieve these objectives in the lives of learners who are the recipient of classroom teaching learning process, the teacher who is saddled with the responsibility of ensuring the achievement of the stated objectives, does these through a number of processes. These processes include instructing, assessing and evaluating. This paper therefore, examined the teacher and the learner; the teacher as an instructor, assessor and evaluator, inter-play of instructor, assessor, evaluator, and the learner and it's imperativeness to national development.

CONCEPTUAL FRAMEWORK

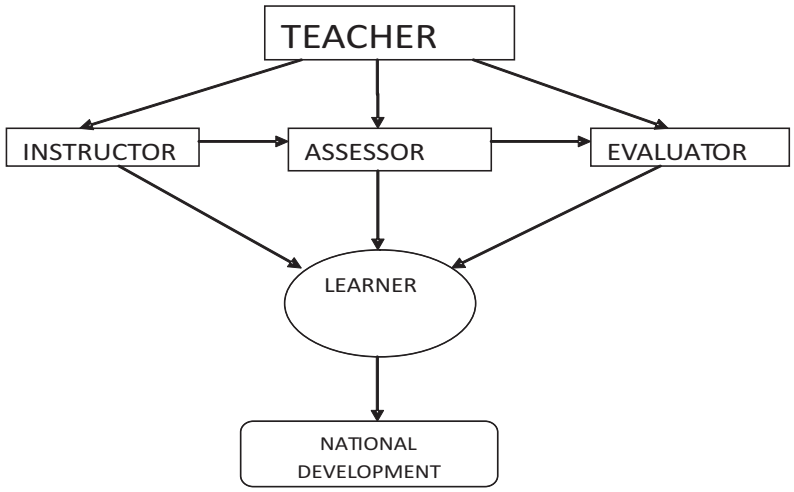

Fig. 1: Schematic representation of the conceptual framework of x-ray of the teacher from the perspectives of an instructor, assessor, evaluator of the learner and national development.

The arrow indicates the respective direction of the teacher's relationship with the learners from the four perspectives. The teacher in the classroom is at the top with a major arrow which branches into three as an instructor, assessor, and evaluator. These four components are further connected down with arrows to a major box, the learner who is at the center and the recipient of the activity. Finally from the learner a major arrow runs down to national development as shown.

The Teacher and the Learner

At every level of education, be it primary, secondary or otherwise, the teacher - learner factor come to bear. A teacher is one that is trained in the art of teaching and competent enough to teach and impart knowledge or skills to the learner; the teacher is trained in the theory and practice of education. Damar (2003) opined that, the teacher interprets and implements the curriculum. Offorma (2006) sees the teacher, as a medium through which curriculum is

translated into action in the classroom. By his definition, the teacher is one who tailors the content of the curriculum to the learners, therefore, he instructs. The teacher is saddled with the responsibility of instructing, teaching, assessing, evaluating, guiding and counseling among others. A teacher is one who is able to exhibit the knowledge and skills acquired during the training into his job. Akuto, Odeh and Aduloju (2012) collaborated with this view when the authors submitted that the teacher is a professional who imparts knowledge to learners using all the learning experiences at his disposal to stimulate, guide, direct and facilitate the learners to acquire mastery of the skills being imparted. Akpo (2013) compiled a number of definitions of the teacher as follows: Peterpan (2008) simply define a teacher as one who imparts knowledge; Rhodes (2008) defines a teacher in the broadest sense, to mean a person or an experienced person that had left mark in the lives of learners; Redfern (2008), a teacher is a guide, a mentor, a confidant, a friend, a disciplinarian, an informer, a service provider, among others; a teacher Gayagay (2009), is the most influential person an individual will have in his life time; Quinton (2009) defines a teacher as a highly intelligent person with an ability to impart knowledge and understanding to his students; Joaching (2009) sees the teacher as one who guides and advises on social, moral and educational issues as well as moulds a child's personality and influences his positive attitude towards learning; Fuller (2009) refers to a teacher as a person having many qualities, such as: patient, understanding, sense of values (i.e. value judgment) recognition of the changing dynamics of the world outside the classroom (i.e. well informed); Bugwadia (2011) defines a teacher in the broadest sense, as someone who not only teaches or imparts knowledge, but also someone responsible for shaping and molding the minds and hearts of all those whom he teaches and Jawad (2011) sees a teacher as a person who performs one of the most challenging and difficult jobs a person can do, since the teacher has to work with the minds and heart of the learners."

Agi and Aduloju (2014) collaborated with these definitions and summaries who the teacher is as follows: a controller, an authority an adviser, a guide, a help, a disciplinarian, a counselor, an authority an adviser, an organizer, a motivator, an inventor, an initiator, a leader an assessor, a facilitator, a mentor, an administrator, a supervisor, an assessor, a trainer/couch, a monitor, a planner, an implementer, a moderator, a potter, a visionary, a missioner, a mobilize, a model, an evaluator, a mover, a processor, and a refiner. The list is endless. The teacher therefore, is the one who can tailor the curriculum to the learner's needs, interest and aspirations and plays many roles in the classroom and in the educational sector in general. It is on this note that the teacher's role in transcending every facets of development in a nation is justified as he owes it a duty to the learners in the classroom who in turn will become the tomorrow's nation builders.

The learner on the other hand is the recipient, the consumer and the end product. The learner is a person finding out about a subject, the one for whom is all the changes intended in teaching and learning.Mari in Aduloju, (2010) sees the learner as the recipient and processor of the communication. This implies that the learner in the classroom is the product of the processes of teaching and learning. The learner is the one who sits and listens to the teacher; he is the one the teacher is helping, assisting, instructing, assessing, evaluating among others, in classroom. This is exactly what Akuto et al (2012) acknowledges, when the authors state that the ideas the teacher formulates for the attention and assimilation of the learner gets interpretation in different ways by different students (learners). The authors have identified primary learning styles that can categorize learners, these are; Visual, Auditory, Read-write and Kinesthetic learners. Other categories of learners as identified include; Slow learner, Gifted and Talented (fast learners), Normal learner (average learners) and the physically disabled/Special learners. In view of this, the onus is on the teacher to identify the categories of learners in his class to be able to carry them along for maximum attainment. It is only then

that the products (learners) can be useful to themselves and the society in general thereby enhancing national development. The process can partly be achieved by the teacher playing the roles of instructor, assessor and evaluator.

The Teacher as an Instructor: Literally speaking, an instructor is one who instructs, teaches a subject or skill. Looking at it in this way, it means a very basic word, and this is to say that after the teacher instructs or gives information in an authoritative manner, he goes away until the next class. If it is conceived this way, then the instructor is to give knowledge, provide information with authority or rather gives an order or command; in this regards too, it appears to require no investment or deeper level of care for the learner, therefore; instructor is one who simply states a piece of information authoritatively and it can be given by "order or command" (Merriam, 2011). However, the teacher as an instructor means much more than this, going by the definition of instruction as given by Akudolu in Offorma (2006) as the planned interaction between the learners and the learning activities, means all the activities engage in by the teacher with the aim of facilitating change in the learner's behavior. The instructor is the one who engages in several activities to facilitate change in learners' behaviour. The instructor therefore is an implementer, a hypothesis tester, a modifier, a planner with the intention of prompting learning. This was exactly what Mattj (2006) acknowledges when in differentiating instructor from teacher as an instructor, that a teacher as an instructor is flexible in their approach, provide a variety of understanding for technique and often impact "pearls", further more as an instructor gives you something to think about, long after you have moved on to a new technique. In this regards, the teacher must not only understand the various why and why not's of his art, but also be able to look beyond his own bias, identifying his strengths and weaknesses as well as others. The teacher is an instructor, Vaniuno (2010) when he gives instruction and also gives explanation to students and

makes some activities that can construct his/her mind about the instruction or material. In his regard, being an instructor demands a show of a deeper relationship and connection about the materials presented and learners understanding of it. The instructor's main purpose of instruction is to make it possible for learning to take place. What the teacher does as an instructor may be termed instruction education as it involves the active participation of the learners since the learner is interacting with the learning activities. Going by the ultimate goals of education, the teacher as an instructor is to help the learner to develop to the fullest of his potentials in order to make him an effective and integrated citizen. Thus, the teacher instructor inculcates national consciousness and the right type of values, attitudes in the learner, trains the mind of the learner in understanding the world around, helps the learner to acquire appropriate skills abilities and competencies (mental and physical) in accordance with the nation's educational goals. The learner therefore is the main consumer of the process of education. The ultimate goal of any educational process according to Okpara and Onyemerekaya in Offorma (1994) is to develop to the fullest, the potentialities or capabilities of the learner in order to make him an effective and integrated citizen. To this end, education is designed to equip and help the learner to achieve in the long run the national educational aims and objectives. The national aim and objectives of education according to the National Policy on Education- NPE (2004) are:

i. The inculcation of national consciousness and national unity.
ii. The inculcation of the right type of values and attitudes for survival of the individual and the Nigerian society.
iii. The training of the mind in understanding of the world around and
iv. The acquisition of the appropriate skills, abilities and competencies (mental and physical) as equipment for individual to live and contribute to the development of his society.

If these are what the teacher seeks to achieve in the lives of the learner, then it could be clearly seen that as he goes about instructing, he inculcates the right attitude, in assessing, he close check, and in evaluating, he passes value judgment; guiding and counseling to keep the learner on track. It shows a chain reaction as the end product, the learner will be churn back into the society for useful living and contributing to make the society worthwhile (nahoza) development, thus, the saying garbage-in garbage-out. If the teacher does it right, the end product will be right and will come out to do the right thing which is positive development of the nation.

The Teacher as an Assessor: Harper (2008) put forward that an assessor is one who is employed to calculate the value of something; who is an expert in a subject or a person who judges the performance of someone else, example in an examination interview or at a sporting event. Harper in Wikipedia Free Encyclopedia sees an assessor in educational context as a person who evaluates the merit, importance of something especially the work prepared as part of a course of study.

Going by the title of this study, it is worthwhile to consider some definitions of assessment to be able to actually grasp what it means for a teacher to be seen from the perspective of an assessor. Emaikwu (2011) views assessment in education as occurring whenever one person, in some kinds of interaction, direct or indirect, with another, is conscious of obtaining and interpreting information about the knowledge and understanding or abilities and attitudes of another person. Similarly, Kizlik, in Obinne and Agi (2013) states that to assess is to stipulate the conditions by which the behavoiur specified in an objective may be ascertained.

Considering the definitions of assessment as given above, the teacher as an assessor is one who obtains information relative to some known objectives or goals; the teacher as an assessor does not stop at being an expert in his course of study nor does he just evaluate the merit, importance of someone or something as spelt

out in the definitions of assessor but he does more than just that. The assessor (teacher) does assessment in a continuous, systematic and comprehensive way. This the teacher does in totality, obtaining information about the learner in the three domains of education namely: cognitive, affective and psychomotor domains of learning.

As an assessor, the teacher monitors the learners closely to obtain information on their cognitive abilities using various assessment instruments such as assignment, tests, and quiz among others to measure the learner's knowledge, aptitude, intelligence and other traits which the learner has acquired from the process of instruction which he/she has been previously exposed. The teacher monitors closely, capabilities using non- test assessment instruments such as rating scale, observation schedule, interview among others, to obtain information on such traits as attentiveness, attendance, punctuality, neatness, politeness, self-control relationship with others, curiosity, honesty, humility, tolerance and leadership courage. The assessor (teacher) goes beyond obtaining information on the learner's cognitive and affective domains of learning; the teacher also assesses the learner's psychomotor skills such as hand writing, fluency in speech, construction skills, musical skills and games/ sport. As an assessor, the teacher does a very comprehensive data gathering systematically, cumulatively on the learner in the school system from the day he enrolls into the school system till the day he finishes. This makes his assessor tasks on the learner a continuous one. This was exactly what the Federal Ministry of Education - FME (1985) acknowledge and defines continuous assessment as a mechanism whereby the final grading of a student in the cognitive, affective and psychomotor domains of behaviour systematically takes into account of all his performances during a given period of schooling. The assessor (teacher) therefore, finds out what the learner has gained cumulatively from learning activities in terms of knowledge, thinking, reasoning, character development and industry. As an assessor, the teacher makes the learner to sit up with their studies,

help students to make new discoveries in order to widen their knowledge through giving them tasks to accomplish or assignment, stimulate learning and enhance further studies, plays the role of diagnosing areas of learner's weaknesses and remediating where necessary It is wise to say at this juncture that no learning skill, be it in cognitive, affective or psychomotor can be arrived at without practical assessment carried out by teacher as an assessor, as it enables information on the learners reaching the teacher early enough for him to do modifications in his instruction where necessary. Akem (2008) enumerates the following as to what assessor should assess:

The Cognitive Domain: According to Akem, cognitive domain deals with the activities of human mind. In this case, this deals with the learner; how the learner reacts to issues, analyzes, synthesizes, evaluates, and applied the knowledge and passes judgment. Under cognitive domain, Akem identifies the following: Knowledge (what the learner is able to remember and recall from what was previously learnt); comprehension (what the learner is able to understand and translate); Application (what the learner can apply from materials learnt to a new concept); Synthesis (what the learner acquires to form and organize ideas together); analysis (what the learner is able to break down into components and understand organizational structures) and evaluation (finding out the ability of the learner to make value judgment as to the worth or value of an idea, purpose, solution to the problem). Measures of ability has to do with measures of what the person or group of persons are capable of doing in terms of intellectual capabilities (Alonge, 2004).

The Affective Domain: Ohuche in Akem (2010) viewed affective measures as non-cognitive which can be used to assess the emotional status of the tested in the various contexts such as the home, the school, industry and other instructional clinical and work environment. However, Bloom in Emaikwu (2013) has

classified affective domains as follows: receiving, responding, valuing, organization, and characterization. Value or value complex is the highest level, which is receiving information includes the teacher's ability to assess learner's willingness to attend to instruction and appreciation of teaching and learning; responding as the teacher assesses the role the learner plays or his response to assignment etc; valuing as assessing how the child appreciates the classroom teaching, organization as assessing the child's ability to determine the relationships of the variables (X and Y) assessing learners actions in accordance with the values beliefs or ideas that comprises their total philosophy or view of life among others.

Psychomotor Domain: Akem opined that these assessments are concerned with physical actives and skills a child acquire from childhood to adult hood. They include body movements and manipulative skills (speed accuracy, setting up laboratory equipment for experiments and drawing accurately); Akem (2008) further identified six basic levels of psychomotor as reflex movement (movement of eyes, sneezing among others); basic fundamental movements (which includes crawling, running, creeping among others); perceptual abilities (skills movement, endurance, flexibility, agility among others); skilled movement (sporting, dancing, recreation among others); non-discursive communication (ability to communicate by means of movement, posture gesture, laughing among others).When the teacher has done all these, he goes on to value judgment which is evaluation.

The Teacher as an Evaluator: The evaluator answers the following questions in the process of education: How good? To what extent are objective achieved? What pedagogy is appropriate for what? Wikipedia (2014) sees the evaluator as one who ascertains or fix the value or worth, one who examines and judge carefully, appraise and as an authority that is able to estimate worth or quality. This is to say that, if one is able to make judgment about

how good or bad a thing is, he is an evaluator. To evaluate means to classify objects, situations, people and conditions according to defined criteria of quality. Inherent in the idea of evaluation as can be seen is "value". Therefore, the teacher as an evaluator is engaged in the process that provides information that would adjudge a situation. The situation in the teacher's case could mean objectives, goals, standard and procedures. An evaluator is one that gives information on the worthiness, appropriations, goodness, validity and legality on the learner based on reliable assessment. As an evaluator, before the teacher goes on to do anything meaningful in the classroom to achieve his intentions, he has to identify objectives to achieve. This he does by constantly keeping a check from the beginning and throughout the lesson. Obinne and Agi (2013) opined that, for the teacher to effectively ensure that he or she is on track, he starts with a check and that the check has to be sustained in the cause of the lesson, to enable him make comparison between what was intend to be learnt and what was learnt. Aside this, the teacher as an evaluator has to do among other things determines where to start with the learner, how the learner learns as the lesson progresses and what the learner has achieved. Adejoh and Obinne (2013) collaborated with this view when they describe the type of evaluation as formative, summative, placement, diagnostic, criterion, reference and non-referenced evaluation. Similarly, Gronlund in Emaikwu (2013) classified evaluation into: placement evaluation formative evaluation, diagnostic evaluation, summative evaluation, criterion- reference and norm- reference evaluation.

Placement Evaluation: The teacher (evaluator) determines at what point to begin with his students. This, the teacher does by trying to find out what the students already know relative to what he has planned to teach. This is usually known as previous knowledge or what is termed entry behaviour in the teacher's lesson plan. Emaikwu (2005) viewed that it is a test designed by teachers in form of pre-test that measures weather the student's posses the necessary knowledge and skill to enable them succeed

in the planned instruction they are to be exposed to. It is therefore an initial kind of evaluation that will enable the teacher to know where to begin with the students. Beyond this, the teacher also does formative evaluation whereby he finds out continuously as the lesson progresses whether the students are following. Sometimes he pauses and asks questions over and over to ensure that the student are on track and are following in the cause of the instruction. Adejoh and Obinne (2013) states that the purpose is to find out whether after a learning experience, students are able to do what they were unable to do previously. Diagnostic evaluation as the name implies, the evaluator plays the role of a medical doctor by diagnosing the student's learning difficulties to enable him proffer solutions. Several authors Emaikwu (2005); Akem (2010); Agi and Obinne (2013) and Adejoh and Obinne (2013) all submitted that, the teacher does his evaluation to find out learning difficulties, strength and weaknesses. Furthermore, the teacher as an evaluator carries out summative evaluation whereby, he makes attempts to determine the extent to which the broad objectives of the programme have been achieved. This collaborated with the submission of Gronlund (1985) that, this shows how the students have changed and provide the basis for decision about continuation, modification termination or replacement of the programme. In Emaikwu (2013) he opines that summative evaluation is the evaluation that comes at the end of a course or unit of instruction to determine if the instruction has been sufficiently completed to warrant moving the learner to the next unit of instruction. The teacher as an evaluator sometimes determine the learner's proficiency or competency in a particular job, knowledge, skills or objectives. This type of evaluation is called criterion-referenced, evaluation. In criterion referenced evaluation, competency, proficiency or mastery level of an examiner is determined by the accuracy with which the task is performed and the percentage of the items correctly gotten on some clearly defined tasks. (Emaikwu,2013) It is therefore a mastery test in which a standard of performance is set and this performance is

based on cut-off or bench mark and not a test of superiority in the group in the case of the non-referenced evaluation. Similarly as an evaluator, the teacher constantly determines the learner's relative standing in a group in order to differentiate clearly among learners at different levels of achievement. Adejoh and Obinne (2013) submitted that it actually aims at establishing the student's relative standing in his group without much emphasis on how well the student has mastered the subject matter content. The evaluator does this to show how well a student compares with other students.

