

*Contemporary Issues in Education, Health and Sports: The Way Forward* is a timely book written by array of scholars. Each chapter is well written, incisive, logical and precise. It is a must book for students, academicians, researchers, policy makers and must also be in various libraries.

**Editors:**

B.O. Ogundele is a Professor of Health Education and Head, Dept. of Human Kinetics and Health Education, University of Ibadan, Ibadan.

O.A. Moronkola is a Professor of Health Education, Dept. of Human Kinetics and Health Education, University of Ibadan, Ibadan.

J.F. Babalola is a Senior Lecturer (Exercise Physiology) Dept. of Human Kinetics and Health Education, University of Ibadan, Ibadan.

ISBN 978-074-941-1



9 789780 749415

# Contemporary Issues in Education, Health and Sports The Way Forward

BOOK OF READING IN HONOUR OF PROF. J. A. AJALA

UNIVERSITY OF IBADAN LIBRARY

Edited by  
B. O. Ogundele  
O. A. Moronkola  
J. F. Babalola

Contemporary Issues in Education, Health and Sports

BOOK OF READING IN HONOUR OF PROF. J. A. AJALA

B. O. Ogundele  
O. A. Moronkola  
J. F. Babalola

# Contemporary Issues in Education, Health and Sports: The Way Forward

(BOOK OF READING IN HONOUR OF PROF. J.A. AJALA)

UNIVERSITY OF IBADAN LIBRARY

**Edited By**

**B.O. Ogundele, O.A. Moronkola & J.F. Babalola**

Dept. of Human Kinetics & Health Education,  
University of Ibadan, Ibadan,  
Nigeria.

**Published by:**

Department of Human Kinetics and Health Education,  
University of Ibadan,  
Ibadan, Nigeria.

**ISBN:** 978-074-941-1

Copyright (c)

Department of Human Kinetics and Health Education,  
University of Ibadan,  
Ibadan, Nigeria.

First Published 2011

All Right Resevered. No part of this book may be used or reproduced in any manner whatsoever without written permission from publisher, except in the case of brief quotations embodied in articles, speeches, essays and reviews.

UNIVERSITY OF IBADAN LIBRARY

## Foreword

I have known Professor James Abodunrin Ajala for an upward of ten (10) years. He joined the services of the University of Ibadan as Lecturer II in the then Department of Physical and Health Education (now Department of Human Kinetics and Health Education) on 01 December, 1977. He was promoted Professor in the Department with effect from 01 October, 1990.

Professor Ajala has served the University in various capacities. He was Sub-Dean (Postgraduate) between 1986 and 1988; Chairman, Senate Curriculum Committee between 1995 and 1997; Head, Department of Human Kinetics and Health Education, 1995 to 1998; elected Dean of Faculty of Education from 1997 to 1999; Head, Department of Human Kinetics and Health Education, 2004 to 2007.

I worked closely with Professor Ajala when he was Chairman of Ad-hoc Committee to look into modalities for appointment of Emeritus Professors in the University of Ibadan. His disposition and conduct showed that he is a man of high leadership qualities and one that is honest and down to earth. He demonstrated rare humility in all his approach and I was not surprised when I interacted with a friend of his who mentioned that "Professor Ajala was a Fulbright Fellow who distinguished himself among other fellows and was chosen as a Fellow of the year". He contributed immensely to the growth of Health Education academically and assisted with developing human capacity for the profession. He is a sportsman with laurels to his credit.

Professor Ajala is a consultant to many national and international organizations and has served as External Examiner in various universities in Nigeria.

Based on the above, this well written book by several contributors who are experts in their various fields of academics and well edited by three distinguished scholars is a befitting gift to the academic world and general reading public in honour of Prof. J.A. Ajala.

I commend this book to all.

Professor Elijah Afolabi Bamgboye  
Deputy Vice-Chancellor (Administration)  
University of Ibadan,  
Ibadan.  
12 September, 2011

UNIVERSITY OF IBADAN LIBRARY

## Preface

The title of this book is an exact summary of research, publications and community service of Prof. J.A. Ajala while in active service at the University of Ibadan, Ibadan. The other aspects of him, as an administrator and family man can be attested to by the presence of people at the public presentation of this book.

