

ADEQUACY OF MOVEMENT EDUCATION AS A PROGRAMME
FOR PHYSICAL EDUCATION IN SOME PRIMARY SCHOOLS
IN THE CITY OF LAGOS

A THESIS PRESENTED TO
THE SCHOOL OF POSTGRADUATE STUDIES
UNIVERSITY OF LAGOS
LAGOS

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
PHYSICAL EDUCATION

BY

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APRIL, 1984

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A B S T R A C T

Adequacy of Movement Education as a Programme for Physical Education in some Primary Schools in the City of Lagos sought to investigate the extent to which movement education can adequately lead to the realisation of physical education objectives despite problems of

1. lack of space,
2. insufficient equipment and supplies, and
3. inadequately trained teachers.

114 boys in two groups and 114 girls in two groups aged between 7 and 9 years, all selected by purposeful random methods from three Lagos State Schools, constituted the subjects of the study.

One group was taught physical activities by the traditional methods, the other was taught movement education.

Physical Fitness Tests and Sports Skills Tests, modified from standardised tests were used as major measurement instruments to determine, the performance of the two groups before and after teaching. Statistical procedures used was the t-test.

Findings of this study show that subjects in the movement education group generally performed better and scored higher than subjects in the physical activities group in the physical fitness tests when test items were taken singly and not collectively. While subjects in the physical activities group generally performed better and scored higher than subjects in the movement education group in the sports skills tests. when test items were taken not only singly, but also collectively.

Other findings show that differences exist in the way boys and girls performed on the Physical Fitness and Sports Skills Tests.

The conclusions are:

1. That movement education can be adequate as a programme for physical education in Lagos State Primary Schools, and
2. That the present available syllabus, facilities, space, equipment and teaching staff can adequately allow for the implementation of movement education programme in Lagos State Primary Schools.

These conclusions are recommended for implementation and suggestion is made for further studies.

ACKNOWLEDGEMENTS

The author wishes to most sincerely thank Dr. A.T. Oduyale, for his constant supervision and encouragement throughout the duration of this thesis. Special appreciation is also extended to Professor M.O.A. Durojaiye for his support and guidance.

The writer especially wishes to thank all the children who served as subjects in the study. Their natural love of movement made the collection of data most enjoyable.

Also vital to the success of data collection were some undergraduate students at the Department of Physical Education, University of Lagos, who served as Judges. The author wishes to thank them for their patience.

The author also most sincerely wishes to thank all her colleagues particularly Dr. A.O. Ajiduah and Alhaji A.A. Adebayo for their valuable contributions.

Mr. F.O. Adetuwu, a conscientious and disciplined worker also deserves to be thanked for painstakingly typing this thesis.

The tremendous support and encouragement given by members of the author's family, both near and far, is also greatly appreciated.

The writer is grateful to the University of Lagos, Faculty of Education and the Department of Physical Education for granting her Study Leave, especially for the last six months of her period of candidature.

Special thanks is also extended to the University of Alberta for allowing the author the use of relevant research materials. Of particular assistance were Professor Jan Vallance, Dr. Andrea Borys and Dr. Joyce Booman.

Finally, the author wishes to most reverently thank her Creator for making what sometimes seems impossible, possible!

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CHAPTER ONE

INTRODUCTION

Physical education is an essential part of general education. Movement education is an individualized self-expression approach to physical education. The aim of physical education in elementary school is to contribute to the maximum all-round growth and development of each individual. Such an individual would enjoy physical fitness, have the ability to perform various sport skills, possess knowledge and understandings associated with specific sports or with sports in general, and would exhibit desirable social behaviours. In order for the physical educationist to achieve these developmental traits in children, work done in physical education must be based on the needs of children as individuals and upon their developing physique, physical ability, personality and rate of learning. Each child must be given opportunities to develop as an individual capable of using his own ability to the best advantage.

Effective education through physical education involves various physical facilities, equipment and supplies. Also essential is a trained teacher of physical education. In primary schools in the City of Lagos, available space is inadequate, equipment and supplies, if available at all, are insufficient to go round the pupils, and there are not enough trained teachers in physical education to teach the subject. (Ajasin, 1981). Without the necessary physical facilities, equipment and supplies, physical education cannot be successfully taught.