The Interplay of Instructor, Assessor, Evaluator and the Learner

This is mostly refer to as, relationships, interactions or associations. In the context of this study it is called interplay because the actors here affect each one another as Harper (2008) put it, that interplay between two or more things or people is the way that they have an effect on each another or react to each other. Conceptually as represented in the schema in fig.1, it is evident that the teacher as an instructor, assess and evaluate the learner, when the arrow is viewed from instructor to assessor to evaluator; at some other times, instructs directly, assesses directly and evaluates directly as indicated on the arrow pointing down from the three boxes to the learner. By the definitions of instructor, assessor, evaluator and learner, the teacher has an intention (to achieve already stated objectives). In the process, the teacher instructs by way of teaching or guiding counseling to impart on the learner in order to achieve his intentions. This process involves class activities such as demonstrations before the learner, adopting appropriate teaching roles, ensuring that learners are actively involved in the learning process. Okpara and Onyemerekeya in Offorma (2006), opined that, in the process of improving instruction theteacher carries out action research, understands the learners and his disposition (his needs, individual differences, interest, motivation and motivational devices). All these are embedded in instruction and it is between the instructor and the

learner therefore they interplay. Similarly, as an instructor, the teacher assesses. Who does he assess? The learner of course as it is also his duty to ensure that his teaching is fruitful and on track or make modifications where necessary by giving tests, assignment and other assessment instruments. Ugodulunwa in Ugodulunwa (2014) submitted that, at school level, the teachers perform different assessment functions such as developing instruments, administration and scoring of instrument, operating continuous assessment, utilizing assessment feedback for instructional improvement, reporting students' achievement to parents and other stakeholders keeping continuous assessment records, diagnosing students learning difficulties and initiating remedial activities. This is to say that on a continuous basis these interplays between the instructor and the learner making the teacher's role as an assessor prominent. It is a process of giving and taking. He teaches the learners listen, and he asks questions orally, paper and biros, assignment and examinations, and the learner responds and he uses these responses to assess the learner. The teacher can also use non-test instruments like observation and interview to assess the learner. The most important thing to note here is that, it involves the teacher and the learner in a two-way traffic. After the process of instruction, assessments are done; the teacher needs to pass value judgment on the worth of the instructional process. The information provided or obtained from assessment based on quantitative and qualitative measurements taken on the learner puts the teacher in a position to make value judgment on the learner. Such statements as very good, qualified, not qualified, excellent that the teacher makes or states about the learners are evaluative statements. This section here by sums up with the submission of Obinne and Agi (2013) as quoted below:

> "*Having identified instructional objectives at the onset of the teaching and learning plan, appropriate content and learning experiences selected and instructional strategies mapped out, the teacher then comes in contact with the*

> *learners through the process of teaching and instruction to implement his decisions. The teacher does this by setting up different activities, adopting various strategies and tactics as to achieve the desired change in the learner's behavior*".

In the classroom therefore, instruction, assessment and evaluation are interwoven.

Imperativeness to National Development

Assessment and evaluation are considered integral and indispensible aspects of all human endeavors and as veritable tools for decision making in education and other disciplines (Nworgu in Ugodulunwa, 2014). In the context of this paper, the major concern is the learner, who through instruction, assessment, and evaluation will become future stakeholders in national development. The teacher's position is strategic in shaping the direction and in playing significant role in affecting performance level of the learners through instruction, assessment and evaluation. There is the pressure of knowledge boom in our society and globally as such the teacher has a major stake in it. The learner who is the recipient and consumer of education will come back into the society to contribute his or her quota to national development via science, technology, humanities, arts and social science. The learner is the tomorrow's Doctor, Architect, Engineer, Pharmacist and other fields in the society. The teacher does his instruction, assessment and evaluation of the learner to make them fit and make them become useful to themselves and the entire nation, hence imperativeness to national development. Education is a life molding and nation building process and professional teaching is a major avenue for carrying out this sacred dual function of life molding and nation building. (Iji, 2014).

Conclusion and Recommendation

Teaching, instruction, assessment and evaluation are connected; student learning is continuously measured during teaching and

instruction. The following were therefore recommended from this extensive study:

1. Adequate and professional training should be ensured for teachers to enable them do effective, instruction, assessment and evaluation of their students;
2. There is need for training of teachers in test construction and designing of instruments for assessment of cognitive and non-cognitive skills for teachers at all levels to enable them foster the development of complex learning outcomes that will make assessment relevant and students employable in this age of knowledge economy
3. Learning materials should be adequately made available for both the teachers and the students at all levels;
4. Recruitment of teachers should be based on qualification and test of aptitude.

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17

TEACHER EDUCATORS' KNOWLEDGE, IMPLEMENTATION AND ASSESSMENT OF DISPOSITION TO TEACHING OF PRE-SERVICE TEACHERS: CRITICAL ISSUE FOR TOMORROW'S TEACHERS

M. K. Akinsola

Introduction

Since 2000, the National Council for the Accreditation of Teacher Education (NCATE) has mandated that the area of disposition be included into the conceptual framework of teacher education programmes. Dispositions related to effective teaching have been defined in a number of ways over they ears. The National Council for Accreditation of Teacher Education (NCATE) (2001) provides the following explanation of dispositions: dispositions are the values, commitments, and professional ethics that influence behaviors toward students, families, colleagues, and communities that affect student learning, motivation, and development as well as the educator's own professional growth. Dispositions, according to the NCATE, are steered by attitudes and beliefs related to values like caring, honesty, fairness, empathy respectfulness, responsibility, and thoughtfulness. The Interstate New Teachers Assessment and Support Consortium (INTASC) (1992) on the other hand, uses the following descriptors to encompass the concept of dispositions: adopts, appreciates, believes, is committed, has enthusiasm, persists, realizes, recognizes, responds, seeks, is sensitive to,

understands, and values. Taylor & Wasicsko (2000) define dispositions as the personal qualities or characteristics that are possessed by individuals, including attitudes, beliefs, interests, appreciations, values, and modes of adjustments. Schulte, Edick, Edwards, and Mackiel (2004)define disposition as a pattern of behavior exhibited frequently and in the absence of coercion, and constituting a habit of mind under some conscious and voluntary control, and that is intentional and oriented to broad goals. From the various definitions above, it suffice to say that, dispositions are a vital component of teacher preparation of teacher education programme.

The importance of disposition assessment was stated by Broko, Liston, & Whitcomb (2007). They explain that dispositions are an individual's tendencies to act in a given manner and are predictive of patterns of action. They answer the question of whether teachers are likely to apply the knowledge and skills they learn in teacher preparation programmes to their own classroom teaching when they are not being critiqued.

Teaching involves more than effective planning, instructional knowledge, and teaching skills as it also extends to professional dispositions. Dispositions are similar to professional beliefs or values systems, but they are more than that. Dispositions extend to professional modes of conduct and the ways in which beliefs and attitudes are displayed by teachers' actions in and out of the classroom. Teachers with positive professional dispositions tend to act in ways that elevate the profession of teaching in the eyes of others. (Ros-Voseles & Moss, 2007).

The question that readily comes to mind is, how is this component of teacher preparation programme is is being implemented during teacher preparation programme. More importantly, to what extent are teacher educator's aware and assessed dispositions.

Methodology

Disposition in Teacher Education Questionnaire adopted from (Baldwin, 2008) was used to elicit responses from 50 lecturers

from Faculty of Education in a Nigeria University and 120 lecturers from two Colleges of Education in Nigeria.

Result

Dispositions in Teacher Education (DTE)Faculty Questionnaire

1 I'm aware of what disposition in teacher education is all about

(a) Aware ( ) b ( ) Not aware ( )

Aware (35) i.e., 20.6 of the respondent and **Not aware** (135), i.e., 79.4%

Circle a number from the scale below to show how much you agree or disagree with each statement (1 = agree, 2 = disagree).

1. I teach dispositions in at least one course in the pre-service teacher education programme. 1 2

Summary of responses: Agree (10), Disagree (160)

2. I assist teacher candidates to overcome dispositional challenges.

1 2

Summary of responses: Agree (8), Disagree (162)

Circle a number from the scales below to indicate the extent to which you have taught and assessed the following dispositions (1 = always, 2 = never)

		RESULT		RESULT	
		Always	Never	Always	Never
3	Commitment to a conducive classroom environment.	**121**	**49**	**5**	**165**
4	Respect for human diversity.	**110**	**60**	**02**	**168**
5	The belief that all children can learn at high levels.	**155**	**15**	**08**	**162**
6	Positive perception of self and personal meanings.	**120**	**50**	**21**	**149**
7	Reflective thinking and practice of teaching.	**25**	**145**	**11**	**159**
8	Positive Perception of others.	**68**	**102**	**20**	**150**
9	Discovery of one's purpose for teaching	**120**	**50**	**08**	**162**
10	Adjustments for individual differences.	**98**	**72**	**10**	**160**
11	Sensitivity to fair treatment of all students.	**155**	**15**	**05**	**165**
12	Appreciation for school and community involvement.	**146**	**24**	**02**	**168**
13	Commitment to ethical and professional development.	**172**	**08**	**14**	**156**
14	Sensitivity to adapt teaching approaches to meet student needs and responses.	**165**	**05**	**21**	**149**
15	Sensitivity to the appropriate use of a variety of classroom management approaches.	**139**	**31**	**11**	**159**
16	Positive motivation of learners.	**167**	**03**	**15**	**155**
17	Value for the importance of effective communication.	**138**	**32**	**07**	**163**
18	Value for people above things	**165**	**05**	**03**	**167**

Circle a number from the scale below to show how much you agree or disagree with each statement (1 = agree, 2= disagree).

		Agree	**Disagree**
19	I infuse elements of disposition throughout the courses I teach.	**23**	**147**
20	My introduction to dispositions as a requirement for pre-service teacher candidates has been on the job.	**05**	**165**
21	I have attended seminars on dispositions	**00**	**170**
22	My colleagues and I share information about teaching dispositions.	**00**	**170**
23	I teach dispositions mainly from personal research	**22**	**148**

Discussion

The first question posed to the teacher educators sampled was whether they are aware of what "disposition in teacher education" is all about. Seventy nine percent (79.4%) indicated that they are not aware of the concept at all. This is a very serious situation. If the teacher educators themselves are not aware of a concept it then becomes impossible for them to pass it across.

The second question posed was whether they teach "teacher dispositions in at least one course in the pre-service teacher education programme". Over 94% of the teacher educators sampled claimed that they have not consciously taught "disposition to teaching" in their various classes. The result has a serious implication on the quality of teachers being produced in the various institutions.

On the various components of disposition to teaching as presented in the table above, it is clear that teacher educators appears to be confused in the sense that, they performed some of the constituent of disposition in teacher education. For example on, item no 3, "commitment to a conducive classroom environment", item no 4, "respect for human diversity", item no 5, "the belief that all children can learn at high levels", item no 6, "positive perception of self and personal meanings", item no 9, "discovery of one's purpose for teaching", items 11-18, over seventy percent(70%) claimed they have been teaching these items in their classroom. It is therefore, obvious that, the teacher educators do not know what actually constituted "disposition to teaching".

The results obtained from this exploratory research clearly indicated that teacher educators in Nigerian University and Colleges of Education are not consciously aware of the concept of disposition in teacher education programmes. Though majority of them claimed to have taught disposition one way or the other it appears that they lack the knowledge of how to assess it. If teacher educators lack this basic rudimentary knowledge that could enhance pre-service teachers' quality production, the issue

becomes critical in preparation of teachers of tomorrow. It is recommended that conscious efforts should be made at propagating the concept and workshops should be organized to sensitize teacher educators especially in Nigerian Universities and Colleges of education and in any other countries where their teacher education curriculum lack this very important aspect of teacher preparation.

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18

DEVELOPING AND USING LOGIC MODEL FOR EFFECTIVE PROGRAMME PLANNING, IMPLEMENTATION AND EVALUATION

Folajogun V. Falaye

Introduction

Indeed evaluation is not a new concept, it is as old as creation. Every human being evaluates one thing or the other. For example, a decision about what to eat, what to wear, where to go and so on, all has to do with weighing the options and making a judgment regarding which option to choose. All things being equal, it is expected that when options are carefully chosen, they often lead to satisfaction.

Evaluations show that many programmes fail to produce anticipated outcomes, oftentimes due to the ways programmes are designed and implemented (Love, 2004 cited in Markiewicz& Patrick, 2016). In Nigeria, for example, casual observations reveal that many government interventions fail to yield the desired results, despite the huge resources expended executing such programmes. The need to evaluate the entire programme life cycle is critical in order to minimize failure and enhance programme impact. Hence, there seems to be a gradual increase in awareness of the values of programme evaluation among Nigerian evaluators in recent times.

However, experiences have shown that evaluation of programmes carried out mostly by young evaluators rely almost exclusively on the use of evaluation models developed and popularized by evaluators like Alkins, Ralph Tyler, Carol Weiss

and David Stufflebeam.. The evaluation models are seen as ready-made mould for directing programme evaluation without painstakingly developing specific programme theory and logic model that guide the evaluation of such programmes.

This chapter introduces, describes and presents the benefits of logic model as a valid framework to evaluate different stages in the entire programme cycle. Although the use of logic model is currently being promoted, it dates back to the 1970 and became popular in the mid-1990's (Frechtling, 2007) and holds promise for effective programme planning, implementation and evaluation.

What is Logic Model?

In broad terms logic model is a framework for programme planning, implementation, evaluation and communicating activities and results to programme stakeholders. Logic model is a versatile tool that describes explicitly and presents graphically programmes' process. It indicates the relationships between programme components and the expected programme outcomes.

Logic model, also referred to as 'systems model' shows the connections of independent parts of a programme that make up the entire programme. A system is made up of a collection of parts and their interconnections and since programmes vary in scope and complexity, with this notion, a programme is conceived as a system within another system, which again is embedded within yet another system to form a complex 'nested system' (Trochim, *et al*, 2012). A programme can consists of different programme foci, each focus is related to another one, and together contributing to the main programme. For example, an intervention programme may have education, health and service components, each component, which represents parts of the big programme is related to one another. Logic model, therefore, shows relationships among the various components of the programme.

Logic model is also referred to as a Theory of Change Model since every programme is supposed to bring about changes in the current state of affairs to alleviate needs. Similarly, it is used

interchangeably with some other terms such as Programme theory and Programme Model (Donaldson, 2007).

Purpose of Logic model

Logic model essentially provides a road map showing the sequence of planned activities and connecting them with the desired results. According to Markiewicze and Patrick (2016), logic model is a visual means of depicting a programme's pathway from action to result. It helps to graphically visualize how investments in human, financial, time and otherwise contribute to achieve the intended programme goals and lead to programme improvement.

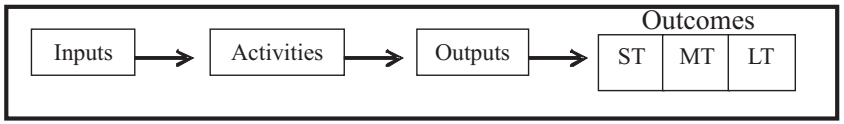
The main focus of Logic model is the process and outcome measures in order to determine what to evaluate, when to evaluate and particularly, the evaluation questions that might be addressed. Evaluation of programme's process guides the implementation so that investments are used effectively and efficiently. Furthermore, logic model helps to pinpoint gaps in the programme's process and clarify programme assumptions early enough. It also builds consensus among programme stakeholders and encourages team building for programme buy-in and success.

Components of Logic Model

Although there are many variants of logic model, in its simplest form it could be presented as Inputs, Outputs and Outcomes. Generally, it consists of the following basic elements:

- Input;
- Activities;
- Outputs; and
- Outcomes.

It could be as detailed as revealing the three levels of outcomes: short term outcome, mid-term outcome and long term outcome (Fig.1). Others present outcomes as short term outcome; mid-term outcome and refer to the long term outcome as impact. Yet, logic model can be as detailed as showing the programme assumptions and the external factors.



ST- Short term outcomes.
MT- Mid-term outcomes.
LT- Long term outcomes/Impact.

Fig. 1: Components of Logic model

- **Inputs:** Inputs are key resources such as human, financial and other resources needed to execute programme activities.

- **Activities:** These are specific actions that are undertaken by the programme staff in order to achieve the desired outputs. They are activities that directly reach the programme participants or target beneficiaries. Hence, a list of activities should include those that reach programme participants or beneficiaries. It should not include the official schedule of duties assigned to staff such as administrative, purchasing or other duties, except such activities are part of the programme interventions. Activities must be defined concisely such that they are understood by readers.

- **Outputs:** These are the tangible products that are directly linked to implemented programme activities . Outputs are evidence that such activities have been executed. They are expressed numerically (numbers/percentages), Examples: Attendance list, Minutes of meetings, number of meetings held, % of parents that attended PTA meeting.
- **Outcomes:** They are changes expected to take place due to the programme and are expressed at three levels on the basis of time:

1. **Short Term Outcomes,** which are the changes that are directly and logically linked to the activities.

2. **Mid-term Outcomes** arise from the short term outcomes, and directly connect short term outcomes with long term outcomes.

3. **Long Term Outcomes** (alsoreferred to as Impact) are the ultimate changes arising from the mid-term outcomes. Usually, the impact goes beyond changes in the individual beneficiaries of the project to include their communities or the society. They are changes that have broad based effects. Even though the distinction among the three is on the basis of duration, there is no hard-and-fast rule for classifying the three. Short term changes occur in less than two years; mid-term changes occur between two years and five years, while over five years the long term changes or impact would have occurred (Frechtling, 2007). Kellogg Foundation (2000)'s categorization is slightly different, for short term outcomes, they range from one (1) to three (3) years; mid-term outcomes range from four (4) to six (6) years, while long term outcomes are measured from seven (7) to ten (10) years.

Other useful components of the logic model that are often neglected once they are discussed in programme's documents are the **Assumptions and Context or External factors.**

Assumptions: These are beliefs or expectations that the programme will be implemented and successful. For example, it is expected that if funds are released on time project activities are likely to be implemented. Also, if stakeholders participated in the planning they are likely to support the programme.

Context/External factors: Context is the external environment (social, political, cultural and physical context) within which a programme is implemented. It could also relate to factors that prompted the programme or make the programme relevant. For example, high level of illiteracy in hard- to- reach areas may

prompt funding agencies to support school planting in such areas. On the other hand, external factors could be cultural, social, political factors that could discourage programme acceptance and success.

Creating a Logic Model

Logic model is not as simple as it looks graphically. Although it appears linear, it is most often recursive with a series of connections. Therefore, building a logic model requires expertise and depends on the complexity of the programme.

Developing a logic model starts with forming a team that includes key stakeholders. Even though it appears simple, it is more profitable to begin with clarifying the programme purpose, identifying the overall programme outcomes, that is, what the programme wants to achieve, the results, the short term and mid-term benefits, and the long term changes anticipated after the programme has been completed. Next is to generate a list of activities to be undertaken to obtain the desired outcomes. The activities can then logically be followed by what to invest in order to achieve them, that is, the resources needed. (On the other hand programme inputs could be crafted after all other components of the Logic model have been identified). After the inputs have been identified, it is better to move forward to develop the outputs, which are indicators of the activities carried out. Since the outputs are tied to the activities, therefore, in crafting the outputs, the list of activities should be followed. Table 1 shows questions that guide the programme evaluator while creating a logic model. It is better to call what you have a draft at this stage and review it with experienced programme evaluator and key stakeholders.

Table 1 Guiding Questions in Creating Logic Model

Questions to Ask	Components
What problem does your programme address?	Problem Statement
What is the overall purpose of your programme?	Goals
What do you have to work with?	Inputs
What will you do with your resources?	Activities
What are the tangible products of your activities?	Outputs
What changes do you expect to occur as a result of your activities?	Outcomes
What are some of the underlying forces that would make the programme achieve its goal?	Assumptions
In which environment will the programme take place? / What factors outside the project can inhibit or enhance the programme success?	Context/ External Factors.

Example: Imagine that the Government intends to integrate HIV education in the Senior Secondary School curriculum. The input into the programme would include funds, teachers, students, staff from the Ministries of Education and Health, relevant stakeholders, international bodies and material resources. Activities would include reviewing the old curriculum, designing the new integrated curriculum and training the teachers. The programme outputs include number of teachers trained, the number of curriculum printed and the number of curriculum distributed. The short term outcomes would consist of teachers' and students' improved knowledge of HIV/AIDS issues, improved teachers' competence in the use of the new curriculum, teacher and students enthusiastic about the new initiative and stakeholders' support for the programme. Mid-term effect would include uptake of HIV Counselling and Testing (HCT) among teachers and students, positive attitudes and behavioural changes, while the long term outcome/impact would be improved health of Nigerian youths.

The assumptions that underlie the proposed curriculum integration could include the release of funds and the continued support of the stakeholders. An example of external factors could

be expressed thus: Provision of HIV and sexuality information to the young people in schools stalled due to cultural inhibition. Since programme success could be hindered by external factors, they cannot be ignored, it is, therefore, crucial to test whether the assumptions are valid and assess the external factors before programme take-off, particularly for those programmes that intend to change socially disapproving behaviours through service provisions and counselling. Rossi, Lipsey and Freeman (2007), caution that if key assumptions are not tested such programmes may fail to accomplish its aim.

The degree of complexity of a logic model depends on the purpose the logic model intends to serve and the details it intends to show. For instance, 'designing a new integrated curriculum' may not be one activity, but in fact, may consists of sub-activities such as reviewing the old curriculum, drafting a new curriculum, pilot testing the draft curriculum, reviewing the new curriculum, printing the new curriculum and distributing the new curriculum. While a simple logic model may show 'designing a new integrated curriculum' as one activity, a more comprehensive model may list other sub-activities.