For fifty two chapters to be written in honour of a person is by no means a joke and the contributing authors are well appreciated because they are those who make this book to be a reality. Also interesting is that, most of chapters' contributors of the book are Prof. J.A. Ajala's former students and as at the time of writing, five of them are notable professors in their areas of specializations.

The book has been written for general reading and as a reference material in all the three thematic areas covered. On behalf of the Head, staff, and students of Department of Human Kinetics and Health Education, University of Ibadan, Ibadan as well as all the committee members put in place to organize the production of this book in honour of Prof. J.A. Ajala, I wish to thank all the chapters' contributors as well as Prof. Oluremi Ayodele-Bamisiaye, Prof. Francis A. Adesoji, and Dr. Kunle Odewumi, who wrote beautifully about Prof. J.A. Ajala. I sincerely thank Prof. Elijah Afolabi Bamgboye, Deputy Vice-Chancellor (Administration), University of Ibadan, Ibadan who wrote the foreword to this book.

Finally, I commend this book to all, for general knowledge, development of humanity and furtherance of academic inquiry.

**Prof. Olawale Akanbi Moronkola, JP**  
Chairman, Publications Committee,  
Dept. of Human Kinetics & Health Education,  
University of Ibadan, Ibadan,  
Nigeria.

## **PROFESSOR JAMES ABODUNRIN AJALA'S BIOGRAPHY**

Professor James Abodunrin Ajala was born at Otan-Ayegbaju, Osun State. He is married and blessed with children and grandchildren. After his secondary and post secondary education in Nigeria, he attended Central State University, Ohio, U.S.A., 1969 – 1970, Springfield College, Massachusetts, U.S.A, 1970 – 1971, Boston University, Massachusetts, U.S.A, 1979 – 1981 and Boston University School of Public Health, Massachusetts, U.S.A., 1981 – 1982.

He has the following academic and professional qualifications: B.Sc. Ed. (PHER) July 1970, Central State University, Ohio, U.S.A., M.Ed. (PHER), May 1971, Springfield College, Massachusetts, U.S.A, Ed.D. (Health Education) May 1981, Boston University, School of Education, Massachusetts, U.S.A., M.P.H. (Environmental Health Sciences) May 1982, Boston University, School of Public Health, Massachusetts, U.S.A, Nigerian Certificate in Education, December 1966, Adeyemi College of Education, Ondo, Nigeria and Teaching Certificate in Education, March 1970, Central State University, Ohio, U.S.A.

He is a seasoned teacher. Prior to his University teaching experience, he taught at Primary School, Modern School, Teacher Training College, and also served as education officer at different towns in former Western Region of Nigeria. He started teaching at the University level at Institute of Education, Ahmadu Bello University Zaria in 1972 before joining the Department of the then Physical and Health Education, University of Ibadan, Ibadan in 1977 teaching through the Certificate/Diploma level to PhD level. He supervised more than 40 B.Ed projects, 30 M.Ed projects and 12 PhD theses.

He is a well travelled and sought for academician. He has served or serving as Editor in-Chief, Member Editorial Board of more than 10 reputable academic journals since 1967. He



has held several and still holding public appointments including Chairman, Board of Directors, Bodija Community Bank (1991 – 1994), Secretary General, World Environmental Movement for Africa (1996 - ), Consultant and Member of Environmental Health Officers Registration Council of Nigeria Advocacy visits to several Universities in Nigeria. Currently, he is serving as Consultant Board Member of Planning/Implementation Committee/Board of Trustees of the following Universities in Nigeria, Achievers University, Owo, Westland University of Science and Technology, Osun State. Prof, J.A. Ajala served the University of Ibadan, Ibadan meritoriously in more than 35 positions including Faculty of Education Student Adviser 1977 – 1979, First Chairman Faculty of Education Environmental Committee 1983 – 1985, Chairman 4 year B.Ed Faculty Curriculum Committee, Sub-Dean (Post-Graduate) Faculty of Education, Member University Sport Council, Member of Senate, Chairman, Senate Curriculum Committee, Head, Department of Human Kinetics & Health Education, Dean, Faculty of Education, 1997 – 1999, Chairman Board of Management of Centre for External Studies 1997 – 1999 and Chairman Sub-Committee of Senate Special Committee for the Appointment of Emeritus Professors.