Traditionally, physical education in Nigeria has been conducted using the explanation-demonstration of skills method, followed by the practice situation that required pupils in the class to attempt to perform the same skills at the same time. After the skills of particular sports have been presented and practised, they were then used in lead-up games. It was assumed that all students would improve their skills while playing these games. For the successful conduction of physical education using the explanation-demonstration of skill method, facilities, equipment and supplies are necessary.

During the past few decades, education has undergone many changes. An example of such changes is the introduction of the computer into the classroom. This, in part, is a result of technological advances that have been made. Educators now are made aware of the ways in which children learn. Physical education has not been left out of these changes. The idea that a comprehensive programme of education must include education of the body led to encouragement of sports and games as competitive activities in schools.

A notable historical event which encouraged these changes in physical education began with the arrival in England of Rudolf Laban, a German citizen. The English syllabus of 1933 which was in use when Laban arrived emphasised Swedish, Danish and Austrian gymnastics. Prior to Laban's arrival in England, many people perceived physical education programme as one that excluded sufficient opportunity for children to communicate or express their own ideas in their own way (Jordan, 1967). Laban's teachings

however, emphasised the study of human movement as basis for the teaching of physical education. His approach to movement was based on the theory that there are elements common to all movements and that they can be analysed (Dauer, 1971). The tenet of movement education is that children are recognised as individuals with their own methods and rates of learning. More recently, work in the areas of teaching readiness and slow learners has indicated the importance of movement in learning (Allenbaugh, 1968). Also indicated is the encouragement of maximum participation which results in the transfer of learning of basic elements of movement to the performance of sports skills. Many of the changes that have taken place in general education have brought about changes in the teaching of physical education. One such change is the introduction of movement education (Allenbaugh, 1968).

Movement education is one approach to physical education which places an emphasis on the child. It allows the acquisition of skill through a variety of channels and promotes an intellectual understanding of functional and expressive movement. In essence, it offers to the individual child the opportunity to learn to move and to move to learn (Dauer, 1971).

Movement education which began in Europe, particularly in Germany and England, aims at developing an awareness of the self in the physical environment. By so doing, it develops the body and its capabilities. It also develops the components of movement responses of each child. This aim will be attained most meaningfully through the use of exploration and problem solving experiences.

Exploration is a child-centered approach, a method of teaching which allows for individuality, creativity, spontaneity and self-discovery. The problem solving approach is a teacher-guided method. It is an approach which involves the following procedure: (1) presentation of the problem; (2) providing time for exploration with guidance; (3) refining and selecting solutions to the original problem and (4) demonstrating for evaluation, analysis and discussion (Tillotson, 1970). This process is then continued for development of more complex movement patterns. Movement education is successfully conducted by encouraging both exploration and problem solving.

One of the greatest values of movement education is the simplicity of the concept. In movement education, the approach used indicates that some action is required in seeking a solution to a problem. Each child is separately engaged in analysing the problem and seeking a solution within the limitations of the child's physical and mental abilities. In spite of large classes, each child performs as an individual. The less skilled as well as the highly skilled are challenged. Each child thus experiences success. Through this type of programme, a child is able to gain a sound background in motor development before he becomes engaged in activities which demand a high degree of proficiency. Movement education includes both functional as well as expressive movements. The subject encompasses gymnastics, games, track and field athletics, swimming, sports and dance. Movement education requires a minimum of equipment particularly at the elementary school level when focus

is yet on the body, on space through which the body moves, on rhythm and on flow of movement. At this stage, pupils need only to handle simple pieces of apparatus such as skipping ropes, hoops, balls of various sizes. However, the manipulative experience in movement education can be taught using the most elaborate facilities. On the other hand, the successful use of the traditional explanation-demonstration teaching method depends solely on the availability of various facilities and equipments.

Statement of Problem.

The purpose of this study was to investigate the extent to which movement education can adequately lead to the realisation of physical education objectives which according to Barrow (1971) include the acquisition of physical fitness, the development of sports skills, the possession of knowledge and understandings associated with sports, exercise, dance, and emotional as well as social growth through the experience of team participation, cooperation and attending failures and successes of sports involvement.