Logic model developed for a small programme is less complex than those for large programmes. Typically, logic model is limited to what can be expressed in one page, however for the complex one, multi-layered models may be necessary, each focusing different programmatic area. For example, a programme that has education, health and service components could create a sub-model for each programmatic area. Never the less, there may be one logic model that gives a general picture of the programme while the sub-models focus on the different areas, but, the outcomes must be linked to the overall programme outcomes. The evaluator, while deciding on the level of details to show in the logic model, must ensure it is not unwieldy. Finally, connections showing the relationships between and among the different components of the logic model must be shown using arrows (Fig.2).

Deciding what to evaluate

One of the merits of Logic model is that it provides an understanding of a programme. This is a fulcrum of programme evaluation. A programme evaluator needs to clarify what a programme is all about before deciding what to evaluate. For complex programmes a decision has to be taken about which aspect of the programme to evaluate, is it the entire programme or some of its components given the available time or resources? Logic model guides the types of evaluation to carry out (needs assessment, process evaluation, impact evaluation and monitoring and evaluation) vis a vis the types of evaluation questions to ask and evaluation methods to use.

Needs assessment evaluates the conditions before programme take-off and establishes the needs for such programmes. It is useful for programme design and planning. Process evaluation also referred to as formative evaluation deals with programme implementation, and so questions asked focus on service delivery, while impact evaluation measures and draws questions about programme outcomes.

Programme Monitoring and Evaluation is a routine exercise that takes place throughout the programme life cycle. It checks whether activities are carried out as planned and whether the strategies put in place are effective in achieving the intended outcomes. These different types of programme evaluation are not mutually exclusive. Findings emanating from one type of

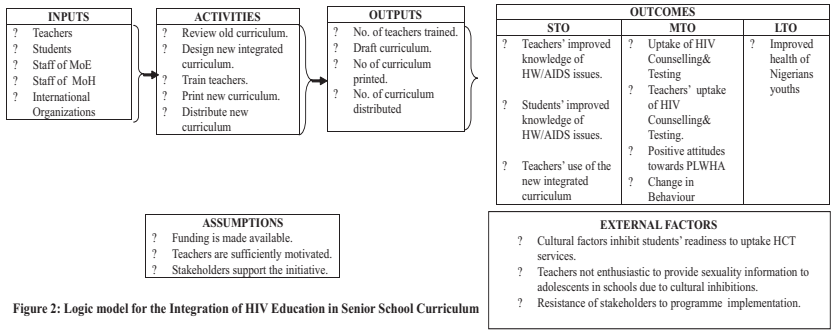


Figure 2: Logic model for the Integration of HIV Education in Senior School Curriculum

evaluation are fed into the other such that a picture of the overall programme performance is clear.

Methods used for collecting information at different stages may differ. For example, Programme Monitoring and Evaluation relies mainly on informal and less structured methods. Needs assessment uses more of qualitative approaches such as reviews of past work, documents and reports, interviews; a mixed-method approach is typically employed during process evaluation, while less rigorous statistical analysis is used. Since the purpose of process evaluation is for programme improvement, information must be presented in a most comprehensible way for those who will use the findings to improve programme implementation. For evaluation of impact, more rigorous approaches are usually employed. Although the approach to use does not exclude qualitative methods, it relies more on randomized experiments, which is believed to yield more rigorous findings (Falaye, 2009) and a good estimate of programme impact.

Which evaluation questions to ask?

It is not feasible to measure everything, the programme evaluators need to determine the scope of evaluation to undertake. In this case, programme logic model becomes a very versatile tool in developing evaluation questions. The questions to ask depend on the scope of evaluation to be conducted. The components/elements in the programme logic model (Assumptions, inputs, activities, outputs, outcomes, context) are useful guides to constructing evaluation questions. Refer to the example on Integration of HIV Education in Senior School Curriculum (Fig 2).

For **inputs,** the evaluatorasksquestions about the programme resources both human and materials that are needed to work with. **Examples:** Is the funding support from the government adequate to integrate HIV education into the Senior School curriculum? Do the schools have enough teachers to implement to programme?

Activities questions focus on what you have done with the resources. **Examples:** How inclusive is the new integrated curriculum? How comprehensive is the training given to the teachers?

Output questions are to link the programme activities to the deliverables**. Examples:** To what extent did the teachers use the curriculum to teach students? How many teachers were trained?

Outcomes questions (Short and mid-term outcomes) focus on the extent to which the proramme is able to achieve the stated objectives **Examples:** What is the effect of the curriculum on students' attitudes towards people living with HIV and AIDS (PLWHAs)? To what extent did students access HIV Testing and Counselling?

Impact questions focus on the overall results produced by the programme. **Examples:** To what extent did students' knowledge of HIV issues, attitudes and behaviour improve their health status? What is the health status of Senior Secondary School students?

Evaluation questions should be clear, unambiguous and not be unwieldy, Trochim*et al* (2012) suggest about four general questions. The involvement of major programme stakeholders in programme planning particularly in the development of logic model makes it possible for them to share their perspectives, understand the programme and support its implementation.

Conclusion

Many programmes fail to achieve their intended goals for many reasons. Apart from external factors such as politics, funding and stakeholders' failure to support such programmes, faulty planning, design and implementation are other factors that influence programme success. Developing programme's theory

and its logic model, and applying it prove effective and efficient in evaluating different stages of a programme.

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Acknowledgements

I acknowledge the J. Williams Fulbright Scholarship Board for my Fulbright award, Dr. Eden Kyse, my host at the Center for Research and Evaluation on Education and Human Services, Montclair State University, Montclair, New Jersey, Dr. Jennifer Urban, Erin Bunger, LinaAcoster, Rebecca Swann- Jackson and Jennifer Prichard for the time they created for me to share their knowledge and experiences in Logic modelling for programme evaluation.

19

EVALUATION CRITERIA: A CRITIQUE OF RESEARCH ABSTRACT OF UNDERGRADUATES' PROJECTS IN THE FACULTY OF EDUCATION, NIGER DELTA UNIVERSITY, BAYELSA STATE.

Veronica Odiri Amatari

Introduction

Literarily, research could be defined as searching and searching until something is found or an issue/ problem is established or solved. Akuezuilo (2002) defined research as the systematic and objective recording and analysis of controlled observations that may lead to the development of generalisations, principles or theories resulting in prediction and possibly ultimate control of events. Adeleke (2010) posited that research is about finding out, searching systematically for solutions to problems. It is about rules to guide search. It is also about helping to evaluate the research of others.

The role of research in tertiary education is underscored in National Policy of Education. Accordingly, the goals of tertiary education as stipulated in section 5 of the National Policy of Education (2013), should be pursued through one of the many media – research and development. University research shall be relevant to the nation's developmental goals as particular attention should be paid to research and promotion of indigenous knowledge in Nigeria. In this regard, universities shall be encouraged to collaborate with government, industries and the global community in the "conduct of research arid" disseminate the result. University teaching shall seek to inculcate community spirit in the students through projects and action researches.

Research (or Scholarship) investigates ideas and uncovers useful knowledge. It is personally rewarding and socially beneficial. In recent years, there is growing evidence that universities and other tertiary institutions are being encouraged to intensify their research activities to boost their learning environment and make more meaningful contributions to national development. Niger Delta University (NDU) is responding to these changes by supporting the integration of research activities into teaching and community service and establishing its own institutional research policy. A research policy promotes the integration of research into all activities of an institution. NDU demonstrates its commitment to research and innovation activities and creates a favourable environment for carrying out research projects, encouraging the involvement of all stakeholders (internal and external) bodies in projects.

The law establishing NDU as an institution was enacted on 15th May, 2000. The philosophy of the university is to create centre of excellence directed towards the design of well-articulated programmes that could produce creative and innovative human resources. Its mission is to strive to maintain an international reputation for high quality scholarship, research and academic excellence for the promotion of the socio-cultural and economic well-being for mankind. The objectives of the university are to:

- encourage the advancement of learning and to hold out to all persons without distinction of race, creed, sex or political conviction the opportunity of acquiring a higher and liberal education;
- provide courses of instruction and other facilities for the pursuit of learning in all its branches, and to make those facilities available on proper term to such persons as are equipped to benefit from them;
- encourage and promote scholarship and conduct research in all fields of learning and human endeavor;
- relate its activities to the social, cultural and economic needs

of the people of the Niger Delta region, Nigeria and humanity;

- assist in the industrial and other development programmes through consultancy services, the Centre for Niger Delta Studies, and related activities;
- produce academic, professional and technical manpower of various levels needed for essential development and
- produce academic, professional and technical teachers for development

Niger Delta University has eleven accredited faculties that thrive to meet up with the demanding standards of National Universities Commission (NUC), the body in charge of every activity that is concerned with university education nationwide. These faculties are Agriculture Technology, Arts, Basic Medical Sciences, Clinical Sciences, Education, Engineering, Law, Management Science, Nursing, Pharmacy, Science, Social Science and Niger Delta Studies. Faculty of Education comprised of three departments namely departments of Educational Foundations, Teacher Education and Vocational and Technology Education. However, focus of this study limited to Educational Foundations. Department of Educational Foundations was established in 2003/2004 academic session as an integral part of the Faculty of Education. It is the mother department of three units, namely, Adult Education and Community Development, Educational Management and Guidance and Counselling. The philosophy of this department is to equip the beneficiaries with intellectual and practical skills in subject matter and pedagogy, and ability to apply current research findings to the benefits of learners in secondary schools.

As an implementation of best practices in tertiary education, every undergraduate is expected to carry out a research study as a mandatory requirement for completion of his/her course of study. While classroom learning is an important aspect of the undergraduate education, involving in research by the students provide them hands-on experience in their fields, Students who are exposed to research as an undergraduate gain a deeper

understanding of the scientific process of research. Research facilitates undergraduate engagement in scholarly and creative independent projects mentored by faculty in all disciplines. Research allows the students to: pursue their interests, learn something new, hone their problem-solving skills and challenge oneself in new ways. That is why undergraduate research develops sense of self- development, self-confidence, sense of ownership of work and improved communication and professional skills beyond the academic discipline. It help students build confidence, develop problem –solving skills, and establish mentoring relationship with faculty members. It arguments an undergraduate student's programme at the university and makes students more competitive, nationally and internationally.

Every research project has its in-built components that are typically categorised into five chapters: Introduction, Literature Review, Methodology, Results /Discussion and Summary and Conclusion. However, an integral part of the project that precedes the larger body of the research document is the abstract. Abstract is literally a first impression to the target audience. An abstract is a concise summary of a full project, dissertation, thesis, research report, conference presentation, among others. Abstract concisely describes the content and scope of the project and identifies the project's objective, methodology, findings, and conclusions. An abstract do represent as much as possible the quantitative and qualitative information in the study. Typically an informative abstract answers these questions:

- Why the study/project?
- What did you do and how?
- What did you find?
- What do your findings mean?

Abstract precedes papers in research journals; appears in programme of scholarly conferences. In journals, abstract allows readers to quickly grasp the purpose and major ideas of paper and

let other researchers know whether reading the paper will be worthwhile. In conferences, the abstract is the advertisement that the paper deserves the audience's attention. Abstracts do vary from discipline to discipline, and sometimes within disciplines. Abstracts in the pure sciences and social sciences often put more emphasis on methods than do abstracts in the humanities; humanities abstracts often spend much more time explaining their objective than science abstracts do. Despite the fact that abstracts vary somewhat from discipline to discipline, every abstract should include four main types of information. It should:

state the main objective and rationale of project,
outline the methods you used to accomplish the objectives,
list your project's results and
draw conclusions about the implications of the project.

Stylistic considerations

The Four C's of abstract writing:

- Complete — it covers the major parts of the project.
- Concise — it contains no excess wordiness or unnecessary information.
- Clear — it is readable, well organized, and not too jargon-laden.
- Cohesive — it flows smoothly between the parts.

Why write an abstract?

A well written abstract often can ensure wide publication. Since many computerized databases and printed indexes reprint abstracts so scholars can keep up with each other's work and associations and corporations often publish abstract in given fields and mail them to appropriate researchers and scholars. Hence, if one desires that his/her work has an impact on one's field; one should work as hard as possible in presenting a precise and engaging abstract.

Guidelines for writing Abstract

- Be concise. Do not use three words where you can communicate the same idea in one. Do not repeat information or go into too much detail. Do not just cut and paste sentences from your research paper into your abstract.
- Use short, direct sentences. Vary your sentence structure to avoid choppiness

An abstract will nearly be read along with the title, so do not repeat or rephrase your title. It will likely be read without the rest of the document, so make it complete enough to stand on its own.

Do not refer in the abstract to information that is not in the document.

Avoid using the 1st person 'I' or 'We'. Where possible, choose active verbs instead of passive.

Avoid if possible, using trade names, acronyms, abbreviations or symbols in your abstract.

Use non-evaluative language in your abstract, report instead of comment upon your findings.

Use past tense when describing what you have already done.

Use keywords from your document to help indexers more accurately index your document for future research

It is crucial to make the language of your abstracts accessible to a non-specialist. Simplify your language.

Eliminate jargon. Showing off your technical vocabulary will not demonstrate that your research is valuable. If using a technical term is unavoidable, add a non-technical synonym to help a non-specialist infer the term's meaning.

Omit needless words—redundant modifiers, pompous diction, excessive detail.

Do not cite sources, figures, or tables, and do not include long quotations. This type of material takes up too much space and distracts from the overall scope of your project.

Make sure it is within the prescribed word restriction (usually between150-200 words). Limit your abstract to the essential information.

Do not procrastinate. It is best to write the abstract immediately after you finish your project while the ideas are still fresh in your mind.

Methodology

A critical analysis of research abstracts of undergraduates in the department of Educational Foundations from 2012, 2014 and 2015 academic years is the area of study. The primary objective is to determine the quality of abstract developed by these young researchers as it meets the acceptable standard in the domain of research. Ninety abstracts, ten each from the three units in the department which rounded up to 30 from each year were analysed. An evaluation criteria which is based on a four rating scale of 1= Absence; 2=Fair; 3= Good and 4= Excellent was applied to analyse the abstract. From the background information given, main components of a standard abstract observed, measured and evaluated in this report are:

Objective/Rationale of the Project. Does the first statement contain a clear statement of the purpose of the article /document without stating…. the purpose of this article is to…….

Methodology. Does it include the research design used for the study; the sample size and the sampling technique/s used in selecting the sample size; instrument and its validation used to collect data; and statistical techniques for data analysis?

Results. Are results/findings presented both quantitatively and qualitatively?

Recommendations. Based on the findings of the study, what likely plausible suggestions that will help the issue of focus in practical perspective.

Conclusion. Does it conclude with a statement of the experiment/ project's implications and contributions to its field?

Findings

Table 1: Descriptive Statistics of Criterion Variables for 2012, 2014 and 2015 academic years

Variables	Excellent		Good		Fair		Absence	
Objective	Freq	%	Freq	%	Freq	%	Freq	%
	-	-	11	12	77	86	2	22
Methodology	14	16	53	59	21	23	2	2
Result	2	2	4	4	76	84	8	9
Recommendation	-	-	41	45	34	38	15	17
Conclusion	-	-	3	3	6	7	81	90
	Mean = 10.378; SD =1.503; Minimum=7; Maximum=14.							

From Table1,students performed best in the area of 'What did you do and how?' component of abstract writing (16%for excellent, 59% for good and 23% for average performance). This implies that most of the research abstracts observed included the research design for the study, the sampling techniques/ sample; instrument of data collection and its validation and the statistical techniques applied to analyse data. The area of observed weakness is in the component of conclusion in abstract writing. About 90% of abstract assessed did not include conclusion as part of the body of abstract calls for concern. An engaging abstract captures its audience through a smooth flow between the parts into a logical ending. A statement of the project's implications and its contribution gives the readers the feeling that reading the main research document will be worthwhile. Conclusion asks the question 'What do your findings mean?'

From the analysis, performance in the component of result is concentrated on the average scale (84%). Although majority of the abstract assessed listed findings qualitatively, the quantitative information was absent. The quantitative findings cannot be overemphasized in research especially in a quantitative research of such nature which underlines many of the researches undertaken by undergraduates.

On the question 'Why did you do this study?'; the objective component of the abstract; performance is tilted to the average(86%). The deficit observed in this area is that many of the abstract

contained a first statement of purpose that did have a clear purpose but the peripheral to such statement is left out. In all, the evaluative report on research abstract writing by undergraduates in the department of Educational Foundations, Niger Delta University, can be said to be skewed to acceptable standard of quality in research domain (mean= 10.378; SD= 1.503 that is 67.46%)

Conclusively, the findings of this report imply that there is room for improvement and this can be thoroughly enhanced when the lecturers responsible for teaching courses on research method and other related courses in institutions could work and remedy the areas of weakness of written abstract and enhance its areas of strength. Concerte effort should be put on teaching of the components of abstract as it is done on the whole body of a research study. Most at times, students are informed on what to do only when they had written a sample for the supervisor to look at. This limits the scope of knowledge on abstract writing acquired by students. A development of an abstract writing manual style could go a long way to improve the quality of research abstract in our higher institutions. An evaluative report such as this will serve as a feedback to undergraduates in helping to upgrade their knowledge and skill in writing a good abstract whether for a research or a conference.

Sample Abstract

A predictive relationship between parent's involvement in education and their children's achievement in mathematics is the object of study. A survey design was adopted and a simple random sampling technique was used to select 350 primary six pupils and 350 parents of the pupils. Two instruments: Parental involvement Questionnaire (r=0.90) and Mathematics Achievement test (r=0.71) were used. Descriptive statistics, regression, Pearson correlation coefficient and t-test analyzed data collected and level of significance was set at 0.05. The findings of the study showed that parents were 68.6 involved (mean=120.13, SD = 14,) in the education of their children. At – home parental involvement

accounted for 7% of the variance in explaining mathematics achievement (R^2adj = 0.069). 2% variation in mathematics is attributed to parental involvement in education. Parents were more involved in at-home based activities than in at-school based activities t (349) = 86.56, $p < 0.05$. A positive significant relationship exists between at-home and at-school parental involvement ($r = 0.280$, N= 350, $p < 0.05$). In conclusion, findings imply a correlation between parent's involvement and their children's academic success. Thus, there is the need to restructure schools to attract parents' in-depth involvement in order to help their children succeed in school.

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PROGRAMME EVALUATION: A TOOL FOR PROGRAMME ACCOUNTABILITY AND CONTINUOUS IMPROVEMENT COST ANALYSIS IN EDUCATIONAL EVALUATION

Adams O.U. Onuka & Uruemu C. Ogbebor

Introduction

Evaluation in development is not new as the creator Himself used evaluation to facilitate His creation work; at every stage He evaluated to ensure that the creation process was on track. Thus, evaluation is both ancient and modern. This year was declared year ofevaluation by the United Nations to sensitise every nation on the need to employ evaluation as a tool to ensure that development programme are always on track to realizing its objective. It is pertinent to note that any development programme without objectives poses difficulty for its evaluation. Evaluation objectives are usually derived from programme objectives. In fact, a programme conception, design and implementation should be an outcome of prior evaluation undertaking to determine its desirability and practicability. Programmes fail because they are often conceived, designed and implemented without prior evaluation of their desirability and practicability.

Development evaluation is a subset of programme evaluation. Programme evaluation assesses a whole programme formulation, organisation and implementation criteria using the programme's objectives as criteria/standards against which its success or failure is measured. It takes cognizance of every component of the programme and its objectives; determines the indices of the accomplishment of each of objective in designing

their achievement measurement. Evaluation is asystematic way of gathering data about a programme or project, how the data are to be analysed and interpreted to provide progress report on the current state of its implementation in order to determine the extent of success or otherwise about the programme. Evaluation provides information on the extent to which programme objectives are being achieved or how accountable the programme is. Evaluation also reveals level of programme accountability or responsiveness. It tells who is responsible for what and what caused achievement or lack of achievement, what could be done to improve its performance, thereby providing feedback to the programme operators to help them remediate identified anomalies. Undertaking evaluation of a development begins with its conception and design so that it will be in-built into the programme. This portends that the goal or objectives of each development programme have been determined at its outset and clearly spelt from its conception so that evaluation can be part of conception,design and execution. It is against such objectives that the programme can be evaluated to verify its realisability, progress, deficiencies, who owns the responsibility for achievement and deficiencies uncovered, and how deficiencies can be remediated and what should be done to ensure the remediation.