Professor Ajala in his University teaching career served as external examiners to 16 tertiary institutions including University of Ilorin, University of Lagos, University of Maiduguri, University of Benin, Ahmadu Bello University and Tai Solarin University of Education. He belongs to many professional academic organisations including American School Health Association, American Association for the Advancement of Health Education, American Alliance for Health, Physical Education Recreation and Dance and Nigerian School Health Association where he once served as National Secretary and still serving as Editor In-Chief till date. He has over 116 publications related to health education, physical education, public health and curriculum studies in journals, books,

chapters in books technical, reports and monographs, he has presented several academic papers in several countries of the world including Boston, Louisiana, San Francisco, Ireland, Athens, New Mexico, Houston Texas, Florida and also a Fulbright Scholar of note.

Of note, he has served as; Visiting Professor/Exchange Scholar, Springfield College, MA, USA (1989-90) Professional Consultant for Health Education in School Curricula and for Family Planning, World Health Organization (WHO) of United Nations (UN) (1991-92); Fellow of the Nigerian School Health Association (F.N.S.H.A.) an award in recognition of outstanding contributions to the field of health education in Nigeria. Also, he served as Fulbright Scholar Faculty, Springfield College, Springfield, MA, USA (2001-2002). He is an Eminent Fellow of the American Biographical Institute (F.A.B.I) an award in recognition of superb achievements within the Community of Mankind (2002). Member of UNESCO Task Force on Early Childhood Education in Nigeria (2003—). Professional Consultant for Literacy Enhancement Assistance Programme (EAP) is a Triangle Institute Informational and World Education (2003—). Professor Ajala has taught health education and physical education programmes as well as public health at all levels of education from primary to University in Nigeria and the United States of America. His cherished personal and professional mission is: Live well, Love wholeheartedly, Learn passionately, Teach to think rather than to believe, Dreamer – Builder, Leave a legacy.

## Contents

|  | Page |
|--|------|
| Foreword   | iii  |
| Preface  | v    |
| Biography  | vi   |
| <b>Section A: Issues in General Education</b>  |      |
| 1 Literacy and Women Development in Nigeria<br><i>Adedokun M.O. &amp; Adeyemo C.W.</i>   | 1    |
| 2 Beyond the Lesson Plan: An Eye on Teachers' Emotion<br><i>Oparah O.B. &amp; Faloye J.O.</i>  | 13   |
| 3 Home and Students' Factors as Correlates of<br>Achievement in the Junior Secondary Schools<br>Human Movement Education in Osun State<br><i>Adewale J. G. &amp; Taiwo M. B.</i> | 31   |
| 4 Challenges of Staff Training for Effective Special<br>Education Service Delivery in Nigeria<br><i>Adeniyi E. O. &amp; Theo Ajobiewe</i>  | 46   |
| 5 Learning Strategy, Gender and Performance<br>Levels of Secondary School Students in<br>Comprehension<br><i>Ofodu, G. O. &amp; Lawal, R. A.</i>                                 | 60   |
| 6 Towards an Evidence Based Teaching Profession in<br>Nigeria <i>Moronkola O.A.</i>  | 72   |
| 7 Quality Assurance in Nigerian Colleges of Education<br><i>Olaleye, F.O &amp; Oluwagbohunmi, M.F</i>  | 77   |