The study compared the movement exploration method used in conducting movement education, with the explanation-demonstration teaching method used in conducting traditional physical education. The degree to which young school pupils in some schools in the City of Lagos attained selected objectives, was used as basis for comparison. These objectives which included (1) improvement of physical fitness and (2) improvement of motor skills, were formulated by the author after a perusal of the elementary school physical education syllabus and several research papers. Specifically, the aims of the study were,

1. to determine the fitness levels and skill attainment levels of the two groups of selected subjects before instruction;
2. to determine the fitness levels and skill attainment levels of the two groups after instruction and
3. to determine the amount of change between the two groups as regards physical fitness and skill attainment.

This study sought to determine whether a viable programme of movement education involving activities such as gymnastics, games, track and field events, swimming and dance, could be introduced into the primary schools in Lagos as an alternative to the traditional physical education programme.

Difficulties encountered in Lagos, which militated against the effective teaching of physical education, include insufficient facilities, lack of equipment, and insufficiently trained teachers of physical education in the primary schools. Also, since 1979, the expansion in Education in Lagos State resulted in the use of most open spaces and school play grounds for building of classrooms. As a direct result of these situations, physical education is rarely taught in primary schools in the City of Lagos. The void thus created, had prevented the realisation of physical education objectives. In an attempt to remove this anomaly, despite already identified shortcomings for physical education in primary schools in the City of Lagos, the present study proposed to show whether or not movement education can be considered as a substitute for physical education.

It is generally accepted that in the process of teaching movement education, children are not only guided to discover the principles of movement, but they are encouraged to do so at their own rates and in self elected manner. Maximum participation is thereby encouraged and this raises their physical fitness level. It also aids the transfer of learning of the basic elements of movement, to the performance of sports skill. Further attractions of movement education include the fact that its programme does not require much space nor does it call for the use of numerous pieces of apparatus.

Hypotheses

For the purpose of this study, two general hypotheses were tested.

The general hypotheses were:

1. That there will be no significant difference in the level of physical fitness between the group taught physical activities and the group taught movement education.
2. That there will be no significant difference in sports skills performance between the group taught physical activities and the group taught movement education. These will be further examined through the following specific hypotheses:

- (a) That there will be no significant difference between the mean scores on physical fitness tests between boys taught physical activities and boys taught movement education.

- (b) That there will be no significant difference between the mean scores on sports skills tests between boys taught physical activities and boys taught movement education.
- (c) That there will be no significant difference between the mean scores on physical fitness tests between girls taught physical activities and girls taught movement education.
- (d) That there will be no significant difference between the mean scores on sports skills tests between girls taught physical activities and girls taught movement education.
- (e) That there will be no significant difference between the mean scores on physical fitness tests between boys taught physical activities and girls taught physical activities.
- (f) That there will be no significant difference between the mean scores on physical fitness tests between boys taught movement education and girls taught movement education.
- (g) That there will be no significant difference between the mean scores on sports skills tests between boys taught physical activities and girls taught physical activities.
- (h) That there will be no significant difference between the mean scores on sports skills tests between boys taught movement education and girls taught movement education.

Delimitations of the Study.

1. This study was delimited to three fee paying primary schools in the City of Lagos for the following reasons:
 - (a) For a thorough investigation
 - (b) For maximum cooperation
 - (c) English, which is the medium of instruction in the schools chosen, is more suitable for guided discovery instruction in movement education in mixed setting.
2. Children (boys and girls), aged 7 - 9 years served as subjects in this study.
3. This study focused on two objectives which were improvement of physical fitness and the development of sports skills respectively.
4. Only children in Class III in their respective schools were involved in the study.

Limitations of the Study.

Limitations that could confound the results of this study might include:

1. The relatively small sample which was made use of in the study.
2. No known norms in physical fitness and sports skills, to test 7 - 9 year old Nigerian boys and girls.
3. The possible bias of the Researcher who also taught the two different experimental groups.

4. The author's lack of control over the activities of the research subjects after school.

Significance of the Study.

This present study is significant in that it will be filling the gap in a scanty knowledge on the effectiveness of movement education in the Nigerian context. There is no published work so far in the area of effectiveness of movement education in Nigeria. There is also at present no indication that movement education is considered as a substitute for physical education at the primary schools in the City of Lagos. It was hoped that the outcome of this study might herald a new way of achieving the objectives of physical education in Nigeria's primary schools.

Without doubt, the result of this study would be useful to physical education teachers, particularly in primary schools in the City of Lagos. The same result could also be useful to teacher education institutions and to the policy makers. Institutes of sports such as the one at the National Stadium, Surulere, where short courses are offered to coaches could also benefit from the results. In short, the results obtained would contribute towards the improvement of professional courses and curricular because more attention will be drawn to the fundamental factors of movement.