There are methodologies with which evaluation is carried out. Thus, various models have been advanced for use to guide how each evaluation exercise is carried out. The model chosen for a particular study/evaluationis determined by its suitability vis-à-vis other available models. Several scholars have developed models which can be seen as evaluation execution strategies. Onuka's (2010) 'strategic management evaluation model' is used to evaluate any management programme. The CIPP model is apt for evaluating programmes. The context focuses on obtaining information about need for a programme, input includes anything that can be brought or is brought into a programme such that they can be used to achieve programme objectives, process deals with

the assessment of the programme implementation and product is about getting information that be used to determine programme results against what was predetermined. Thus, it is imperative for Nigeria to key into this dynamics, which could help prevent corruption as in-built institutional evaluation will detect corruptive tendencies early enough to prevent them. The import of using models in evaluation research is to guide a sequential, logical and systematic gathering of data about part of or whole programme which when analysed can be used to determine the degree of programme accomplishment as well as to guide decision about the extent to which the programme has achieved its objectives. The concomitant effect of development evaluation is accountability, remediation through feedback and programme's continuous improvement.

What is Evaluation?

People define evaluation in various perspectives from whichever way they view it. However, here are some workable definitions:

Evaluation is a process by which data are systematically collected for the purpose of transforming them to alternative pieces of information for decision-makers to use as they deem fit (paraphrased of Alkin's 1970 definition). It is equally seen by Alkin as the process of verifying decision to be taken, selecting the most relevant information to be collated and analysed for interpretation to provide alternatives for decision makers to choose from. Furthermore, Sufflebeam (1971) sees it as a way of delineating, obtaining and giving useful information for making judgement on the worth of a thing/programme. The import of these definitions is that evaluation is a process and such it must systematically and consciously be carried out. It must thus be carefully planned and executed in order to obtain relevant information which by way of feedback provides report on programme/project accountability. Independent Development Evaluation (IDEV) of African

Development Bank (AfDB, undated) states that evaluation aims to inform the revision of policies and programmes, of course for the better. Furthermore, it avers that evaluation assesses the efficiency and effectiveness of policies and programmes. Again, IDEV (AfDB) in a summary report on evaluation on the Bank Group Country Strategy and Program in Chad [2002-2012] clearly shows that there is always management response to evaluation outcome. Of course, the response is imperative because as observed earlier, evaluation is an essential tool for management. This obviously underscores the potency of evaluation as tool for feedback and accountability, and concomitantly, programme revision for improvement. Evaluation is a three-stage process as shown in Figure 1:

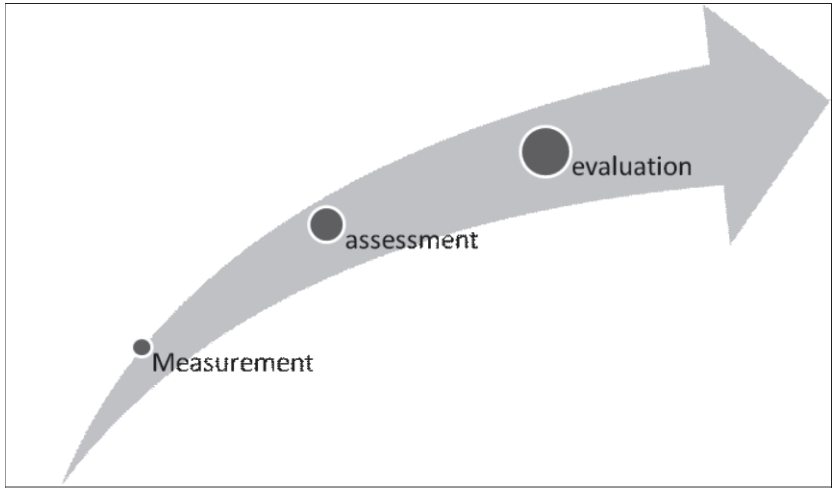

Figure 1: The evaluation process **Source:**Onuka (2014: 2)

Evaluation usually begins with measuring, then assessing what was measured and evaluating the product of assessment through interpretation and making inferences to drawing conclusions that provide alternative information for the decision or for judgement on the worth of the programme. Onuka (2006) concludes that the actual definition of evaluation is determined by

the purpose of a particular evaluation exercise and also determines its objectives which are and should be derived from programme objectives. The derived evaluation objectives are further broken into indicators or evidences indicating occurrence of the objectives or associated variables. Programme evaluation is auditing but a comprehensive investigation about the holistic antecedents, processes and outcomes of a particular programme.

Importance Of Evaluation In Development

The Independent Development Evaluation Department of the African Development Bank (AfDB) (2015) reveals that some countries on the continent have ministries responsible for evaluation. Among such countries are Togo, where there is a minister in the presidency in charge of evaluation of public policies, while in Republic of Benin, it is a whole ministry in charge of public policy evaluation while African parliamentarians have a network on development evaluation and the Bank itself has a Department of Development Evaluation. Thus, it is imperative for Nigeria to key into this dynamics, which could help to prevent corruption as in-built institutional evaluation will detect corruptive tendencies early enough to prevent them. The Republic of South Africa has a Department of Performance Monitoring and Evaluation, and Administration in the Presidency, with a full cabinet rank Minister. Beyond having a ministry, they plan evaluation undertaking for each ministry and extra-ministerial department annually (Republic of South Africa, 2013). This is a worthy of copying by all African countries. RSA develop annual plans and frameworks for evaluation for every sector, which is perhaps they are ahead of other African countries in terms of development.

It is a fact that the term 'evaluation' means different things to different people (Ajala, 2005). Yet, it is a potent instrument of managing development (Onuka, 2011). According to Onuka (2004), development is primarily undertaken by man for the emancipation of man. If God who we all know as the most perfect

being undertook evaluation at every stage of the evolution of our universe and our evolution, we too must of a necessity carry out programme as regularly as needful. This is succinctly shown in the Book of Genesis of the Bible, in Chapter one. Here, we find two main forms of evaluation: Summative and Formative evaluation in action. Hence, we found that in each day of creation, He evaluated (formative evaluation)and proceeded to the next stage and at the end of the sixth day, He did summative and thereafter, concluded the programme of creation. The chief purpose of evaluation, according to Onuka (2006) is multifarious and it includes determining programme objective attainment, programme accountability, challenges inhibiting programme objective attainment, provision of feedback on programme implementation and thus, suggesting ways of improving programme objective attainment. Evaluation helps to determine programme operators' effectiveness. This portends that evaluation is a planned programme improvement and quality assurance mechanism. It should be noted while auditing serves to check financial recklessness and hardly covers how equipment and other things to which finances are committed to, evaluation determines how efficiently and effectively the programme operates, deciphers what went wrong, why and by whom, and further recommends solutions for remediating the discovered anomalies.

Thus, evaluation is both problem discoverer and solution 'profferer'. This characteristic makes evaluation a compelling undertaking in every organisation because it reduces inefficiency and corruptionand makes the system self-correcting when in-built in its operation. This informs why the AfDB and most funding agencies make evaluation component development project. However, having a functional evaluation component of a development is what matters and not a window dressing evaluation component. Hence, the report by Umoru-Onuka (2003) that, educational/training programmes that were constantly evaluated performed than those not being evaluated. Nevertheless, evaluation report has to be implemented for

improvement to take place and for effective programme quality assurance. Unlike auditing which typically deals with financial and transactions records, evaluation is a stakeholders' undertaking as critical stakeholders are involved in the provision of the information to be harnessed, analysed and interpreted for the right inferences to be made about the goings-on in and of the programme being evaluated and the causes of its workability and defects, why and who is responsible for what as well as what can and should be done for improvement.

Measurement, Assessment and Evaluation

Sidhu (2005: 14) made the following distinction between measurement and evaluation as shown in Table 1 below:

Table 1: Distinction between Measurement and Evaluation

No	**Measurement**	**Evaluation**
1	Measurement provides data	Evaluation interprets data provided by measurement
2	Measurement is only a part of the examination system	Evaluation is a comprehensive whole of the examination system
3	It suffers from limitations and short comings	It is an attempt to remove limitations and short comings
4	It is limited to quantitative description of students' behaviour	It includes both quantitative and qualitative description of students' behaviour plus value judgment of that behaviour
5.	Its tools may not be able to provide data on many educational factors	Evaluation tries to cover all aspects of the educational process
7.	It is a product obtained from testing	It is a process developed from or out of testing

Sidhu (2005) appears to have subsumed assessment in both measurement and evaluation. This is possible because assessment is actually the link between measurement and evaluation. Table 2 below illustrates further the distinction and interrelationship among these elements of the evaluation process.

Table 2: Suggested Ingredients of Measurement, Assessment and Evaluation in Educationa Programme

No	**Measurement**	**Assessment**	**Evaluation**
1.	Quantities are assigned to attributes of an object to measured using any of th e four statistical scales of nominal - ordinal - interval or ratio as the case may be	The returned instruments are scored	The resulted analysis from the evaluation exercise are subjected to further scrutiny to ensure that the interpretations are corrected and usable
2.	Relevant instruments on the basis of the chosen scale are developed to carry out the measurement	The scores are collated for analysis	Different suitable and relevant inferences are derived from the data interpretation to prepare a set of appropriate information for decision making or judgment of value to be passed
3	The measuring instruments so developed are administered on the target audience/participants who respond to the items on the instrument as may be appropriate	The data are then analysed and interpreted	From the alternatives provided by the above exercise - judgment of value is passed and/or appropriate decision is made for syst emic and learning improvement.
4	-	-	The above process ultimate provides feedback to the system which invariably may lead to another round of the evaluation or teaching -learning improvement.

Developed for the purpose of this chapter by the authors

The features in Table 2 can be adapted to suit or replicated in any programme in any sector of the economy.

The Centre for Disease Control and Prevention (CDC) (1999) views evaluation as systematic investigation of the merit, worth and significance. It further sees effective programme evaluation as a 'systematic way to improve and account for…by involving procedures that are useful, feasible, ethical and accurate' p. 4. McNamara (2002) postulates that evaluation improves delivery mechanisms for more efficiency and cost effectiveness, and helps management's thinking about programme objectives and how they could be realized. Therefore, evaluation promotes the realization of programme objectives.

Programme Evaluation, Accountability and Improvement

The performance objectives determines to a very large extent, the nature of a programme. The nature of the programme in turn dictates the nature of the concomitant evaluation. It is imperative to note that programme evaluation derives its strength from the programme objectives. This is because the programme objectives/goals determine the programme while it is no gainsaying that evaluation objectives are and could be products of the programme objectives, while the evaluation objectives give fillip to how the evaluation is to be done. Obviously, a programme should be properly planned with an in-built evaluation mechanism from the outset (Onuka, 2006). Evaluation is a three-stage process: measurement, assessment and evaluation, thus measurement is the first stage in the evaluation and precedes assessment and evaluation in that order. Specifically, both measurement and assessment are means to accomplishing evaluation (Onuka, 2014). Programme evaluation should be planned along with the programme so that at every stage, evaluation of each component (input, process/implementation, and outcome) is not delayed but promptly carried out to ensure that programme objectives are being attained and with immediate feedback any identified deviation rectified without delay. This in-built evaluation mechanism or formative evaluation continuously assures quality programme outcomes. However, evaluation carried out at the end of an activity or the programme is more complex, time consuming and also more costly and is regarded as summative evaluation, but is enhanced and made is easier by the former. The importance of programme evaluation in ensuring programme accountability and improvement led the African Development Bank (AfDB) to establish an Independent Development Evaluation Department {IDEV} [AfDB] (2015). Thus, it is imperative for Nigeria to key into this dynamics, which could help prevent corruption as in-built institutional evaluation will detect corruptive tendencies early enough to prevent them. Studies on demand and supply of evaluation carried in Zambia and Malawi were carried out by

donor agencies and not initiated by the national governments of these countries whereas it would been better, if done by bodies set by government and other stakeholders as can be inferred from reports by combined of Centre for Learning on Evaluation and Results (CLEAR, DFID, UKaid and PDM, 2013a & b). Therefore, it calls for stakeholders' involvement in evaluating development programmes. Figure 2 below outlines how programme can be evaluated in order to provide feedback for programme revision and improvement.

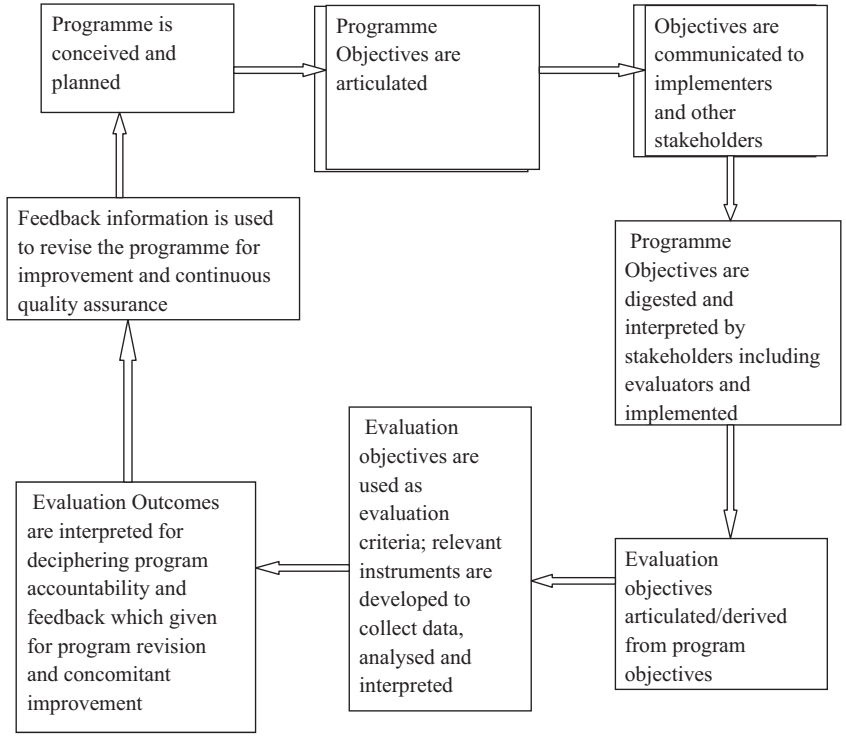

Fig. 2: Feedback Mechanism as Communication Tool for Programme Accountability and Improvement
Source: Adapted from Durowoju (2013)

Thus, we can conclude that evaluation is a process that provides feedback for programme improvement and accountability. Also, note that evaluation is purposeful, systematic, and careful collection and analysis of information used for the purpose of documenting the effectiveness and impacts of programs, establishing accountability and identifying areas needing change and improvement (Wall, 1994). Examining the content of evaluation feedback on a programme does reveal the degree to which the process in operation to accomplishing is accountable. Since programme evaluation is determining the responsiveness of the programme to its clientele, it invariably evaluate the responsibility or answerability of each stakeholder to the programme's progress in terms of providing the fund, utilizing it appropriately, creating enabling environment, programme operation and the calibre of operators, among others. Thus, accountability is the joint responsibility of all stakeholders in the programme viz: legislature, the executive, judiciary, community members, beneficiaries, etc. (Umoru-Onuka, 2001). Evaluation investigates the contributions of these stakeholders to programme's progress or otherwise and be thus, taken seriously. Accountability involves setting correct programme goals, evaluating how much they are/being achieved, at what price, who is responsible, interpreting and also presenting the information for the purpose of programme improvement (Mehrens, 1976).

Methodologies/Evaluation Models

There are methodologies with which evaluation is carried out. Thus, various models have been advanced for use to guide how each evaluation exercise is carried out. The model chosen for a particular programme is determined by its suitability vis-à-vis other available models. Several scholars have developed models which can be seen as evaluation execution strategies. Onuka

(2010) designed a management model known as 'strategic management evaluation model' which could be used to evaluate any management programme. According to Stufflebeam (2004), Stufflebeam (1971) develop the context, input, process and product (CIPP) model for comprehensive or partial evaluation: context focuses on obtaining information about need for a programme, input includes anything that can be brought or is brought into a programme such that they can be used to achieve programme objectives, process deals with the assessment of the programme implementation and product is about getting information that be used to determine programme results against what was predetermined. Another type of evaluation model is Stake's (1967) antecedent, transaction and outcome (ATO) model (Stake, 2004), the input, process and output model as espoused by Bushnell (1990) is again another model. The import of using models in evaluation research is to guide a sequential, logical and systematic gathering of data about part of or whole programme which when analysed can be used to determine the degree of programme accomplishment as well as to guide decision about the extent to which the programme has achieved its objectives. Evaluation instruments developed based on information provided by stakeholders, literature, programme objectives and the possible indicators that the objectives are being achieved or have been achieved. These pieces will also inform the type of instrument(s) to be developed and used.

According to Obanya (2005), a comprehensive evaluation of a programme should be undertaken, taking cognisance of input elements [society, policy, management framework, personnel, infrastructures, materials and funds]; processes [society-popular involvement in implementation, wholesale societal acceptance of programme, policy-adaptability of local conditions, democratic policy making, and review processes, management-decentralisation/devolution of powers and responsibilities to grassroots, empowerment and some autonomy for operators down the line, infrastructure- availability and utilisability of requisite

and relevant infrastructures have to be put in place, materials-provision and use of required materials for programme implementation, and funds-available in the right quantum for use, prudently applied and maximally utilized]; and outcomes [programme objective[s] accomplishment level] (adapted]. The highlight of what each programme component of inputs, processes and outcomes is made up of, determines the methodologies/models that might be used for the exercise.

In a nutshell, programme evaluation is a systematic way of obtaining if information about programme's conception, design, intents and implementation as well as accomplishment. This process involves designing evaluation plan based on programme objectives, implementation process and its inputs and operation to determine the what, which, how and who of the programme so that feedback can be given for improvement. It involves identifying programme objectives, deriving evaluation objectives from the programme objectives, designing the evaluation process-design and model, determining the universe of study, sampling and the sample, designing or adapting/adopting relevant instruments for data gathering and determining the analytical methods for analyzing data, interpreting and reporting outcome for the purpose of improving the programme or its implementation. The concomitant effect of development evaluation is accountability, remediation through feedback and programme's continuous improvement.

Data Collection, Analysis and Interpretation

Data collected from field during evaluation exercise have to be properly managed by collating, cleaning and analysing as well as interpreting them for use by the ultimate user/audience of the outcome. The objectives[s] of evaluation exercise[s] determine[s] the data collection instrument, mode of data collection and analysis. Programme is a wide range evaluation exercise. One may have to delimit the areas of the programme you want to evaluate. However, nothing stops one from evaluating a

whole programme. As noted by Babarinde (1992) and Umoru-Onuka (1996), evaluating programme requires the use of an eclectic model/design as no one of such approaches may suffice. This also happen in some research undertakings when one may have to employ what is referred to as mixed methods (Amin, 2005). It thus implies that the nature of programme evaluation being considered dictates the all parts of methodology and how data are collected and analysed as well as its interpretation.

Conclusion

It is obvious from the foregoing that both literature and experience have proven that programme evaluation sustains improved development on a continuous basis. Equally, revealed is the fact, that the purpose of an evaluation exercise informs the programme objectives to be used to formulate the evaluation objectives. The Independent Development Evaluation Department of the African Development Bank's (AfDB) in a report gave insight into the fact that some African countries now have ministries responsible for policy and programme evaluation. Therefore, it has become imperative that those countries on the continent including Nigeria should emulate those countries with ministerial department of Evaluation as such move could help to prevent corruption as in-built institutional evaluation will detect corruptive tendencies early enough in order to minimize such evil tendency that takes toll o African economies. It must be noted that evaluation goes beyond financial auditing and that it is an all-stakeholders' exercise in the provision of information that are collected, analysed, interpreted and utilized to provide the ultimate and refined information that informs management decision on programme improvement or judgement on programme accountability. Programme evaluation should be holistic, systematic and stakeholders' based. The stakeholders include programme sponsors, programme operators, programme beneficiaries, the community in which the programme is based, among others. It should be truthfully undertaken and not a window

dressing undertaking. The necessity to have department for national evaluation and frameworks for the evaluation of every sector of nation's economy to enhance development programme accountability and continuous improvement was stressed in this paper.