- 8 Effective Teaching of Secondary School Mathematics through Mastery Learning Strategy  
*Adeleke, J. O.* 89
- 9 Accreditation and Quality Assurance in University Education in Nigeria. *Ekundayo, H. T.* 99
- 10 Literacy for Cultural Reformations: Its Perspective in the Control of HIV/AIDS  
*Ajibola, C. A., Akpan, S. C., Ogunjimi L. O., & Emeribe V. C.* 109
- 11 Effects of Fieldwork, Groupwork, and Lecture Work on Secondary School Students' Learning Outcomes in Ecology. *Idowu, C.B.* 123
- 12 Repositioning Social Studies for Sustainable Life Long Education in Nigerian Universities  
*Dan. I. Mezieobi* 136
- 13 Quality Control and Leadership in Nigerian Educational System: Nigeria Early Childhood Care and Education Compared with Reggio Emilia.  
*Salami I. A.* 157
- 14 ICT and Nigeria Literacy Educators: Implications for Sustainable Development *Ofodu G.O.* 170
- 15 Subjects Teachers' Opinion about the Current Senior Secondary School Curriculum in Terms of Relevance, Adequacy and Suitability *Olabode E.O.* 182
- 16 Library Services and Adult Education Literacy Programme in Nigeria  
*Pereware Aghwotu Tiemo* 194

- 17 Note-Taking Strategies: A Panacea for Students  
Achievement in Health Education  
*Anyanwu F.C* 207
- 18 Relevance of the Theory of Margin to Adult Learning  
and Welfare *Benedict H. T.* 217
- 19 Enhancing Academic Excellence through an Enabling  
School Environment  
*Ekpu F.S. & Egwuasi P.I.* 228
- 20 Conduct Disorders among Nigerian Adolescents:  
Implications for Character Building and Counselling  
*Adenuga, R. A. & Owoyele, J.W.* 237
- 21 Towards an Effective Professionalization of  
Secondary School Administration: A Case for the 21<sup>st</sup>  
Century Nigerian Principal  
*Asuka T.T. & Leigha M.B.* 248

## **Section B: Issues in Health**

- 22 Effective Casework Skills in Social Work Practice  
*Ayangunna, J. A.* 271
- 23 Assessment of Aged Health Problems in Ido Usi  
Local Government Area of Ekiti State, Nigeria  
*Famuyiwa S.A* 284
- 24 Health and Its Determinants  
*Ademiju, P. U.* 295
- 25 Discharged but Detained – The Dilemma of Patient  
Rights *Jadesola O Lokulo-Sodipe* 307

- 26 Effect of Stress on Intellectual, Physical, Social and  
Spiritual Health Status  
*Okanlawon F.A.* 320
- 27 Perceived Pains and Gains of Students' Patronage of  
Fast Food Restaurants: Issues of Health and Wellness  
*Ajala O.V. & Ogundele B. O.* 332
- 28 Achieving Health Education Goals through the Use  
of Problem Solving Method  
*Ayoade T.O. & Adesanya T.A.* 349
- 29 Assessment of the Management of Onchocerciasis in  
Ovia North East Local Government [Ovnelg] of  
Edo State of Nigeria  
*Adeyemo F O, Olaogun A A, Kayode O,B,  
& Amegor O F,* 359
- 30 Health Promotion and Education: Yesterday, Today  
and Tomorrow: Challenges and Prospects  
*Kalesanwo O.O.* 367
- 31 Knowledge, Attitude and Behaviour of Female  
Secondary School Adolescents towards Menstrual  
Hygiene in Ikere-Ekiti Local Government Area of  
Ekiti State *Fadoju A. O. & Peter-Ajayi O. M.* 381
- 32 Health Consumer Rights and Responsibilities  
*Adejumo. P.O.* 491
- 33 Exercise and Disease Prevention  
*Babalola, J.F* 409

- 34 Quack and Quackery: Need for Better Education  
*Oparaeke, M. I.* 423
- 35 Gender Differences in Knowledge and Attitude  
towards Child Street Hawking among Rural  
Resident Parents  
*Onuzulike N. M.* 433
- 36 Need for School Worksite Health Promotion in Nigeria  
*Konwea E.P* 447
- 37 The Need for Safety Education in Schools  
*Fakeye J.K.* 456
- 38 Developing Youths through Health Education for  
Nation Building *Odelola, J.O.* 471
- 39 Barriers to Behavioural Change and HIV and AIDS  
in Africa *Elegbe O.* 481
40. Enhancing Academic Epitome in Federal and State  
University in Ogun State through Environmental  
Health Protection  
*Ogundele B.O. & Adeogun A.O.* 499
41. Dimensions of Innovative Teaching Strategies  
for Health Education Programme in Nigeria  
*Okueso, S. A. & Akinwusi, A. T.* 506
42. Solving Current Environmental Challenges Through  
Health Education *Moronkola, O.A.* 517