Definition of Terms.

Three terms used in this investigation have connotations that might include a wide activity area of physical education. The three terms as used in this study are defined here.

1. Physical Activities (P.A)

Physical activities are activities normally engaged in in physical education classes, particularly at the primary school level.

These activities include Individual and Dual Activities; Chase and Tag Games; Relay Type Games; Apparatus, Stunts and Tumbling and Singing Games and Dances.

Within the frame of reference of this study, teaching of physical activities was characterised by the explanation, demonstration technique. Conformity was encouraged by the teacher's imposed restraints on the pupils by the limitations inherent in the traditional game rules and structured exercises.

2. Movement Education (M.E)

Movement education accommodates activities normally engaged in in physical education classes, particularly at the primary school level. These activities include locomotor movement skills, exploration of small pieces of apparatus, stunts and tunblings.

Within the frame of reference of this study, teaching of movement education was characterised by the movement exploration technique. The child centered approach encouraged by movement education has its foundation in the principles of child growth and development. Each child assumes a unique position and is allowed the opportunity to develop to his fullest capacity, commensurate with his age and individual ability.

3. Sports Skills

Sports skills used in this particular study were running, throwing and jumping.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter examines the following:

1. A general historical and theoretical background of movement education.
2. Books and researchs influenced by Laban's theories.
3. Studies of movement education progress in Nigeria.
4. Studies of deficiency in physical education at the primary level of education in Nigeria which movement education may correct.

1. A General Historical and Theoretical Background of Movement Education.

The real history of movement education in England started with the passing of the 1870 Education Act in England which made education compulsory for all. The Act included requirement of physical drills for two hours each week. The drills were administered by drill sergeants and were taken from military manual. While leadership in women in the field introduced the system of Ling gymnastics in 1878, the men in the field were involved more with elevating the physical fitness level of boys who were taught separately from girls. The men used the military type of physical training along with few elements from Ling gymnastics. Dissatisfaction with both systems led to the introduction of programmes based on games and sports (Van Dalen et al 1962). This situation in physical education in England existed until the arrival of Rudolf Laban a German citizen in the 1930s. Laban's ideas were contributory to the publications "Moving and Growing" and

"Planning the Programme". In "Moving and Growing" (1952) for instance, the physical education lesson was envisaged to contain "abundant opportunity for movement opportunity to develop skill, a wide field of experience leading to versatility and the growth of awareness" (Ministry of Education, 1952).

Since 1933, the use of movement education has become more widespread by both British men and women teachers in physical education. Today, it is the most generally accepted approach to the teaching of physical education in English elementary schools. Acceptance of movement education by English educators according to Sweeney (1970), is best understood in reference to their current educational philosophy. It encourages individual development of each student, provides for successful experiences by each student at his own level in the use of his body development, of self concept and the enhancement of self-image. Concisely, movement education is considered valuable for the following reasons: improved body management skills, higher interest of pupils, free movement and because each student is encouraged to repeat performances to perfection, improved physical fitness - Ministry of Education (1952), Jordan (1967), Sweeney (1970) and Snyder (1975).

Historically, physical education as a school subject, was introduced into Nigeria as an integral part of education. This was done first by the Missionaries, then later by British Administrators at the beginning of the 19th Century. The mode of physical education taught during pre-independent Nigeria was based on the British 1933 syllabus which emphasised the teacher-oriented Swedish, Danish and Austrian gymnastics. Physical education then was known

as physical training. Physical training was strict, rigid, and formal.

Nigeria's philosophy of education is based on the wholesome development of the individual at the primary, secondary and tertiary levels, both inside and outside the formal school system (National Policy on Education, 1977). In Nigeria today, physical, health education and recreation is, on paper, a compulsory subject in many schools. Unfortunately however, it is often not taught. In an attempt to regularise the situation, the syllabus of physical education which was prepared in 1975 was updated in 1981 by the Nigeria Association for Physical, Health Education and Recreation (NAPHER). But for the syllabus to be effectively implemented at the secondary level the document was intended for, work at the primary level must be carefully planned and implemented.