As all programmes are developmental and undertaken by man for the sake of man, they must have in-built evaluation mechanism for self-correction and quality assuring. It should be undertaken using appropriate procedures/methodologies/models which include using appropriate instruments to gather the data and relevant qualitative and/or quantitative tools. Correct interpretation and inferences should carefully be made and used to derive appropriate suggestions for programme improvement. Programme managers should study and appropriately apply evaluation reports to improve the programme and the concomitant intended development objective. The evaluation of a programme should take two forms: formative [developmental] and summative [including impact] evaluation as they complement each other and thus make evaluation results more formidable and reliable. When evaluation reports are appropriately applied, the resultant effect will programme objectives revision for input, process and personnel upgrades ant the concomitant outcomes upgrade or improvement.

Recommendations

Based on the discussion in this paper, it is hereby recommended that:

1. Evaluation mechanism should be in-built in every programme and at some when summative evaluation of some aspects of the programme made be found necessary, external evaluation may be commissioned as done periodically with auditing.
2. All stakeholders must be involved in the evaluation process, whether it is formative or the summative type of programme evaluation, rather than governments' and donors' concern only.

3. Evaluation reports should be promptly studied and appropriately applied to upgrade programme objectives, inputs, processes and personnel as well as outcomes to ensure continuous development.
4. Evaluation units/department should be created in all organisations irrespective of whether they are public or private to ensure continuous organisational improvement in terms of products and services.
5. African should establish functional national departments of evaluation and evaluation frameworks to engender continuous programme accountability and improvement for the continuous emancipation of its peoples.

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IMPLEMENTATION OF ROLL BACK MALARIA PROGRAMME IN OYO STATE, NIGERIA: A CAUSAL-COMPARATIVE SURVEY

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Introduction

Roll Back Malaria (RBM) programme was an initiative conceived in November, 1998 by founding partners: United Nations Children Education Fund (UNICEF), United Nations Development Programme (UNDP), World Bank, (WB) and World Health Organisation (WH0) in Geneva to galvanise multi-sectorial action to tackle malaria (Alnwick, 2001). Literature reviewed, (Federal Ministry of Health (FMOH), 2004 and Onwujekwe, Hanson, Fox-Rushby, 2004; Health Reform Foundation of Nigeria (HERFON), 2006), confirm that almost half of the world's population is at risk of the disease. The goal of the founding partners was to seek greater support for malaria control, raising awareness of the global problem on malaria and supporting malaria-affected countries to develop effective programmes against malaria and its consequences. The endemic state of malaria infection in Nigeria and other African nations in Sub-Saharan and South-Africa is well documented in Adeola and Okwilagwe (2015). Equally documented in this study are the global malaria scenario and records of clinical visits of sufferers to the health facilities in the continent and the outcome measures. The main objectives of RBM programme according to World Health Organisation (WHO, 1999) are to:

(i) seek and focus its attention on reducing the burden of malaria particularly in the two most vulnerable groups (the pregnant women and children under five years of age); and

(ii) contribute to positive health and socio-economic development of the nations.

Four complementary priority areas of implementation of RBM programme as identified by Alnwick (2001) are: the need for quick treatment of people with malaria and making the drugs available through the general purpose shops as well as through health centres; encouraging children under five years and pregnant women to sleep under insecticides treated mosquito nets; additional protection for pregnant women as they are particularly vulnerable to malaria with its complications; and the need to comprehend the fact that malaria is a major cause of death and suffering in endemic areas when there are large food shortages, population displacement, and where there is war or civil strife, such as in Dafur in Sudan.

In Nigeria, malaria as a serious health problem is being given the desired attention. In this wise, prevention and vector control programme have been packaged into a strategy known as Integrated Vector Management (IVM). The general objective of preventive efforts is to rapidly reduce transmission of malaria to the lowest possible level in the various ecological settings by: reducing vector-human contact, reducing the longevity and abundance of adult vector populations; and reducing suitable breeding sites wherever this is feasible and sustainable (Federal Ministry of Health, 2010). Also, the key interventions to achieve prevention/vector control are: universal access and use of Long-lasting Insecticidal Nets (LLINs) in all parts of the country and by all population groups, complementary and increasing Indoor Residual Spraying (IRS) in selected areas where good synergistic effects can be achieved, where LLINs alone cannot reach sufficient impact or be easily implemented; and the use of environmental management and larviciding to reduce breeding where significant proportions of breeding sites can be identified and targeted.

Skill acquisition is an important aspect of the RBM programme implementation and Health care providers are

equipped with relevant training and skills on how to implement RBM programme, which enable them to control, treat and prevent malaria attack. In view of this, it is pertinent that a programme like the RBM be constantly evaluated to provide information on the current status of its implementation. Evaluation provides useful information for decision-makers, with the overall goal of programme or project improvement Stufflebeam (1973; 2003). Making valid judgement on the worth of the entity – the ongoing RBM programme with a view to identifying its strengths and weaknesses, and suggesting ways for programme improvement is of great necessity.

RBM initiative is a simple, cost effective, minimum healthcare package against malaria that is aimed at empowering mothers and other caregivers, community-based health personnel and other major actors in the healthcare system with knowledge in the quick treatment of malaria Federal Ministry of Health (FMOH, 2004). Achieving the health-related Millennium Development Goals (MDGs), 4, 5 and 8 are not only germane to mitigating the health problems of these Nigerians, and being world compliant, but will also: (i) reduce child mortality; (ii) improve maternal health; and (iii) develop a global partnership and subsequently, improve their health and social well-being. Also, RBM concentrates on saving lives, improving school attendance and alleviating poverty (Federal Ministry of Health, 2004 and World Health Organisation, WHO, 2000). The National Policy on RBM in Nigeria is one of the National Health interventions to achieve the national goal of health for all Nigerians. Traditional Birth Attendants (TBAs) and other health workers in faith clinics, who provide health services to some members of the citizenry using unorthodox methods, were of significant inclusion in this study because of the need to ascertain the level of RBM programme implementation in non-governmental health facilities and be able to compare their practice with those of the healthcare providers in government clinics.

The objectives of the present study were the need to evaluate the implementation of RBM programme in Oyo State with a view to identifying the extent to which the objectives of the RBM programme have been achieved, establishing the implementation practice of RBM among government healthcare providers in health facilities in the state and the extent to which healthcare providers' factors influence implementation. These were established by obtaining the responses to the self-reporting instruments administered on senior health officials of the Ministry of Health in the state, on the extent of Oyo State Government involvement in RBM programme implementation and on healthcare providers in government healthcare facilities and TBAs on the implementation practice in the state. Also establish was the extent to which healthcare providers' factors influenced implementation.

Research Questions

1. To what extent is Oyo State government involved in the practice of RBM programme implementation in the state?
2. What is the pattern of practice of RBM programme by Healthcare Providers (HCPs) in government clinics and TBAs in faith clinics?
3. Is there a significant difference in the practice of RBM programme implementation of Healthcare Providers (HCPs) in government clinics and TBAs in faith clinics?
4. Is there a significant relationship between factors facilitating the implementation of RBM programme and the practice by healthcare providers in Oyo State?
5. Which HCP's factors (experience, attitude, professional status, level of education, gender and location of healthcare providers) will be most influential in explaining the implementation of RBM programme in Oyo State?

Methodology

Study Design: The study is an evaluation research that adopted the survey and causal comparative types of research. Variables were

not manipulated in the study, since they were studied in retrospect. Inferences were made from the observations obtained. Stratified-random sampling techniques were employed to select six local government areas giving consideration to both urban and rural locations from the 33 local government areas within Oyo State. All the Primary Health Care (PHC) clinics and mission homes (faith clinics) in the selected local government areas were used for the study. The research participants consisted of 15 Senior Health Officers in the State Ministry of Education, 287 healthcare providers at the PHC and 106 Traditional Birth Attendants (TBAs) at the faith clinics in 2009/2010 when the study was conducted. The study adopted the first three components of Stufflebeam, 1973; 2003) Context, Input, Process and Product (CIPP) evaluation model. (i) Context evaluation determined the needs of the individuals to be served. The context variables in the study included RBM programme plan by the state such as policy enactment and individual citizen efforts, healthcare personnel's factors influencing implementation practice, such as gender, professional qualification, location, working experience, professional status and level of education. (ii) Input evaluation determined the use of resources to meet the goal established for the programme, and they included the RBM tools and Healthcare personnel's attitude towards the programme. (iii) Process evaluation provided information on the method or procedure adopted for programme execution. Inputs in themselves do not make for improvement of output until they are acted upon and efficiently utilised. Implementation of RBM programme involves the practice of RBM by healthcare personnel, engaging in IRS, education among others. (iv) Product evaluation measures and interprets attainments at appropriate stages within a programme but this was not reported in this study.

The Setting: Oyo State is located in the South-west Geo-political Zones of Nigeria and is one of the malaria endemic areas of the country. It consists of 33 local government areas with its capital

city at Ibadan. The disease afflicts children U-5 and pregnant women – two of the most vulnerable groups – resulting in high morbidity and mortality in the state. For instance, the incidences of malaria among the U-5 were: South-South –32.7%, South-West –36.6%, South-East –30.7%, North –Central – 58.8% North-East –55.3% and North-West –33.6% Federal Ministry of Health (2004). Recent data Department of Planning, Oyo State Ministry of Health (2010) puts the trend of malaria prevalence in the state from a total of 358,780 cases in 2006 to 403,468 in 2009.

Instrumentation: Malaria Vector Management Questionnaire (MVMQ $\alpha = 0.75$) and Healthcare Personnel Practice Questionnaire (HCPPQ $\alpha = 0.91$) – were used to collect data.MVMQ provided information on vector management by the Oyo State Government. It consisted of demographic information of the ministry officials who responded to it, information on the practice of malaria vector management and other programmes put in place by the state government for the implementation of RBM programme.HCPPQ sought information on the health workers' background information, attitude to RBM programme, practice of RBM programme, health care providers' factors that affect RBM programme practice. Fourteen trained assistants who comprised six RBM programme managers in the six LGAs and eight others specially recruited and trained for this purpose assisted with data collection. At the state ministry of health, health centresand mission homes visited, the researchers explained the purpose of the study to all the health workers or TBAs present and thereafter administered the instrument on them. TBAs responded to their instrument through careful interpretation in the Yoruba Language (core language in the area) but without any interference to their opinion, because of their low level of education.

***Ethical Approval*:** Ethical approval was obtained from the Oyo State Ethical Review Committee, Local Government Commission and heads of the LGA healthcare facilities before the

commencement of actual data collection. Senior state ministry officials, healthcare providers in government clinics and TBAs in mission or faith centres also gave their consent and willingness to voluntarily participate in the study.

Method of Data Analysis: Practice of malaria vector management by the Oyo State Ministry officials was analysed using descriptive statistics, while t-test was used to analyse significant difference in healthcare providers' implementation practice; correlation and multiple regression analyses were used to analyse the data on implementation and healthcare providers' factors that influenced RBM programme implementation.

Results

1. To what extent is Oyo State government involved in the practice of RBM programme implementation in the state?

Table 1: Oyo State Ministry Officials' Practice of Malaria Vector Management in the Sta te

S/N	Item	Always		Sometimes		Never		N
		Freq	%	Freq	%	Freq	%	
1	Vector management as a policy is being implemented in the state.	4	26.7	5	33.3	6	40.0	15
2.	Health inspectors give regular campaigns on need for clean and mosquito-free environment.	6	40.0	8	53.3	1	6.7	15
3.	Inspectors visit homes to ensure that the environment is clean.	0	0	8	53.3	7	46.7	15
4.	Inspectors encourage and teach people to sanitise the breeding places of mosquitoes by spraying with insecticides.	0	0	10	66.7	5	33.3	15
5.	Indoor residual spraying of all houses is carried out by the health unit.	0	0	2	13.3	13	86.7	15
6.	Individuals are encouraged to use nets in windows and doors in their houses.	15	100	0	0	0	0	15
7.	People are encouraged to sleep under insecticidal nets.	15	100	0	0	0	0	15
8.	Insecticidal nets are distributed freely to the populace.	8	53.3	7	46.7	0	0	15
9.	Environmental sanitation, clearing of bushes and drainages are done regularly by residents.	14	93.3	1	6.7	0	0	15
10.	Environmental sanitation, clearin g of bushes and drainages are done regularly by members of the health inspectorate division.	2	13.3	9	60.0	4	26.7	15

A bench mark of 50% and above was used to establish the practice of malaria vector management in Oyo State. All the participants 100% respectively (Table 1) indicated that the practice of malaria vector management in the state was always through 'sleeping under insecticides treated nets' and 'encouragement of individuals to always use windows' and 'door nets in their houses', while 93% indicated that 'environmental sanitation through clearing of bushes and drainages are done regularly by residents'. 'Free distribution of insecticide nets to the populace always', was also reported by 53.3% of the respondents, while 66.7% and 60. 0% reported that Inspectors sometimes 'encourage and teach people to sanitise the breeding places of mosquitoes,'and 'encourage environmental sanitation by clearing bushes and drainages'. 'Regular campaigns on the need for clean and mosquito-free environment' and 'home visits to ensure that the environment is clean' were sometimes undertaken and reported by 53.3% of the respondents respectively. IRS and vector management policy are not given serious attention in the state as reported by 86.7% of the participants (Table1).

Table 2: Other Programmes Put in Place by the Government in Oyo State to Implement RBM Programme

S/N	Item	No of Respondents	Agreement		Disagreement	
			Freq	%	Freq	%
1	Distribution of Long Lasting Insecticides Nets (LLINs) and ACTs.	15	11	73.3	4	26.6
2	Sensitisation	15	8	53.3	7	46.6
3	Seminars, workshops and training on RBM programme	15	5	33.3	10	66.6
4	Environmental sanitation	15	3	20.0	12	80.0
5	Case Management and Rapid Diagnostic Tests (RDTs)	15	2	13.3	13	86.6
6	All programmes	15	1	6.7	14	93.3

Other programmes put in place in the state as presented in Table 2 are: distribution of LLINs and ACTs 73.3%, sensitization 53.3% and seminars/workshops/training on RBM programme 33.3% were indicated by the officials.

2. What is the pattern of practice of RBM programme by Healthcare Providers (HCPs) in government clinics and TBAs in faith clinics?

Table 3: Practice of RBM Programme by Healthcare Providers in Faith and Government Clinics in Oyo State

S/N	Statement	Government Clinics				Faith Clinics			
		Percentage Agreement		Percentage Disagreement		Percentage Agreement		Percentage Disagreement	
		Freq	%	Freq	%	Freq	%	Freq	%
1	Insecticides Treated Net is recommended for use in this centre.	271	94.4	16	5.5	45	44.1	52	51.0
2	Artemisinnin-based Combination Therapy (ACT) is recommended for RBM programme in this centre.	278	96.8	9	3.1	64	62.7	23	22.5
3	ACT is given for chloroquine resistant malaria in this centre.	262	91.3	25	8.7	90	88.2	8	7.8
4	The current drug rec ommended for the treatment of malaria in this centre is ACT.	276	96.1	11	3.8	46	45.1	45	44.1
5	Malaria is treated within 24 hours with ACT in this centre.	277	96.5	10	3.5	80	78.5	16	15.7
6	Chloroquine is still recommended for use for malaria for children in this centre.	170	59.2	117	40.8	70	68.6	23	22.5
7	Coartem is the drug of choice for treatment of malaria in children under 5 in this centre.	170	59.2	117	40.8	30	294	47	46.1
8	IPTp is given to all women of reproductive age in this centre.	269	93.7	188	6.2	41	45.5	51	50
9	IPTp is given to pregnant women in this centre.	270	94.1	17	5.9	35	34.3	57	55.9
10	The recommended anti -malaria IPTp is sulphadoxinepyrimethamine in this centre.	275	95.8	12	4.1	51	50	25	44.1
11	The most potent anti -malarial drug used in pregnancy in this centre is sulphadoxinepyrimethamine.	256	89.2	31	10.8	45	44.1	49	48.1
12	We encourage all pregnant women to sleep under ITN in this centre.	221	77.0	66	23.0	90	88.2	9	8.9
13	We encourage children under 5 years and their mothers/caregivers to sleep under ITN in this centre.	231	80.5	56	19.5	88	86.2	11	10.8
14	ITNs are recommended for use by all pregnant women in this centre.	41	14.3	246	85.7	95	93.1	3	2.9
15	In this centre, all children under 5 years are recommended to sleep under ITN.	251	87.5	36	12.6	95	93.1	5	4.9
16	The drug of choice recommended for treating children in this centre is Coartem.	186	64.8	101	35.2	79	77.5	22	21.5
17	Coartem is given free of charge to children under 5 years in this clinic.	198	69.0	89	31.0	36	31.4	66	64.7
18	IPTp of malaria in pregnancy is given out for all pregnant women in this clinic/centre.	265	92.3	22	7.6	41	40.2	57	55.9
19	IPTp is given twice compulsorily to all pregnant women who attend ANC in this centre.	252	87.9	35	12.2	54	52.9	51	49.0

The implementation practices of RBM programme by healthcare providers in government and TBAs in faith clinics was obtained (Table 3). The responses of Strongly Agree and Agree, as well as Disagree and Strongly Disagree were collapsed into an agreement and disagreement continuum and a benchmark of 50% and above used as standard for RBM programme implementation. Of two hundred and seventy-eight government HCPs (96.8%) and 64(62.7%) of the 106 TBAs agreed that ArtemetharLufementhrine, Artesunate/Amodiaquine (ACT) is recommended for RBM programme. A total of (94.4%) government HCPs and (44%) TBAs agreed that ITNs are

recommended for use in their centres while (91.3%) and (88.2%) HCPs and TBAs respectively agreed that ACT is used for chloroquine resistant malaria. A total proportion of (96.1%) HCPs in government clinics and (45.2%) TBAs agreed that the current choice of drug for malaria is ACT. Also, (96.5%) government HCPs and (78.5%) TBAs agreed that malaria is treated within 24 hours with an ACT, while (69%) government HCPs and (31.4%) TBAs agreed that Coartem is given free of charge in their centres.

3. Is there a significant difference in the practice of RBM programme implementation of Healthcare Providers (HCPs) in government clinics and TBAs in faith clinics?

Table 4: t- test Analysis on Practice of RBM Programme in Oyo State

Groups	N	Mean	Std. Dev	Std Error of Mean	df	t	P-value
Healthcare providers in govt. clinics	287	64.89	7.78	0.56	391	78.02	.000*
TBAs in faith clinics	106	205.47	27.76	2.70			

*Significant at $p \leq 0.05$

This level of practice between the two health facilities was significant $t_{(380)} = 78.02, p = 0.05$ (Table 4).

4. Is there a significant relationship between factors facilitating the implementation of RBM programme and the practice by healthcare providers in Oyo State?

Table 5: Correlation Matrix of Factors Influencing Implementation of Practice of RBM Programme by Health Care Providers in Oyo State

		Factors of Implementation Practice of RBM	
Factors of Implementation	Pearson Correlation	1	0.456*
	Sig (2-tailed)		0.000
	N	287	287
Practice of RBM	Pearson Correlation	0.456*	1
	Sig (2-tailed)	0.000	
	N	287	287

*Significant at $p \leq 0.05$

The eight identified factors of implementation practice that is: attitude to quick identification and prompt treatment of

malaria, access to free availability of ITNs, affordability of cheap ITNs, availability of Sulfadoxinepyrimethamine drug for IPTp, and ACTs (Coartem), community mobilisation, intensive environmental sanitation and personal hygiene, and awareness creation (Table 5) were statistically and significantly related with the implementation practice of RBM programme by healthcare providers in the state, r = 0.456, N= 287, p = = 0 . 0^{2}5= 0.202, explaining 20.0% of the variation in practice of RBM programme.

5. Which HCP's factors (experience, attitude, professional status, level of education, gender and location of healthcare providers) will be most influential in explaining the implementation of RBM programme in Oyo State?