## Section C: Issues in Sport

- 43 Nigeria's Physical Education and Sports from  
Indigenous Perspective *Ademola Onifade* 532
- 44 Administrative Strategies for Promoting Sports  
among Female Secondary School Teaching Staff in  
Ibadan Metropolis *Babatunde, S.O.* 542
- 45 Physical Fitness and Its Implication to Sports  
Performance *Alade, T.T. & Ajao, A.G.* 552
- 46 ICT and Globalization: Bridging the Gap in the  
Development of Sports Science  
*Emeahara, G.O., Emeahara, E.N., Ogueri, E.O,  
& Irivbemi, B.S* 561
- 47 Effects of Sport Participation on Character Building  
of University Athletes in South Western Nigeria  
*Banjo, D. & Ogunsanwo, B. A.* 573
- 48 Nation Development through National Sports Festival  
in Nigeria *Asagba, B.O.* 585
- 49 Modifying Nigerian Youths' Character through  
the Methods of Sports Psychology  
*Adegoroye, A.O.S, Osakinle, E.O., Babatunde, J.O.  
& Onijingin, E.O.* 593
- 50 Grassroot Sports Promotion among School Children  
through the Sport Education Curriculum Model  
*Adegbamigbe B.* 608



- 51 Sport Administrators' Knowledge of Facility Construction and Maintenance for Effective Development of Sports in Nigeria  
*Ajibola, C. A., Ogunjimi, L. O., Edim, M. E. & Emeribe, V. C.* 622
- 52 Achieving Effective Communication in Sport Management *Fasan Clement* 631
- Comments of Some People on Prof. J.A. Ajala** 645

UNIVERSITY OF IBADAN LIBRARY

---

---

# Effective Teaching of Secondary School Mathematics through Mastery Learning

## 8

### Strategy

Adeleke, J. O.

---

---

#### Abstract

*Over the years, mathematics had been a most dreadful subject to many students at all levels of education. The phobia students have for the subject might not be unconnected with the teaching strategies which the subject teachers have been using. This paper attempted to present Mastery Learning Strategy (MLS) as a strategy that teachers can use to assist learners to learn Mathematics. Recommendations on how to overcome envisaged problems while using the strategy and how to adapt the strategy for usage were given.*

#### Introduction

The purpose of classroom teaching and learning is to accomplish the set objectives of instruction with the aim of attaining the goals of education (Falaye, 2005). All mathematics activities when carefully carried out in the classroom settings are geared towards accomplishing the societal goals of education, satisfy parental expectation as well as justify huge national expenditure on education.

Regrettably, despite the increasing fund committed to education, students' achievements over the years especially in mathematics continue to decline mainly because of the use of the traditional lecture method of teaching by many teachers. Developing effective instructional strategies that will facilitate

improved learning and achievement therefore become imperative and a challenge to stakeholders in the areas of teaching and learning if the problem of under achievement is to be reduced (Falaye, 2005). Consequently, the need to adopt mastery learning strategy which assumes that, under normal instructional conditions, almost all students can learn well, most of what they are taught in schools (Carol, 1963; Blooms, 1968; Block and Anderson, 1975; Falaye 2005).