Effective planning requires careful stock taking of situations. In the City of Lagos, physical education is not being successfully taught because of lack of space, lack of equipment and supplies and lack of properly trained physical education teachers. Movement education, a subject within the discipline of physical education, does not require much space, nor does it require many pieces of equipment and supplies in order to achieve similar educational goals. Moreover, the teachers teaching physical education in primary schools in Lagos State at present, can be adequately prepared to teach movement education within a period of three months.

Elementary school physical education in England is considered successful (Johnson, 1966), Allenbaugh (1968), Sweeney, (1970), Martyn-Johns, (1971) and Pauer, (1971). According to these same authors, movement education has been responsible, to a high degree, for this success. An inquiry into the nature of movement education might show precisely how.

The Nature of Movement Education.

It is generally agreed that movement education is the foundation upon which all activity area of physical education are built. Morison (1960), Godfrey and Kephart (1961), Russel (1965) and Cameron and Cameron (1969).

The subject deals with the training in basic movement patterns which are associated with natural growth and maturation. Examples of movement patterns are walking, running, jumping, throwing.

Properly directed, movement education is pertinent and necessary to the nursery and primary school children. Once a firm foundation had been formed however, the need for movement education is not as essential. However, like all foundations, the "structure" which includes the understanding of movement generally, once acquired, becomes part of any movement skill. Thus, the basic knowledges about movement will always be useful in the production of qualitative skill.

In the present investigation, movement education, not only trains the nine year old child in the use of the body, space, time and flow, these being motion factors, the ensuing abilities are expected to transfer to performances of standardised sports skills.

When teaching movement education, the movement education teacher, rather than be a director or demonstrator, as is the case in the traditional explanation-demonstration method, assumes the role of "guide" by posing problems which emphasise a particular concept and allows each student to respond within the limits of his ability, while improving body control and understandings of movement (Detroit Public Schools, 1960). Furthermore, the teacher must provide the children with a progressive series of movement problems which challenge them and lead to greater skill as mastery of a variety of ways of moving. It is apparent that any method of teaching which utilises principles and generalizations, anticipates some transfer of learning in similar situations in the future. Movement exploration, one of the methods used in this study, utilised principles of motion by directing student discovery of these elements in a variety of movement experiences. For this reason, the author believed that a review pertaining to transfer of learning was appropriate.

Transfer From Movement Skills to Sports Skills.

It is generally agreed that movement education is the foundation upon which all activity area of physical education are built. Morison (1960), Russel (1965) and Cameron and Cameron (1969), all registered this fundamental nature of movement education. The movement elements have been organised by movement educators to formulate movement principles, thus the underlying components of skillful movement become the content of movement education. Barrett (1970) stated that without the concept of

common movement principles, teaching would lack goal direction. Her viewpoint is supported by Gillion (1970), Kruger (1970) and Kirchner (1978). Those who advocated the incorporation of movement principles as the content of movement education and who speculated that transfer of this training will facilitate performance and acquisition of new motor skills apart from Laban and Lawrence (1947), include Laban (1948), Randall (1956), Morison (1960), Detroit Public Schools (1960), Cullen and Huelster (1962), Gillion (1970), Kruger (1970) and Kirchner (1978).

Transfer of training notion is founded on the idea that when a child understands a movement principle and can skillfully perform a movement pattern which uses this principle, then the child should be able to transfer both knowledge and skill to a new movement which also incorporates the movement principles. In other words, movement education may result in general physical readiness for the development of specific suitable fitness skills and specific suitable sports skills.

Not only transfer of training is instrumental in the development of skill, Kinesthesia is also considered important (Scott, 1955). Kinesthesia is thought to contribute to individual's ability to learn as well as perform motor skills. Prior to 1950, very few investigations concerning the role of Kinesthesia in motor learning could be found in physical education literature. However research compiled since that time permits the general statement that Kinesthesia is believed to underlie many discriminating functions of the body required for successful motor skill performance.