Table 6: Explanatory and Predictive Powers of Factors Influencing Healthcare Providers RBM Programme Implementation Practice

Dependent Variable	R^2	F	Factors of Practice	β	t
Implementation of RBM Programme	0.642	32.7*	Attitude of health workers	0.663	13.928*
			Gender	-0.011	-.226
			Location	-0.033	-.674
			Level of education	-0.113	-2.181*
			Years of experience	-0.053	1.096
			Professional status	-0.106	-2.077*

* Significant at p≤0.05

In the summary of multiple regression table, the six healthcare providers' factors (Table 6) significantly explained and predicted the practice of RBM Programme implementation in Oyo State ($F_{(3,280)}$=32.73, p = 0 . 0T5he)six factors explained 41.0% of the total variance in the practice of RBM programme. The t-test results with regard to the significant multiple regression coefficient obtained in the factors influencing practice, to a large extent, predicted practice through attitude to practice (t= 13.928; β= 0.663). In addition, influencing factors like professional status (t = -2.077; β= -0.106) and level of education (t= -2.181; β= 0.113) significantly contributed to the practice of RBM programme but were associated with worse practice of RBM programme.

Discussion

Management of RBM Programme Implementation by Oyo State Ministry of Health

Nursing personnel who responded to the level of Oyo State Government involvement in RBM programme practice in the state were university graduates and senior health professionals, majority of who had spent more than sixteen years in the service of Oyo State and, therefore, have wealth of experience on issues on malaria prevention and management. They have also been actively involved in RBM programme implementation since its inception. From the findings in this study, it appears that the dispensation of the three essential tools of RBM programme in Oyo State was the implementation focus of the government. Besides, the deduction that can be made from this finding is that within the period covered by this study (that is 2001-2009), malaria vector management in Oyo State practised through the distribution of LLINs and ACTs, and encouragement on the use of insecticidal nets, public sensitisation and campaign on environmental sanitation were complementary activities in the state.

However, other programmes put in place by the state government for the implementation of RBM programme are: distribution of LLINs, the enforcement of environmental sanitation, malaria sensitisation campaign and the recently introduced Rapid Diagnostic Tests (RDTs) for malaria and other infections which was commenced in the year 2012 (secondary data obtained in 2012). Further information from the secondary data indicated that the state government has plans underway to commence the second phase of scale up distribution of LLINs to the remaining LGAs in February 2013 at the ratio of 2 nets per household to meet the targets of universal net campaign which now focuses on LLINs for all people. Monitoring and evaluation was to be embarked upon six months after the utilisation of the nets to find out utilisation rate. Indoor Residual Spraying (IRS), one of the proposed scale up programme for malaria vector control by the Federal Ministry of Health, was to be implemented in the year 2013 according to Federal Ministry of Health (2010). Findings

indicate that vector control in the management of malaria as a state policy is only partially complied with by the officials of the State Ministry of Health. There is, therefore, need for the government to throw its weight solidly behind the programme to make it succeed.

Pattern of Implementation Practice of RBM programme by Healthcare Providers in Oyo State

Healthcare providers are crucial to the implementation of RBM programme because the success of the programme depends to a large extent on the quality and availability of qualified and committed healthcare personnel, be they nurses, doctors or community health extension workers. Concerning the practice of Roll Back Malaria among healthcare providers at PHC centres, findings indicate that there is no uniform practice. Healthcare providers in government clinics seem to have good knowledge about RBM programme and as such fully implemented RBM programme (93.6% to 97.0%), while the TBAs and other healthcare providers in mission or faith clinics partially implemented the practice of RBM programme (44.0% to 88.0%). Through interactions and personal interviews with the TBAs and other healthcare providers in mission or faith clinics, they argued that even though they consented to their awareness of RBM programme, they had never undergone any training and they were not supplied with any of the three tools for the implementation of RBM programme. This confirms the report of Oguonu, Okafor and Obu (2004) that rural and urban communities were aware of malaria as a disease, but practices were grossly inadequate.

This study further revealed that the TBAs and healthcare providers of faith clinics are yet to be reached by the National Malaria Control Programme (NMCP), the non-governmental organisations and the global partners of RBM programme. The NMCP seems to have concentrated only on government health workers and those who attend health facilities owned by government. Many of the sampled TBAs in mission or faith clinics were found in the urban LGAs, yet these participants claimed not to have had formal training about RBM programme. A large

number of pregnant women in Nigeria, who are members of the same religious body with TBAs, patronise faith clinics where they are provided with antenatal, delivery and postnatal care. Also, some of these pregnant women informed the researchers that they engaged in dual registration in government and faith clinics, but preferred to have their babies in the faith clinics or mission homes. In view of this, the TBAs are an important group to be reckoned with if the implementation of RBM programme is to be effective, and if the Millennium Development Goals (MDGs) 4, 5 and 6 are to be realised by the year 2015 in the state.

Implementation and Healthcare Providers' Factors Influencing RBM Programme Implementation

Finding in the study indicated that eight identified factors of implementation (affordability of ITNs in purchasing centres, availability of Sulfadoxinepyrimethamine drug for IPTp and ACTs (Coartem) at clinics, cheap ACTs (Coartem) outside the clinics, affordability of Coartem for children outside the clinic, community mobilisation, intensive environmental sanitation and personal hygiene, awareness creation, and free distribution of ITNs to pregnant women and children under five) contributing 20.0% to the variance in implementation of RBM, correlated significantly and positively with implementation practice of RBM programme in Oyo State.

Attitude of health workers was significantly influential in the implementation of RBM programme followed by their level of education and professional status. The healthcare providers in government clinics who participated in this study are trained primary healthcare professionals who are specialists in health education, health promotion and disease control and prevention. The TBAs made it clear that they are not trained in healthcare provision. RBM is a programme in primary healthcare and the number one intervention for minimum health package in the control of communicable diseases like malaria, STDs, HIV/AIDS, TB (Federal Ministry of Health FMOH, 2001). To achieve the sixth MDG, health workers must be qualified professionals with

positive attitudes, and should be ready to serve in any locality especially in the rural area. The federal and state governments of Nigeria are investing in the training of health workers and the education of the general public through programmes such as home management of malaria where there is no doctor especially among women of childbearing age. Also, there are RBM programme managers in all the 33 LGAs of Oyo State who are trained and employed to monitor the prevention, control, treatment of malaria and possibly its eventual eradication. Findings further indicated that as the professional status and educational level of government health workers were increasing, the implementation practice of RBM programme was becoming poor and *vice versa*. This implied that to succeed in Oyo State, RBM programme does not necessarily have to depend very heavily on highly educated or superior healthcare providers. Of the healthcare providers' factors, their attitude was most influential while a combination of the six factors (experience, attitude, professional status, level of education, gender and location of healthcare providers) significantly influenced RBM practice ($F_{(3,280)}=32.73$), explaining 41% of total variance in the practice of RBM programme. The findings of this present study are in line with the observations of Cacioppo, Petty, Kao and Rodriguez (1986); Akinwusi (2004) and Adejumo (2010). In the views of Adejumo (2010), healthcare providers are expected to have high knowledge base and skills in disease management, while Cacioppo et al (1986) contend that persons high in 'need for cognition' are more likely to think and elaborate cognitively on issue-relevant information when forming attitudes than persons low in need for cognition. This situation can bring about behaviour change. This seems to be the case with the healthcare workers in government clinics used in this study.

Conclusion

Malaria can be a deadly disease if not carefully attended to by healthcare providers and healthcare givers. Knowledge of a phenomenon is very germane to its acceptance and practice. Inclusive stakeholders' participation should be an essential

consideration in the RBM programme implementation. Inclusive stakeholders' participation should incorporate all healthcare providers in the state such as the TBAs, who should be given relevant training, sensitisation and be carried along in the implementation process of reducing the prevalence of malaria. They should also be partakers in the distribution of RBM programme tools to ensure a wider coverage. Oyo State Government should, through its state ministry of health, expand its scope of implementation beyond the distribution of basic RBM tools and campaigns to other essential areas like engaging in IRS and enactment of sustainable state policy on RBM. These would go a long way in achieving the objectives of RBM programme in Oyo State.

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22

EVALUATION OF TRAINING PROGRAMMES: ISSUES AND PERSPECTIVES

K. O. Kester

Introduction

Literature on training have argued that all organisations globally (both public and private) need to invest heavily on the training and retraining of their workforce to ensure that the individual workers possess the requisite functional workplace literacy skills. Succinctly, every organisation therefore must be ready to expend at least two percent of its annual payroll on training and retraining (Kester, 2011). This is because the importance of training to the individual workers and the organisation cannot be over emphasized.

Contrary to this, most organisations in developing countries (Nigeria inclusive) with low commitment and sense of responsibility to training spend far less on their workers' training (Kester&Esan, 2012). Their argument is always hinged on the fact that workers' training and retraining attract low yield or returns to most organisations. Also, that training often leads to an increase in employees' turnover (Brum, 2007). It is, therefore, a waste of money, efforts, time and investment.

Nevertheless, for any training programme to be cost-effective and seen more like an investment, it must follow three sequential steps. First, there is the need to concretely define what is to be learnt through a thorough needs-assessment process. Secondly, the actual implementation of such training programme(s) must be perfectly related to the overall achievement of the broader organisational goals and strategies. Thirdly, the

programme must have a well-documented evaluation procedure where the impact(s) of the programme are measured (Kester, 2011).

Essentially, without effective evaluation process which is regarded as the 'bottom line' of the success of any training programme, it would be difficult, if not impossible to accurately measure the extent to which the programme has achieved the intended objective(s) or whether it actually went in the intended direction. Neither will it also be possible to assess if any success or progress were actually achieved. It will also be difficult to identify the future adjustment needed to improve upon the quality of the training programme delivery.

It is with the hindsight of the relevance of evaluation of training programme that this paper attempt to re-emphasise the uses, procedural steps, and likely challenges of the evaluation process in training programme delivery. This is with a view to providing the essential evaluation framework for optimal maximization of the expected returns on investments in training programmes among organisations in Nigeria and other developing countries.

Training Evaluation: Conceptualisation

Training evaluation is the most essential aspect of a training programme. Though it is the weakest and most underdeveloped aspect of training (Topno, 2012) but it is a powerful tool for enhancing training effectiveness (Ogundeji, 1991). It is always used to justify the investment made and to improve the training process. Evaluation is the stage in the training cycle where the determination of whether the training programmes has met training objective or not.

Generally, evaluation is the systematic acquisition and assessment of information to provide useful feedback about a project of programme with the aim of improving upon its effectiveness (UNDP, 2009). Evaluation helps planners and implementers to generate evidence and objective information that assist in making informed decisions and plan strategically with

higher level of accuracy in achieving sustainability or effective transfer of new skills and knowledge to job situations. Training evaluation could be seen as an independent rigorous and extensive analysis or assessment of either completed or ongoing training activities, with a view to determine the extent to which such programme(s) has achieved its stated objectives, and has also contributed to future decision making (UNDP, 2009).

According to McNamara (2008), it is the key used to determine whether there is a positive change in behaviour/attitude and performance when the trainees are back on their jobs. It could also be used to improve upon the training programme when making changes in the overall training plan or the course contents and materials. Training evaluation according to Aguinis and Kraiger (2007) is the systematic investigation of whether a training programme resulted in knowledge, skills or effective change in the learners. Topno (2012:11) states that "evaluation of training measures assessment of the impact of training on trainee's performance and behaviour". Also, Tripathi and Chaurasia (2014) sees training evaluation as a process which attempts to inform whether the training programme has been able to deliver its goals and objectives in terms of cost incurred and benefits achieved.

To Hamblin (1974), training evaluation is a 'training aid' that is used to obtain information (feedback) on the effects of training programme and to assess the value of training in the light of that information. Virmani and Seth (1985) also see training evaluation as an attempt to obtain information on the planning of training, its conduct and feedback on the application of the learning after the training session so as to assess its value. On his own part, Goldstein (1986) sees it as the systematic collection of descriptive and judgmental information necessary to make effective training decisions in relation to the selection, adoption, value modification of various instrumental activities. Buckley and Caple (2010) see training evaluation as a process where the total value of training is being assessed. Omole (1999) concludes that

training evaluation is an attempt to see whether a training programme is meeting its objectives, how it is doing so, whether changes are required and to what extent such changes should be effected.

Succinctly, training evaluation aims at assessing the quality of training imparted, and based on the findings, future changes in the training programme are foreseen. In essence, the role of training evaluation is to influence decision-making or policy formulation on training through the provision of empirically-driven feedback. Training evaluations are expected to provide feedbacks which are seen as very useful in aiding future decision-making. Basically, it enables training planners and organisers to review the continued relevance and effectiveness of the training programmes and modify as appropriate (Bray, 2009). Training evaluation generally provide the necessary information needed for the continuous improvement of the training function and the organisational performance in general.

Models of Training Evaluation

There are different models of training evaluation. These include: Kirkpatrick Four-level Model; Context, Input, Process and Product (CIPP) Model; Context, Input, Reaction and Outcome (CIRO) Model, Kaufman's Five-level Model; Brinkerhoff Success Case Model; Phillip's Model (ROI); Training Validation System (TVS) by Fitz-Enz Decision-based Model by Kraiger and Hassett's Training Instrument Analysis Model. The Kirkpatrick four-level model is the most widely used training evaluation model (Bates, 2004) and it was introduced in 1959 by Donald Kirk Patrick. This model focuses on measuring four kinds of outcomes (reaction, learning, job behaviour and performance, and results at organisational level) which should result from an effective training programme. The major strength of the model is the focus on the behavioural outcomes of the trainees involved in the training programme. According to Sachdera (2014), the weakness of the

Kirkpatrick's model is that it does not address the question of whether training programme is worth the cost incurred in conducting the programme.

The CIRO model was proposed in 1970 and was based on four aspects of training: Context, Input, Reaction and Outcomes; with a major strength of focusing on the objective (content) and the training equipment (inputs). Under the CIRO model outcome assessment is considered at three levels: immediate, intermediate and ultimate. The CIPP model was developed by Daniel L. Stufflebeam in 1983 and it focuses on four phases of evaluation: Context, Input, Process and Product. This model is anchored on the fact that the most important purpose of evaluation is to improve the functioning of a programme. It has been used generally for other purposes apart from training.

The Kaufman's Five-level model extended the scope of training evaluation beyond the organisation, to include how training benefits the immediate surroundings of the organisation and the society at large. The Kraiger's Decision-based model focused on the intended purpose of the evaluation itself. That's what purpose(s) does the training evaluation which to serve-decision-making or providing feedback for all stakeholders as well as to the needs and sophistication of the intended audience(s) (Kraiger, 2002). The Brinkerhoff's Success Case model does argued that performance results cannot be achieved by training alone, therefore training should not be the object of evaluation. Rather it is the structure that should be the object of the evaluation process (Brinkerhoff, 2005). This Success Case model shifted the focus of evaluation from the training programme to the organisation itself.

The Philip's model is an attempt by Philips in 1996 to provide practical evidence of how training programmes financially contributed to an organisation. This model suggested an additional trend to Patrick's Four-level model to calculate the return on investment (ROI) generated by training, thus translating the worth of training into monetary value. This model provides the

opportunity to view ROI from both human performance and organisational outcomes perspectives; comparing the monetary benefit from the training programme with its costs. And it uses mathematical and statistical techniques in determining cost and benefits of training which has been considered to be very difficult and expensive.

There have been a number of authors who have criticized the lack of rigour in training evaluation models. Griffin (2010) has argued that there exist a mismatch between an organisation desire for evaluation of training programme and the extent and effective of the actual evaluation. Some others have argued that all models of training evaluation are descriptive and subjective in nature and that its evaluation indicators are not clearly given and explained (Abdullahi, 2009; Haddock, 2015). Specifically, Businessballs (2011:5) avers:

> *Though, many feel and act as if they are actually evaluating training but in reality they are only using 'reactionaries' which are seen as general vague feedback forms; using such questions as "how good did you feel the trainer was? Or how enjoyable was the training course? Whereas in reality reactionaries do not constitute proper training evaluation.*

Issues in Evaluation of Training Programmes

Training evaluation deals broadly with four major questions:

1. Whether a training programme has actually brought about the desired modification in behaviour or not?
2. Whether training has demonstrable effect on the performance of the task or achievement of the organisational goals?
3. Whether the present training methods adopted are better or superior to others in achieving the desired results?
4. Whether the cost of training is appropriate with achievements of the performance?

In the course of providing answers to these questions, Bramley and Newly (1984) submit that training evaluation may be serving these different purposes (a) feedback - linking learning outcomes to objectives and providing a form of quality control; (b) control – making links from training to organisational activities and to consider cost effectiveness; (c) research – determining the relationship among learning, training and transfer of training to the job; and (d) intervention – the results of the evaluation influencing the context in which it occurs.

Training evaluation involves the three dimensions of evaluation: process, outcome and impact. This is because evaluation in training describe and assess the programme materials and activities (process evaluation), its immediate or direct effects on participants (outcome evaluation) and its effects on the organisational performance and competitiveness (impact evaluation).

It is important to note that training evaluation combine the formative, summative and confirmative evaluation methods to critic training programmes before, during and after implementation; though the UNDP (2009) has argued that such combination is not appropriate for a one-time event like training programmes. Nevertheless, the use of formative method resist the evaluation of training to just only level one where the programme is still in the formative form and focusing only on the needs of the learners and the planners/organisers. Also, the use of only summative will resist the evaluation process to just only level two where the programme is fully implemented and focusing on the needs of the learners and programme objectives. But when the evaluation process is extended to the confirmative method, it allows the assessment to be conducted at three levels, which helps to assess the transferability of the knowledge and skills acquired to real job situations. And this is why training evaluation could be mostly considered as "programme evaluation" which is a comprehensive form of ascertaining to what extent goals/objectives have been achieved. In respect of this, Buckley

and Caple (2010) are of the opinion that training evaluation can be done on the completion of the programme or throughout its different stages. This is with a view to ensure that expected actions are performed in the correct sequence and in the right way. Suffice to say that although training evaluation is normally the last in the training implementation cycle, but then it is expected that evaluation should be worked on throughout the whole training delivery process.

Regardless of when training evaluation is conducted, it is essential that such process should be dictated solely by the objective(s) which the programme set out to achieve and by the particular problem(s) the organisation wishes to answer (Kester, 2011). It should also be based on the nature of the job or position of each potential trainee and the required relevant information on the trainee's on-the-job performance. Most literature have argued that the goals and objectives of the training programme are central to the initiation of the evaluation process. Besides, the purpose of such evaluation process should be made known to all stakeholders, and it should be based on logic while the result should be based on experience and data in providing an in-depth assessment of its need, performance and benefits (Bates, 2004).

It is true that since the introduction of the ROI training evaluation method, some organisations have been evaluating training on the basis of monetary terms but the literature have seriously shown that training must not be evaluated in monetary and financial terms but rather in form of an appropriate practical test or exercise, equipment tools, simulation of physical conditions and role playing techniques (Buckley and Caple, 2010; Kester, 2011). This is because it is wrong to equate learning which can be predicted and control with a machine programming or physical product or asset. According to Haddock (2015) training is a learning process which is outside the control of designer, gradual and informal in nature; it is a trial and error process that takes time and differs from one learner to another.

Training evaluation can be done by all stakeholders: the trainees themselves, immediate supervisors, peers, subordinates, clients and even professional consultants. The most important thing is that whoever is going to do the assessment must have sufficient knowledge, skills and integrity to make such assessment in an unbiased and rational way (Kester, 2011).

Apart from this, all training evaluation must follow the following ethical norms:

1) Independence – without imposing restriction on the scope, content, comments and recommendation of the evaluation reports. Therefore, whoever is evaluating must be free of conflict of interest while the rights of everybody must be respected and the process must not reflect personal or organisational interest(s).
2) Intentional – there must be an onset clarification of the rationale and standard yardstick
3) Transparence – all stakeholders, trainees, organisation and the consultant (if any) must have a good knowledge of the rationale and the standard of evaluation procedure
4) Timely – such evaluation process must be designed and completed within a particular time frame to ensure its usefulness
5) Impartiality – all bias must be remove to ensure maximum objectivity of the process

However, there are evidences from literature (Abdullah, 2009) to show that training evaluation is always a challenging task, due to cost intensity, personal and organisational factors. Also, because of the inadequacy of the methods adopted, lack of objectivity, improper interpretation, inappropriate data gathering instruments, inappropriate use of results, wrong focus, lack of intellectual human resource development professionals, and the general assumption that training programme no matter what, must simply work.