### **Mastery Learning Strategies (MLS)**

Mastery learning strategy is based on the philosophy that, virtually all students can learn well most of what they are taught if given appropriate instructional conditions. Even though the rate of learning may differ, given additional opportunities, students who may fail to accomplish the set objectives can be assisted to achieve, thereby moderating the myth surrounding the normal curve distribution of students' achievements especially in mathematics (Carol 1963; Blooms, 1968; Falaye 2005). Carol, the initiator of mastery learning claimed that, the degree of learning is a function of the time allowed and the perseverance of the students. Opportunity to learn, the quality of instruction and student's ability to understand instruction also constitute major factors in mastery learning

### **Application of Mastery Learning Strategy to Mathematics Teaching in Secondary Schools.**

The teaching approach that a teacher adopts is one factor that may affect students achievement (Mills, 1991). Therefore, the use of appropriate teaching method is critical to the successful teaching and learning of Mathematics. In an attempt to achieve the objectives of mathematics teaching, and to improve on students achievement, various strategies of teaching have been researched. Mastery Learning Approach (MLA) is an instructional method recently discovered, where

students are allowed unlimited opportunities to demonstrate mastery of content taught (Kibler, Cegala, Watson, Barker and Miler, 1981). MLA involves breaking down the subject matter to be learned into units of learning, each with its own objectives. The strategy allow students to study material unit after unit until they master it (Dembo, 1994). Mastery of each unit is shown when the student acquires the set pass mark of a diagnostic test. MLA helps the student to acquire prerequisite skills to move to the next unit. The teacher also is required to do task analysis and state the objectives before designating the activities. MLA can help the teacher to know students area of weakness and correct it, thus breaking the cycle of failure. Results from research studies carried out on MLA suggest that, MLA yields better retention and transfer of material, yields greater interest and more positive attitudes in various subjects than non Mastery Learning Approaches (Kibler et al, 1981; Adeleke, 2007; Wambugu and Changeiywo, 2008). Other research studies report similar findings (Hon, 1990; Ngesa, 2002; Wachanga & Gamba, 2004).

Mastery learning approach demands much from a teacher. The bulk of the responsibility of the students' learning lies on the teacher. In the first place, a teacher who opts to teach mathematics for mastery should be well adjusted in his or her mind as to assume that, all the students can learn well and consequently make preparations which are learner centered (Ibeagha 1999). The teacher:

- (i) Selects a topic content in cognitive, psychomotor and affective domains from official mathematics syllabus.
- (ii) Divides the topic into units appropriate for 2 or 3 weeks of teaching period.
- (iii) Puts these units into a sequence;
- (iv) Sets mastery learning standards;
- (v) Constructs appropriate formative tests for each unit in all domains;

- (vi) Teaches for mastery by (a) orientating pupils, since it is a new method (b) presenting learning materials; (c) administering an appropriate formative test at the end of each unit; (d) marking the formative test immediately (e) giving the marked scripts or working exercise books to the pupils to serve as feedback (f) identifying pupils that meet up with learning standard set and those that did not (g) arranging for corrective sessions according to pupil's convenience and period most beneficial to learners. Peer tutoring can be adopted for remediation especially in the upper primaries.
- (vii) Administers parallel formative tests to those who did not meet the criterion score.
- (viii) Upon completion of all the units administers and end of topic test (summative test), for assigning score and grades.

**Envisaged Problems and Suggested Solutions:** Critically reviewing the present educational system, the following are the major problems that may impede the use of mastery learning strategy to teach mathematics in Nigeria.

- I. Fixed time schedule: The Nigerian educational system is run on a fixed time schedule that does not allow much flexibility. Officially, students are in school from 8 a.m. to either 1:00 pm or 2:00 pm in the afternoon. During this period, the teacher interacts with the pupils in the classroom. The extra time needed by the slow learner cannot be accommodated within this period otherwise the school timetable will be distorted. Adequate use of the break time of the concerned pupil and teacher may solve the problem.
- II. Overloaded curriculum: The emergence of curriculum innovation as reflected in the national policy on education has implication on the adoption of Mastery Learning