Conclusion

A comprehensive taxonomy of training evaluation includes assessing the training programme, changes in the learners, and change in the organisations. Training evaluation is very essential in all organisation, so as to demonstrate the worth and centrality of the training to organisational goal achievement; even though it is cost intensive and challenging.

The literature have agreed that evaluation of training programmes must be done at four levels namely reaction, learning, job behaviour or performance and organisation levels; using any single evaluation model or combination of models. And if possible, there could be an introduction of the fifth level to calculate in the monetary terms the cost-benefit of the training programme; though, this has been seen as a forlorn exercise by many.

Generally, training evaluation processes has been seen to be poorly organised because of the weak enabling organisational environment, lack of systematic result monitoring and quality assurance as well as poor strategic allocation of human and material resources. Nevertheless, when training evaluations are properly managed, they could provide the essential feedback which are very useful in aiding future decision making on training programme delivery in organisations.

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23

EVALUATION IN LANGUAGE EDUCATION: THE PROCESS, PROSPECTS AND THE PROBLEMS

M. O. Araromi

Introduction

Evaluation in teaching is a process of collecting, analyzing and interpreting about teaching and learning in order to make informed decisions that enhance students' achievement and the success of educational programmes. Evaluation is the comparison of actual (project) impacts against the agreed strategic plans. It looks at the original objectives, at what was accomplished, and how it was accomplished. It can be formative that is taking place during the life of the project or organization. It can also be summative, drawing learning from a completed project or an organization that is no longer functioning (Cheng and Ashitha, 2013). Evaluation is a tool for analyzing the effectiveness of the educational curriculum and for effecting change within all levels (PlacidoBazo, 2007). Evaluation and assessment are two terms used interchangeably by educational practitioners. It is pertinent at this juncture to differentiate between the two terms. Assessment is an important component of evaluation which includes the measurement and analysis of information about students' learning. Evaluation goes beyond students' achievement and assessment to include all aspects of teaching and learning and also extend to decisions made based on the results of alternatives forms of assessment.

Significance of Testing and Evaluation Language Programme

Testing and evaluation are integral part of language education programme. Teaching and learning of languages must also incorporate the arts and science of designing viable means of measuring language learning outcomes in terms of the skills and competencies expected of the leaners at the end of teaching and learning of a particular language. The purpose of administering language test on learners is to avail the language teachers and the concerned stakeholders in education of vital information about the growth and development of learners in specific aspect of language leaning, the learners' difficulty and learning style of learners. Teacher Education programme should take cognizance of the techniques of designing reliable language test. Effective teaching and effective testing are two sides of the same coin (Chen and Ashitha, 2013). The researchers went further to affirm that tests do not only evaluate the progress and achievement of learners but also the effectiveness of the teaching materials and methods. Fulcher and Davidson (2007) also corroborate this assertion by claiming that testing and assessment help monitor students' educational progress and evaluate the quality of school system.

Language testing can be broadly categorized into main groups i.e. testing the basic skills in language such as listening, speaking, reading and writing and testing the knowledge of content. Other sub- skills such as vocabulary, grammar, comprehension, spelling and punctuation are also frequently tested by teachers of language and examination bodies. Mcmanara (2000) is of the view that there two main types of language assessment which include: traditional assessments (paper – and – pencil language tests and performance tests) and alternative assessments (checklists, journals, logs, videotapes and audio tapes, self- evaluation and teacher observation. It should be noted that there is clear- cut difference between learning about a language and learning the language. A good number of tests are only designed to measure the learners' knowledge about the language but not the basic skills of language learning. The purpose

language learning is to ensure the development of communicative competence in the learners but not to make the learners grammatically competence or acquire a list of vocabularies without the actual use of this knowledge in actual communicative situation.

Language teachers are more inclined towards the use of traditional mode of assessment in the course of assessing the language skills and competence of the learners. The assessment of language skills always take the form of fixed response format of either multiple choice or true –false model. This traditional approach to test and measurement in language learning programme always give room for guesses without establishing the actual language competence of the learners. Canale (1983) identified four components of communicative competence discernible in learners of language i.e. grammatical, socio linguistic, discourse and strategic competence. These categories of competence will be discussed briefly:

(a) **Grammatical competence:** The knowledge of vocabulary, rules of word formation, pronunciation and spelling and sentence formation.(Chomsky, 1965)
(b) **Socio- linguistic competence:** This appropriateness of language use in social contexts based on social status of the participants.(Alptekin, 2002)
(c) **Discourse competence:** This is an understanding of how spoken and written texts are organized and how to make inferences which cover the underlying meaning of what has been said and the connection utterances.
(d) **Strategic competence:** This is used when other competencies fail to cope with situations such as lack of words or structures in communication.

Problems of Language Testing and Evaluation

It is pertinent to aver that test and assessment of language competence or skills of learners as observed in teacher made test or public examinations cannot successfully reveal the true picture of individual learner' level of competence in language use. The primary aim or goal of learning a language is not to be able to regurgitate or memorize the rules of grammar, word or sentence formation, spelling or punctuation but to be able to attain certain level of proficiency in the language so as to be able to use the language in real social context and communicative situation. A particular learner who has mastered the rules guiding the formation of past tense in English Language but still make mistake in using the rules in making meaningful sentences in simple past tense cannot claim to be proficient in that aspect of language. Thus, this leads us to the dichotomy between language competence and performance. Language competence is the knowledge of the rules of grammar a particular language while performance deals with the actual use of the language in communicative situation.

Testing and Assessment of language skills require a great deal of professional training and skills on the part of the teacher. Davidson (2005) affirms that evaluation is not discipline that has developed by practicing professionals over thousands of years, so we are not yet at a stage where have huge encyclopedias that we walk through evaluation step-by- step, or provide a clear definition of what evaluation entails. Language education programme only focus attention on training in pedagogical skills to the detriment of skills in test and measurement in language. It should be noted that the primary purpose of conducting evaluation is to analyze the effectiveness of the educational curriculum and for effecting change within all levels. There is need for appraisal and evaluation of the entire teaching and learning processes for the purpose of ascertaining the types of materials, the teaching methods, the involvement of the individual learner, the interaction among pupils

and the interaction between the class and the teacher (Placido& and Marcos , 2007).

Testing and evaluation play major roles in teaching and learning of languages. It helps in taking vital decisions on the level of performance of the students in language learning. It could also help in diagnosing the learning problem or disabilities of the learners in language learning programme. Test and measurement in language could serve useful purposes such as diagnosis, prediction, selection, grading, guidance and self - correction. Language test varied and serve different purposes i.e. Performance test, achievement test, diagnostic, aptitude and proficiency test.

There is a general consensus among stakeholders in Education that the standard of Education is falling at all levels. The primary school leavers and secondary school graduates are deficient in communicating effectively in English language. Feedback from the labour markets or employers is also a pointer to the fact that products of Nigeria education system lack the necessary communicative skills to function effectively well in the task assigned to them. However, the primary aim and objective of primary level of education in Nigeria is to inculcate the skills of literacy and numeracy and also communicative skills in the pupils. Ineffective testing and assessment technique can spell a doom for actualizing the aim of inculcating communicative skills in the primary school leavers.

Evaluation requires adequate planning for it to be useful and effective instrument for assessing the language skills of the learners. Instruction and evaluation are two sides of the same coin. Evaluation should be considered while planning instructional package. The essence of evaluation is to monitor the extent to which the learners have learnt and effectiveness of the instruction system for the purpose of ascertaining accountability. The performance of the learners is the function of the efficacy of the instructional system and the pedagogical skills of the teacher.

Testing in language is always inadequate because the teachers are pre-occupied with classroom activities to the detriment of assessment and evaluation of language skills. Evaluation serves the purpose of feed- back mechanism for both the teacher and the learners. The strength and weakness of the teaching approach will be revealed and the area that begs for improvement will be ascertained. Rea –Dickins&Geimanie, (1993) are of the opinion that for tests and alternative forms of language assessment to be useful for classroom based evaluation, they should be linked to instructional objectives and activities, designed on optimize student performance developmentally appropriate, relevant and interesting to students, accurate, fair and on-going.

Apart from the traditional method of assessing students' performance, the instructor can adopt alternative method e.g. dialogue journal, portfolio conferences, interviews and questionnaire or observation to collect useful information about language learning and about students related factors which influence the processes of language teaching and learning. It should be noted that traditional method of assessing learners' language skills is not sacrosanct in the taking vital decision about the level of achievement of the learners. The ultimate goal of evaluating learning outcomes is to help the learners develop their potentials and abilities to the fullest. Traditional method of evaluation which only considers the use of testing and assessment is not adequate to establish the true picture of learners' level of achievement. It is obvious that the use of measuring instruments such as anecdotal records, observation, checklist, questionnaire and interview will go a long way in gathering information that will help in no small measure to take vital decisions that would improve on the performance of the leaners. There is need for teachers of language to adopt modern method of assessing learners' language skills

General overview of assessment and evaluation in language education

The significance of testing and assessment in language class cannot be over–emphasized. Fulcher and Davidson, (2007) posit that language assessment or testing is an important stage in the process of language teaching and learning as it helps monitor students educational progress and evaluate the quality of school systems. It is practically impossible for teachers of language to measure the knowledge, skills and competencies learners have acquired without the use of formal test. There is a sharp distinction between the knowledge of a particular language and the actual use of such language in communicative act or situation. Chapalle and Brindley (2010) affirm that language testing is the act of collecting information and making judgments about a language learner's knowledge of language and ability to use it. Language testing and assessment can be categorized into two main types: Traditional assessment and alternative assessments. Traditional assessment of technique could be used to assess specific language skills such grammar, vocabulary, pronunciation, listening and reading comprehension. Alternative assessments in language testing involve the use of checklist, journals, logs, video tapes and audiotapes, self -evaluation and teacher observations etc. It is disheartening to note that traditional assessments are commonly used by language teachers most especially at various levels of education in Nigeria. The grammar and vocabulary of a language are considered more important while assessing the language competence of the learners.

Another area of concern in language assessment and evaluation is that teachers of language are examination driven. Learners are treated to examination questions the purpose of which to pass language related subjects which are requirements for entry into the tertiary institutions in Nigeria. English language for example, apart from being the language of instruction from the upper primary to the tertiary level of education system, it is also a

requirement for admission into any tertiary institution in Nigeria. A credit pass in English is mandatory before a student can gain admission into any tertiary institution in Nigeria. Despite the value placed on English as language of instruction in schools and requirement for entry into tertiary institutions, the language proficiency and competence of Nigeria graduate and under-graduate students is still worrisome.

Thus, the introduction of language courses such as "Use of English as courses on the general study programmes of many Nigerian universities and the language proficiency test as entrance examination for admission into post –graduate study. There is a need to look critically into the language assessment and evaluation approach by the language teachers at various levels of education. The idea of testing the knowledge of grammar and vocabulary of the learners in form of multiple choice questions will be inadequate to examine the language competence of the learners as well as the viability of language teaching approach and methodology. The major language skills that should be keenly considered are listening, speaking, reading and writing which are otherwise categorized into productive skills and receptive skills. There is urgent need to revisit the language curriculum of various examination bodies such as West African Examination Councils (WAEC) and National Examination Council (NECO) in respect of the content and approach of testing and assessing language skills. Testing of oral skills of the learners through the use of videotapes and audio tapes should not be totally neglected. The use of paper-and- pencil language tests has replaced the use of modern technology even while examining the learners in oral English.

Fulcher and Davidson, (2007) canvassed for the use communicative language testing system that devoted testing learners' knowledge of language and how it is used (Competence) and the extent to which learners apply the knowledge in meaningful communicative situation (performance). Language education programme should take cognizance of the principles and practice of designing language test that will incorporate both competence and performance. There are certain principles and

characteristics of language test that must be observed in the process of designing or preparing a language test. The test maker should state in a clear terms the task expected to be performed by the test taker in particular context while taking the test. The criteria and scales for assessing the performance of the learners must be clearly stated in order to ensure the reliability and the validity of the test.

However, the language topics listed on the language curriculum appear more important to the test maker than the task the learners are expected to carry out with the language. The learning experiences the learners are exposed to should be authentic and useful for their future career and future job since the primary role of the school is to prepare the learners for experience in the labour market. The communicative needs of the learners after their exit from the school system should be critically considered while assessing and evaluating their language proficiency and competence. The mastery of the topics is less important than the mastery of the task to be performed with the knowledge acquired. The task and topics should be suitable for the age, proficiency level, interests and needs of the learners.

Brown (2005) identified five major characteristics that are germane to constructing a communicative language test. These characteristics include meaningful communication, authentic situation, unpredictable language input, creative language output and integrated language skill. Language test should be based on meaning communication that could meet the personal needs of the learners. In most cases, language tests are often designed to test the learners' knowledge of language structures, vocabulary and rules of grammar without laying emphasis on meaningful communication in the target language. Teachers of language can create authentic situation where by the learners would use the language in communicative situation. Language teaching and learning should be practical oriented and not abstract learning of forms and structures of the language. The actual use of language in context is very germane to language teaching and learning.

Unpredictable language input and creative language output signify the fact language is creative in nature. The actual use of language in communicative situation or context is not predictable. The language users have no prior knowledge of the choice of vocabulary and grammatical rules to be adopted in communicative situation.

However, test makers should take cognizance of the creative nature of language while designing the test items. Integrated language skills require the test takers to demonstrate their ability combine all the language skills in real life communicative situations. This implies that basic language skills should not be treated in isolation both in teaching and learning of language and language test constructions. Suffice to say that foreign language test such as Teaching of English as Foreign Language TOEFEL incorporates all the basic language skills to establish language proficiency of learners in English. This is highly imperative because all the language skills either productive or receptive are interrelated.

Conclusion

In this paper, we have examined the concepts of test and evaluation in language education. It was established that test and evaluation help to monitor the progress of learners in language and also the quality and worth of instructional system. It was affirmed that language education programme should not under- estimate the significant value of basic skill in test construction and design and this should grossly emphasized in language education curriculum. The primary motive of learning a language is to acquire the required communicative competence in the language in order to be able to function effectively in the real life situation or communicative act. Language test and assessment should focus attention on the use of language in authentic situation rather than emphasizing the forms and structures of the language. Language teachers are also admonished to be well grounded in the characteristic features and principles of test construction as part of pedagogical skills required of a trained teacher.

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IMPACT EVALUATION OF THE UNIVERSITY OF CALABAR REMEDIAL SCIENCE PROGRAMME

Alice E. Asim & Eni I. Eni

INTRODUCTION

In the 1977/78 session, the Remedial Science Programme of University of Calabarwas introduced, with the aim of catering for students from Educationally Less Developed States (ELDS) to remedy their deficiencies in the basic requirements before admission into the degree programme in the Faculty of Science. It was later extended to students seeking admission into the College of Medical Science, Faculty of Agriculture and Education. However, owing to the high demand for admission into the College of Medical Sciences, admission of successful post-Remedial students into the programmes in the College of Medical Sciences had to be discontinued. Admission of Remedial students into the Faculties of Arts, and Social Sciences also ceased on directives from the Federal Government. Admission requirements to the Remedial programme according to Ibok (2004) are flexible but candidates must obtain at least three credit passes at one sitting in the West African School Certificate or Senior Secondary School Certificate Examinations or their equivalents provided such candidates obtain at least one credit pass in any of the science subjects (biology, chemistry and physics) and must have attempted all the approved science subjects.

The programme has remained invaluable to applicants from Educationally Less Developed States and states within the catchment area of the University of Calabar, who otherwise would not normally have benefited from university Education. Some of the products from this programme have subsequently excelled in the various degree programmes of their choice. The emphasis of this programme on science is as a result of the importance attached to science worldwide and the Federal Government admission policy of 60% science to 40% arts in all Nigerian Universities.

The Federal Government of Nigeria through the Federal Ministry of Education in 2004 directed that henceforth the ratio of student intake into Nigerian Universities and colleges of education in science and the liberal Art/Humanities should be 60:40 in favor of science. For polytechnics, the science to arts ratio was to be 70:30. Oladunni (1995) also acknowledging the place of science in the society said that the need for science-based Education in our ever dynamic society, cannot be over-emphasized because science holds the key to the future.

Moreover, for greater suitability and growth of scientific knowledge, a wide range of subjects which constitute Science disciplines have been included in the school curriculum at all levels of the educational system. Also, huge inputs, human, material, financial and time are invested yearly into Science Education to achieve not merely scientific literacy but also scientific competence commensurate with the challenges of modern times.

Oyekanmi (1998) is of the view that the hope of using science and technology as tools for industrialization and national development, including economic and social stability may be hampered by the problems of surging students' under-achievement and outrageous development of anti-science culture and the evolution of scientifically illiterate citizenry as well as unfavourable school and home conditions. There is therefore an urgent need for intervention programmes, which according to

Mann (1986) must necessarily include means to enhance learners' self-image and upgrade their basic skills acquisition.

One of such intervention is the Remedial Science Programe introduced in some tertiary institutions example, the University of Calabar. According to Ibok(2004), the objectives of the Remedial Science programme were clarified as follows:

i) To provide quality Remedial Education to school certificate holders who do not meet the University Admission requirement, to enable them remedy their deficiency and qualify for admission in the next academic session.
ii) To boost the intake of students into the degree programme in the Faculty of Basic Sciences, Agriculture and Education, so as to meet the demand for science teachers and other science professions in line with Federal Government Admission Policy of 60% science to 40% arts in all Nigerian universities.
iii) To cater for students from Educationally Less Developed States (ELDS) to remedy their deficiencies in the basic requirements before admission into the degree programme.

Experience shows that a candidate who opts for independent study at home as a means of remedying his academic deficiency has a relatively less chance of succeeding, compared to his college-bound counterpart who profits from the wealth of experienced teachers' teaching, access to instructional resources and a motivating environment provided by the formal school. The challenge of greater need for Science Education implies a greater demand for science teachers, this is one of the reasons why the University of Calabar included those who intend to read Science Education in the Remedial Programme to meet this demand for science teachers. However, the problem is not just that of increasing the quantity of teachers only, but also that of matching quantity with quality (Galton, 1990). Teacher factor is of course a very critical variable in an educational programme because findings reveal that it is a major cause of students' achievement as well as a determinant of school quality (Salami, 1992).

However, the University of Calabar Remedial Science Programme had existed for about thirty years and had turned out many graduates before it was eventually scrapped in 2008. So far, there has been no evaluation of this programme or any aspect of this programme to provide data on how far the programme has fared. There is therefore the need to carry out an impact evaluation of the Remedial Science Programme to ascertain the extent to which the programme has achieved the goals for which it was established, to be determined in part by how well the Remedial students compete with their UME admitted counterparts in the degree programme and how well the Remedial Science programme has supplied students to the university degree programme in line with Federal Government admission policy of 60% science and 40% arts in Nigerian universities.

Purpose of the study

The purpose of this study was to carry out an impact evaluation of the University of Calabar Remedial Science Programme.

Research questions

The following research questions were formulated to guide the study.

1. What is the enrolment trend of students in the Remedial Science programme between 2002 and 2007?
2. What is the status of human resources available for the implementation of the Remedial Science Programme of the University of Calabar?
3) What is the level of adequacy of the curriculum content used in the Programme?
4) To what extent has the university Remedial Science programme supplied students to the University degree programme in line with the Federal Government admission policy of 60% science to 40% arts?

5) To what extent has the University Remedial Science programme supplied students to the University degree programme in line with the programme objective of catering for students from Educationally Less Developed States (ELDS)?
6) What are the problems affecting the Remedial Science programme as perceived by both lecturers and students?

Significance of the study

This study will be beneficial to the University of Calabar especially as it focuses on the efficiency of the Remedial programme. Empirically-based findings like the ones envisaged in this work are what the university authority needs as vital information essential for decision-making in the areas of programme retention, overhaul, termination or re-examination as well as for further financial allocation.