- Strategy (MLS) in Nigerian classroom. The introduction of new subject such as Life Skill has reduced the number of periods normally allocated to other subjects. Applying MLS to an important and difficult subject such as mathematics first may be a starting point.
- III. High pupil- teacher ratio: Many public Secondary schools in Nigeria have been having class size ranges from 60 to 100 pupils. This may impede the effectiveness of mastery learning strategy. However, the current move of World Bank intervention Via UBE in the provision of infrastructures for schools has reduced the ratio. Determination of the teacher on the adoption of MLS is very important.
  - IV. Teaching for Entrance Examinations; the focus of many Secondary school teachers is to teach mathematics within the scope of the syllabus given to make pupils pass their entrance examinations to Secondary Schools. The focus of any teacher should centre on how students master the content taught rather than mere passing for examination(s).
  - V. Content coverage as an indirect measure of teacher effectiveness: Teachers' interest in most of the public secondary schools has changed from how well do students learn to how much students learn. This is not really helping the learners. Teachers should adjust their style by taking time to arrange units of mathematics topics into sequence; this will enhance students' understanding and mastery of topics.
  - VI. Societal/ parental expectation and influence: Most parents are too anxious to have their children complete any educational programme within the stipulated time, not mindful of how much they can achieve through the programme. The policy of automatic promotion is not really helping the matter. Students who are willing to undergo a complete upper basic education in Nigeria

must spend three years in school. A learner who on the basis of learning difficulties, requires extra time for remediation to bring him to an acceptable level of mastery, as advocated by mastery learning philosophy may ultimately need to be in school beyond the stipulated years. In a situation where a student is made to repeat a class, due to ignorance, some sections of the society may see the student as a failure. Even though the extra year is meant to be corrective, rather than improve his learning and achievement, the affected student may play truancy, fails to progress, eventually gets frustrated and drops out of the school system due to shame and stigmatization (Falaye, 2005). In fact, anecdotal records also may show that, some parents influence the transition of their children to the next class despite their inability to satisfy the criteria for promotion. The campaign for adoption of mastery learning strategy for teaching mathematics and the benefits must be embraced by all.

- VII. Prevailing Economic Melt Down: Ideally, all children of school age are dependent cohort whose financial and material needs are supposed to be provided by their parents. With the prevailing economic hardship in Nigeria, the individuals that constitute the family, jointly share the responsibility of providing for the needs of the family and children are not left out in some families. This does not leave out the children. Parental neglect arising from poverty is evident in activities such as street hawking, vending and acting as bus conductors. The out-of school time, which should have been devoted to remediation as required by mastery learning strategy is diverted to activities other than education. In this wise, teachers should play double roles of a teacher as well as a counselor. The parents of the concerned pupils can be sent for and counseled on the necessity for getting

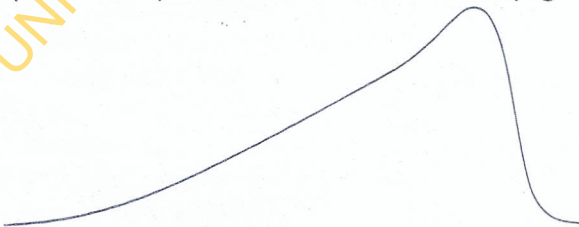
committed to their children's education as well as explain in detail the benefits of mastery learning strategy.

VIII. Students' Apathy towards Mathematics: One of the principal factors in mastery learning strategy proposed by the initiator, Carol (1963) is perseverance, that is, the willingness on the part of the learner to commit appropriate time to learning. Many pupils are no longer willing to devote appreciable time outside the school period to personal learning. They are engaged in many activities that are diversionary. For instance, anecdotal records indicate that street hawking among some pupils result in a high rate of absenteeism. They are lured from school by the monetary gain at the expense of their educational pursuit. As students' enthusiasm decreases, the initiative to improve their knowledge in mathematics also decreases (Falaye, 2005). Teachers can make mathematics lesson activities-based. Doing this may likely arouse the interest of the indifferent pupils towards the subject.

### **Profits of Mastery Learning Strategy in Mathematics Teaching**

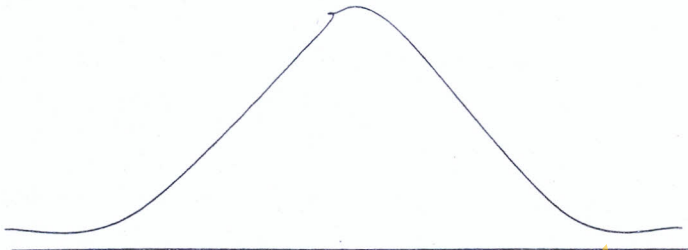
Mastery learning strategy, if adopted and appropriately used, numerous are the gains. These gains include:

- 1 Better students' cognitive achievement in mathematics resulting in a negatively skewed achievement distribution curves (Fig 1) as against normal curves produced by traditional lecture method (Fig 2).



**Fig 1. Negatively skewed curve**





**Fig 2. Normal Distribution Curve**

- 2 Better retention of mathematics by the students .
- 3 Greater sense of accomplishment on the part of students as every learner is made to learn at individual's pace.
- 4 Serves to reinforce the learners' cognitive ability through their high degree of success.
- 5 Positive students' disposition towards mathematics learning.
- 6 Support for learners with learning difficulties.
- 7 Healthy rival among the learners especially during formative testing.
- 8 Enhancement of healthy association among peers in the classroom, especially when the teacher allows peer tutoring for remediation.

### **Recommendations**

Based on the views expressed in this paper, the following recommendations are made:

1. Teachers should sequence their instructional content to include needed Cognitive Entry Characteristics (CEC) for learning new topics arising from the fact that, changing the instructional method from traditional to modern has not been practically possible over the years.

2. Mathematics teachers should form the habit of using formative tests to diagnose learning difficulties during teaching-learning process.
3. Anytime learning difficulty is identified, mathematics teachers must make provision for remediation.
4. Workshops and Seminars should be organized for teachers by both state and federal governments where they will be exposed to usage of the strategy.
5. When next mathematics curricula for both junior and senior secondary schools will be reviewed, Cognitive Entry Characteristics that will make learners achieve meaningfully in each topic should be included.

## Conclusion

Mastery Learning Strategy is discussed in this paper to have potency of improving Cognitive achievement of students in Mathematics and if this strategy is employed in schools, many more students will do well in mathematics and mathematics – related subjects. This will make the dream of technological advancement more likely come true for a developing Country as Nigeria.

## References

- Adeleke, J.O. 2007. Identification and effect of cognitive entry characteristics on students' learning outcomes in bearing in Mathematics. An Unpublished PhD. Thesis University of Ibadan, Ibadan.
- Block J. H. and Anderson, L.W. 1975. Mastery learning in classroom instruction. New York : Macmillan ; London : Collier Macmillan.
- Bloom, B. 1968. *Learning for mastery. evaluation comment*,1(2), 1-5.
- Carroll, J. B. 1963. A model of school learning. Teachers College Record, 64, 723-733.

- Dembo, M.H. 1994. *Applying education psychology (5th ed.)* NY: Longman.
- Falaye, F.V. 2005. Learning for mastery in the Nigerian classroom setting. The problems of translating theory into practice: *Studies in Curriculum* pp 114-124; volume 4.
- Hon, H. 1990. *A study of mastery Learning and its effects on science achievement retention, attitudes and self-concept with special focus on educationally disadvantaged students.* Unpublished Doctoral Dissertation, University of Hong Kong.
- Ibeagha, E.J. 1999. Mastery learning; Research and findings in Nigeria. *Evaluation in Africa*
- Kibler R.J, Cegala D.J, Watson K.W, Barkel L.L and David T.M 1981. *Objectives for instruction and evaluation.* Allyn and Bacon Inc. Toronto, U.S.A
- Mills, H. R. 1991. *Teaching and training: A handbook for instructors (3rd ed).* London: Macmillan Publishers.
- Wachanga, S.W., & Mwangi, J. G. 2004. Effects of cooperative class experiment teaching method on secondary school students' Chemistry achievement in Kenya's Nakuru District. *International Educational Journal*, 5(1), 26-36.
- Ngesa, F.U. 2002. *Impact of experiential and mastery learning programmes on academic achievement in secondary school agriculture.* Unpublished PhD Thesis, Egerton University, Kenya.
- Wambugu P.W. & Changeiywo J.M. 2008. Mastery learning approach, *Eurasia Journal. Math. Sci. & Tech. Ed.*, 4(3), 293-302 295.