Information obtained from this work will enhance the university management's role play in terms of sustenance and reordering of input ratio in the programme. Allocation of quantity and quality of staff, time and instructional materials among other resources will be greatly influenced by the findings of this study. The findings of this work will also determine the degree of public faith to be placed on the programme itself, its products and the entire university, parents and guardians will therefore find this study as providing information and guidance, especially as they have a right to know whether or not Educational programmes are producing returns and impact on learners worth the huge public expenditure.

School counsellors, parents, students and the general public will find the programme rating as contained in this study useful in their various capacities.

Methodology

Research design

This study is an evaluation study hence the research design adopted for the study was the expost-facto research design. The study belongs to this design because as an Evaluation study data was collected on the Remedial students' variables after the occurrence of the events or phenomena under investigation.

Sampling technique

Stratified and simple random sampling technique was adopted in selectingPost-Remedial students' results and UME admitted students results from the Faculty of Science, the Faculty of Agriculture,

This sampling technique was adopted because the Faculties were sub-divided into departments and the technique gave an equal opportunity to all the students in the different departments to be represented. In Faculty of Education, post-Remedial students were not sampled, instead all the results for both the post-Remedial students and the UME admitted students were used for the study since they were not many.

Sample

The sample size for the study was made up of two thousand three hundred and thirty eight (2,338) subjects drawn from four (4) relevant sub-groups. A breakdown of the sample is as presented in Table 1

Table 1: Sample distribution

Sub-group	Sample	Percentage
Post remedial students whose results were sampled	1379	59.0
UME admitted students whose results were also sampled	739	31.6
post Remedial students who did the Remedial programme between 2004/2005 and 2006/2007 academic sessions who were undergoing degree programmes	200	8.6
Lecturers who taught in the programme within the period under study including the programme coordinator.	20	0.8
Total	2338	100

A further breakdown of the sample shows that one thousand seven hundred and twenty four (1,724) of the subjects were male while six hundred and fourteen (614) were female. The post Remedial students who did the programme between 2004/2005 and 2006/2007 academic sessions were still undergoing various degree programmes. in the university and responded to the questionnaire. The rest had graduated and only their results were sampled for the study

Instrumentation

Inventories on examination results, enrolment, the programme curriculum, the number of staff and placement of post-Remedial students were collected from the Faculties of Science, Agriculture and Education in order to answer the questions raised in the study.

Three sets of questionnaire which sought information from the coordinator of the Remedial programme, the lecturers of the programme and post Remedial students on the problems that affected the programme were also used.

Results

Research question 1

What is the enrolment trend of students in the Remedial Science Programme between 2002 and 2007?

The data for this research question is presented in Table 2.

Table 2: Remedial students' enrolment between 2002 and 2007

Session	No of students enrolled				
	Male	Female	Total	Increase	Percentage increase
2002/2003	1028	741	1769	-	-
2003/2004	1099	1043	2142	373	21.1
2004/2005	1312	909	2221	79	37.0
2005/2006	1351	1224	2575	354	16.0
2006/2007	1351	1267	2618	43	16.7
Total	6141	5184	11325	-	-

Source: Faculty of Science, UNICAL (2010)

Results in Table 2 indicate that Remedial students' enrolment increased steadily over the years from 2002 to 2007. However, the rate of increase within the period under study fluctuated. There was an initial increase from 21.1% in 2003/2004, to 37.0% in 2004/2005 and decrease to 16.0% in 2005/2006 and further increase to 16.7% in 2006/2007.

Research question 2

What is the status of human resources available for the implementation of the Remedial Science Programme of the University of Calabar?

The data for this research question is presented in Tables 3 and 4.

Table 3: Status of human resources available for the implementation of the remedial science programme from 2002 – 2007

Session	No of Lecturers	No. of Students	Ratio of lecturers to students	Approved NUC Ratios
2002/2003	50	1769	1:35	1:50
2003/2004	50	2142	1:43	1:50
2004/2005	50	2221	1:44	1:50
2005/2006	50	2575	1:52	1:50
2006/2007	50	2618	1:52	1:50

Source: Faculty of Science, UNICAL (2010)

Table 4: Status of human resources available for the implementation of the remedial science programme per course from2002-2007

Session	No of lecturers	No. of students	Ratio of lecturers to students	Approved NUC Ratios
2002/2003	5	1769	1:353	1:50
2003/2004	5	2142	1:428	1:50
2004/2005	5	2221	1:444	1:50
2005/2006	5	2575	1:515	1:50
2006/2007	5	2618	1:524	1:50

Source: Faculty of Science, UNICAL (2010)

Results in Table 3 indicate that in the 2002/2003 session, 1769 students enrolled in the programme, while 50 lecturers taught in the programme. The ratio of lecturers to students was 1:35. In the 2003/2004 session there were 2142 students against 50 lecturers

with a ratio of 1:43. However, in the 2004/2005 session, 2221 students enrolled in the programme with a staff population of 50 lecturers and the ratio of lecturers to students was 1:44. In 2005/2006 session, there were 2575 students against 50 lecturers and the ratio of lecturers to students was 1:52. In 2006/2007 session, 2618 students were registered for the programme against 50 lecturers and the ratio of lecturers to students was 1:52.

In Table 4, 1769 students enrolled in the programme in the 2002/2003 session, while 5 lecturers taught each of the courses. The ratio of lecturers to students per course was 1:353. In the 2003/2004 session, 2142 students enrolled against 5 lecturers per course and the ratio of lecturers to students was 1:428. In the 2004/2005 session, 2221 students enrolled, against 5 lecturers per course and the ratio of lecturers to students was 1:444. In the 2005/2006 session, 2575 students enrolled, against 5 lecturers per course and the ratio of lecturers to students was 1:515. In the 2006/2007 session, 2618 students were enrolled, against 5 lecturers per course and the ratio of lecturers to students was 1:524. It was observed from the result that there was a steady increase in the enrolment of the students within the period under study without a corresponding increase in the number of lecturers.

The data here reflect the ratio of lecturers to students in the individual courses. This therefore increased the number of students per lecturer.

Research question 3

What is the level of adequacy of the curriculum content used in the programme?

Data for this research question is presented in Tables5,6,7, 8 and 9.

TABLE 5: Adequacy of the remedial chemistry curriculum content

Topics taught in the Remedial programme	SSCE topics not taught in Remedial	Remedial topics not taught in SSCE	Topics to be included in the Remedial curriculum	Content adequacy
i) Structure of the atom ii) Periodic chemistry iii) Boding iv) Stoichiometry v) States of matter vi) Energy and energy changes vii) Acids, bases and salts viii) Solubility ix) Rates of reaction and equilibrium x) Redox reactions xi) Carbon compounds xii) Non-metals and compounds xiii) Metals and compounds xiv) Electrochemistry xv) Practical chemistry	Chemistry, industry and environment	None	Chemistry, industry and environment	Inadequate

Source: Faculty of Science, UNICAL (2010)

TABLE 6: Adequacy of the remedial biology curriculum content

Topics taught in the Remedial programme	SSCE topics not taught in Remedial	Remedial topics not taught in SSCE	Topics to be included in the Remedial curriculum	Content adequacy
i) Introduction to biology ii) Cell structures iii) Bacteria iv) Algae v) Fungi vi) Bryophytes/ pteridophytes vii) Gymnosperms viii) Angiosperms ix) Photosynthesis x) Genetics xi) Invertebrates xii) Vertebrates xiii) Systems and organs xiv) Seed dispersal and germination xv) Internal structure of monocot and dicot stems, roots, leaves. xvi) Evolution xvii) Practical biology	None	None	None	Adequate

Source: Faculty of Science, UNICAL (2010)

TABLE 7: Adequacy of the remedial physics curriculum content

Topics taught in the Remedial programme	SSCE topics not taught in Remedial	Remedial topics not taught in SSCE	Topics to be included in the Remedial curriculum	Content adequacy
i) Measurement and vectors motion, forces and Newtons laws ii) Equilibrium of forces iii) Work, energy and power iv) Density and pressure v) Properties of matter vi) Temperature and heat vii) Transmission of heat and vapour viii) Electrostatics ix) Electricity, Electromagnetism x) Modern physics and electronics xi) Waves xii) Optics xiii) Practical physics	None	None	None	Adequate

Source: Faculty of Science, UNICAL (2010)

TABLE 8: Adequacy of the remedial mathematics curriculum content

Topics taught in the Remedial programme	SSCE topics not taught in Remedial	Remedial topics not taught in SSCE	Topics to be included in the Remedial curriculum	Content adequacy
i) Lines and angles ii) Triangle, polygons I iii) Quadrilaterals, polygons II, other polygons iv) Circles v) Trigonometry solutions of triangles vi) Mensuration vii) Longitudes and latitudes viii) Introduction to solving equations ix) Set theory x) Indices xi) Logarithms xii) Surds, simple and compound interest xiii) Sequences and series xiv) Statistics xv) Calculus	None	Calculus	None	Highly adequate

Source: Faculty of Science, UNICAL (2010)

TABLE 9: Adequacy of the Remedial English curriculum content

Topics taught in the Remedial programme	SSCE topics not taught in Remedial	Remedial topics not taught in SSCE	Topics to be included in the Remedial curriculum	Content adequacy
i) Vocabulary development. ii) Grammar iii) Reading skills iv) Writing skills v) Summary writing vi) Essay writing vii) Letter writing	None	Reading skills, writing skills	None	Highly adequate

Source: Faculty of Science, UNICAL (2010)

Results in Table 5 show that all the topics treated in the Remedial chemistry curriculum were also found in the SSCE curriculum. However, one topic found in the SSCE curriculum which is, chemistry, industry and environment was not in the Remedial chemistry curriculum making it richer than the Remedial curriculum. This result indicates that the Remedial chemistry curriculum was inadequate.

Results in Table 6 indicate that all the topics treated in the Remedial biology curriculum were also found in the SSCE curriculum content and those in the SSCE curriculum were also found in the Remedial curriculum, so there was nothing to either add or remove from the Remedial curriculum. This result indicates that the Remedial biology curriculum was adequate.

Results in Table 7 indicate that all the topics treated in the Remedial physics curriculum were also found in the SSCE curriculum and those in the SSCE curriculum were also found in the Remedial curriculum, and so there was nothing to either add or remove from the Remedial curriculum. This result implies that the Remedial physics curriculum content was considered as being adequate.

Results in Table 8 indicate that all the topics treated in the SSCE curriculum were found in the Remedial curriculum but one topic treated in the Remedial curriculum which is calculus was not found in the SSCE curriculum. In this case, the Remedial curriculum does not need any addition or subtraction, but it is considered to be more advanced than the SSCE curriculum. This result indicates that the mathematics curriculum content is considered to be highly adequate.

Results in Table 9 indicate that all the topics treated in the SSCE curriculum were found in the Remedial English curriculum but two topics which are reading and writing skills treated in the Remedial English curriculum were not found in the SSCE curriculum. In this case the Remedial curriculum does not need any addition or subtraction, meaning that the Remedial curriculum content is said to be more advanced than the SSCE curriculum.

This result also indicates that the Remedial physics curriculum content is highly adequate. When the curriculum content for the five courses offered in the Remedial programme were considered together they were found to be adequate except for chemistry which needs to be reviewed.

Research question 4

To what extent has the University Remedial Science programme supplied students to the university degree programme in line with the Federal Government admission policy of 60% science to 40% arts?

Data for this research question is presented in Tables 10 and 11

TABLE 10: Placement of students into the degree programme on Faculty basis

Session	Placement of Students in Faculties														
	Science					Agriculture					Science Education				
	Rem.	%	UME	%	Total	Rem	%	UME	%	Total	Rem	%	UME	%	Total
2003/2004	612	48	663	52	1275	110	48	119	52	229	39	47.6	43	52.4	82
2004/2005	733	73.7	261	26.3	994	100	45	122	55	222	47	61	30	39	77
2005/2006	552	78.2	154	21.8	706	104	53.1	92	46.9	196	41	50.6	40	49.4	81
2006/2007	618	68.9	279	31.1	897	100	54.3	84	45.7	184	52	66.7	26	33.3	78
2007/2008	664	62.5	399	37.5	1063	118	59.6	80	40.4	198	64	72.7	24	27.3	88

Source: Faculty of Science, UNICAL (2008)

Results in Table 10 indicate that in 2003/2004 session, 48% of the students admitted into the Faculty of Science were post-Remedial students while 52% were from UME, 48% of those admitted into the Faculty of Agriculture were from the Remedial programme while 52% were from UME, and 47.6% of those admitted into science Education were from the Remedial programme while 52.4% were from UME. In the 2004/2005 session, 73.7% of those admitted into the Faculty of Science were from the Remedial programme while 26.3% were from UME, 45% of those admitted into the Faculty of Agriculture were from the Remedial

programme while 55% were from the UME, 61% of those admitted into Science Education were from the Remedial programme while 39% were from the UME. In the 2005/2006 session, 78.2% of those admitted into the Faculty of Science were from the Remedial programme while 21.8% of them were from the UME, 53.1% of those admitted into the Faculty of Agriculture were from the Remedial programme while 46.9% were from the UME,50.6% of those admitted into Science Education were from the Remedial programme while 49.4% were from the UME. In the 2006/2007 session, 68.9% of those admitted into the Faculty of Science were from the Remedial programme while 31.1% were from UME, 54.3% of those admitted into the Faculty of Agriculture were from the Remedial programme while 45.7% were from the UME, 66.7% of those admitted into the Science Education were from the Remedial programme while 33.3% were from the UME. In the 2007/2008 session, 62.5% of those admitted into the Faculty of Science were from the Remedial programme while 37.5% were from the UME, 59.6% of those admitted into the Faculty of Agriculture were from the Remedial programme while 40.4% were from the UME, 72.7% of those admitted into Science Education were from the Remedial programme while 27.3% of them were from the UME.

Data on whether the number of students supplied by the Remedial Science Programme to the University degree programme were in line with the Federal Government admission policy of 60% science to 40% arts is presented in Table 11.

TABLE 11: First year students' enrolment with respect to science and artsRelatedcourses

Session	Science students	Arts students	Total	Percentage science	Percentage Arts
2003/2004	2151	3078	5229	41.1	58.9
2004/2005	2257	3610	5867	38.5	61.5
2005/2006	1333	1466	2799	47.6	52.4
2006/2007	1541	1499	3040	50.7	49.3
2007/2008	1840	2597	4437	41.5	58.5

Source: Office of the director of academic planning, UNICAL (2010)

Results in Table 11 indicate that in the 2003/2004 academic session, 41.1% of the students were admitted into science related courses including the post Remedial students, while 58.9% were admitted into Arts and its related courses. In the 2004/2005 session, 38.5% were admitted into the sciences while 61.5% were admitted into the arts. In the 2005/2006 session, 47.6% were admitted into the sciences while 52.4% were admitted into the arts. In the 2006/2007 session 50.7% were admitted into the sciences, while 49.3% were admitted in to the arts. However, in the 2007/2008 session, 41.5% were admitted into the sciences, while 58.5% were admitted into the arts.

Research question 5

To what extent has the University Remedial Science programme supplied students to the University degree programme in line with the programme objective of catering for students from Educationally Less Developed States (ELDS)?

Data for this research question is presented in Table 12.

TABLE 12: Placement of post-remedial students into the degree programme based on catchment area

Session	Placement of students			
	Merit	EDLS	Locality	Total
2003/2004	186 (24.4)	472 (62.1)	103 (13.5)	761
2004/2005	227 (25.8)	526 (59.8)	127(14.4)	880
2005/2006	177(25.4)	384(55.1)	136(19.5)	697
2006/2007	152(19.7)	485(63.0)	133(17.3)	770
2007/2008	211(25)	518(61.2)	117(13.8)	846

Source: Faculty of Science, UNICAL (2010)

Note: Numbers in parenthesis are percentages

Results in Table 12 indicate that in 2003/2004 session, a total of 761 students who passed the Remedial programme were placed in the Faculties of Science, Agriculture and Education. Out of this

number, 186(24.4%) were placed on merit, 472(62.1%) were considered on the basis of Educationally Less Developed States (ELDS) while 103 (13.5%) were placed on the basis of Locality. In 2004/2005 session, out of 880 students placed, 227(25.8%) were placed on merit, 526(59.8%) on the basis of ELDS and 127(14.4%) on the basis of Locality. In the 2005/2006 session, 697 students were placed, out of which 177 (25.4%) were placed on merit, 384 (55.1%) on the basis of ELDS while 136 (19.5%) were placed on the basis of Locality. In the 2006/2007 session, 770 students were placed, out of which 152 (19.7%) were placed on merit, 485 (63%) were placed on the basis of ELDS while 133 (17.3%) were placed on the basis of Locality. In the 2007/2008 session, 846 students were placed, out of this number 211 (25%) were placed on merit, 518 (61.2%) were placed on the basis of ELDS while 117(13.8%) were placed on the basis of locality.

Research question 6

What are the problems affecting the Remedial programme as perceived by both students and lecturers?

Data on this research question is presented in Table 13. Here, both students and lecturers were required to list five problems they perceived as affecting the programme. The respondents identified fifty (50) different problems in all, which were grouped into nine major categories and analysed as shown in Table 13.

TABLE 13: Problems affecting the Remedial Science programme as perceived by both students and lecturers

Problem Category	Nature of problem	Respondents	N	Min. number of items	Max. number of items	Frequ-ency	Perce-ntage
A	Space related	Students Lecturers	200 20	6 6	1200 120	658 49	54.8 40.8
B	Equipment related	Students Lecturers	200 20	6 6	1200 120	713 65	59.4 54.2
C	Textbooks related	Students Lecturers	200 20	5 5	1000 100	360 37	36.0 30.8
D	Management related	Students Lecturers	200 20	9 9	1800 180	941 57	52.3 31.7
E	Environment related	Students Lecturers	200 20	4 4	800 80	457 30	57.1 37.5
F	Teacher related	Students Lecturers	200 20	8 8	1600 160	613 41	38.3 25.6
G	_	Students Lecturers	200 20	4 4	800 80	379 35	47.4 43.8
H	Basic public utilities	Students Lecturers	200 20	5 5	1000 100	255 19	25.5 19.0
I	Finance related	Students Lecturers	200 20	3 3	600 60	403 10	67.2 16.7

Result in Table 13 shows that the students identified space related problems as indicated by 54.8% of them, equipment related problems indicated by 59.4% of them, management related problems indicated by 52.3% of them, environment related problems as indicated by 57.1% of them, and finance related problems as indicated by 67.2% of the students as the major problems that affected the Remedial Science programme in the University of Calabar.

On the other hand, the lecturers identified equipment related problems as indicated by 54.2% of them, space related problems as indicated by 40.8% of them and students' related problems as indicated by 44% of them as the major problems that affected the Remedial programme. However, problems like textbooks related problems, teacher related problems, and basic public utilities were also identified by a small percent of the students.

A small percentage of the lecturers also identified problems like textbooks related problems, management related problems, environment related problems, teacher related problems, basic public utilities and finance related problems as those that affected the Remedial programme.

Conclusion

Based on the research findings, it was concluded that the Remedial programme of the University of Calabar was not meeting the objectives for which the programme was established. The programme could not supply enough students into the degree science-based courses to enable the university meet up with Federal Government admission policy of 60% science and 40% arts. The programme was faced with so many problems and needed a general review.

Recommendations

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

1. The university authority should step up the enrolment of students into the pre-degree programme which has now replaced the Remedial science programme to enable them close the gap between students admitted into science related courses and those admitted into arts related courses in the degree programme.
2. The number of lecturers who handled each of the courses offered in the pre-degree programme should be increased to enable each of the lecturers teach not more than fifty (50) students at a time.
3. The curriculum content of the Remedial programme though considered as being adequate should be reviewed to enable the few areas of inadequacies such as that of chemistry be taken care of in the pre-degree programme.
4. The university authority should make available more classrooms, public address system in the classrooms and

laboratories, laboratory equipments, library space and students desks for effective teaching and learning to help reduce the number of students who drop out of the programme every year.

5. The university authorities should review the fees charged and other charges downward to encourage more candidates to enroll in the programme so as to meet up with the manpower needs of the immediate environment.
7. Placement of successful pre-degree students to Science education should be increased to meet up with the demand for science teachers.

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