According to Locke (1969), a movement educator must presume not only these "many discriminating functions of the body required for successful motor skill performance" exist, but that he can train them so that transfer will occur in a variety of specific tasks. This researcher is taking the "many discriminating functions of the body" to mean the following, kinesthesia and the psychomotor ability to analyse movement in terms of the body, space, time and flow. This is based on the fact that Laban (1948) said that people trained in performance of the eight basic actions, combined with bound and free flow, will be more able to choose the appropriate movements for any tasks they face, than those who rely entirely upon their natural gifts of intuition. In other words, efficient transfer of subject matter and principles of movement enables the student to apply general movement over a wide range of skills or activities. It is this transfer of the principles of movement this investigator is interested in. Could the acquisition of the basic principles of movement result in organic development including fitness? Could the knowledge of these basic principles of movement positively transfer to psychomotor development which includes sports skills? Could the theoretical aspect of movement education result in cognitive development including knowledge and understanding associated with sports, exercise and dance? Finally, could affective development be an outcome of the basic principles of movement?

The ultimate goal in physical education is to "physically educate" the individual. The individual so educated will achieve

organic development, including fitness; psychomotor development including development of knowledge and understanding of sports, exercise and dance, and affective development including emotional and social developments (Barrow, 1971).

The above four objectives serve as a guide to the aim of physical education. They are helpful as points of reference in revealing the progress the individual is making toward the goal of being "physically educated". For an effective implementation of these objectives, the Nigerian Federal Ministry of Education in 1974 drew up a syllabus for the use of Grade II Teachers. At present, this syllabus is being used by primary school teachers all over the Federation. The question now is how much of the objectives of physical education is at present being realised in primary schools in the City of Lagos?

In Britain, apart from teaching educational dance and educational gymnastics within the philosophical framework of movement education, ball handling and game skills are also taught within the same framework. Students as a result demonstrate the ability to dodge, toss, catch and control a ball. Boys are also taught ball handling skills related to the game of soccer including how to stop a ball with different body parts, how to put the ball into the air without the use of hands, how to pass the ball with feet and how to keep the ball in the air by using a variety of body parts. Swimming skills are another important element of the programme. Before specific strokes are taught movement education approach is utilised so that children first learn to relax and move in the water. Martyn-Johns, President of the British Association

of Organisers and Lecturers of physical education summarised the meaning of movement education in physical education in Britain, when she said that it has been discovered in Britain that understanding comes through personal experiences on the part of the children (Martyn-Johns, 1971). Going by the foregoing, it is evident that course items on the primary school physical education syllabus are being fulfilled in England. The question now is how can course items on the primary school physical education syllabus in the City of Lagos be effectively taught so as to yield similar results such as the ones achieved in England?

In order to achieve the physical education objectives, the Nigerian Federal Ministry of Education, in 1974 itemised the courses to be offered at the primary school level in its Grade II Teachers' Syllabus. Suggested programme contents included activities under the following headings: Fundamental Movement; Fundamental Rhythms; Stunts, Tumbling and Apparatus Work; Relays; and Simple Game Activities.

At this point in time, the only method used in teaching physical education is the traditional explanation-demonstration method. The movement exploration method used in conducting movement education is yet to be introduced to primary schools in Nigeria generally and in Lagos State in particular. Looking at the English scene, one sees a very high degree of involvement in movement education in the physical education programmes of primary schools (Howell and Van Vliet, 1965). It is this same high involvement in movement education in the physical education

programmes of primary schools this researcher is proposing. Apart from proposing that the movement exploration method of movement education be used in the primary schools in the City of Lagos instead of the exploration-demonstration method of the traditional physical education, the principles of the movement education can be used to teach other areas of physical education such as football, basketball and swimming. Finally, movement education which is intricately woven into the life style of Africans (Harper, 1967) should be capitalised upon and built on in terms of achieving the educational goals of physical education.

One reason given by Percy Jones (1960), for a change in methodology in physical education was if the traditional explanation-demonstration approach does not appeal to the pupils. Furthermore, Webster (1965) advised that when deciding upon which method is better than another method, the method which brings about the desired results is automatically the better method. The movement exploration method has proven to be a better method in the teaching of physical education at the primary school level in England - Detroit Public Schools (1960), Gillion (1970) and Kirchmer (1978). This might also prove to be the case in teaching the same subject at the same school level, in the City of Lagos.

In the teaching of movement education, Laban's theories have been applied to different areas of physical education. To this end, various books have been written and research work done, based on these theories.

2. Books Influenced by Laban's Theories

Most authors who have written on the subject of movement education within the sphere of education admit to the influence of Rudolf Laban. Such writings dealt with different areas of physical education. For example movement education was applied to Dance by Joan Russel in 1958, by Marion North in 1959, by Valerie Preston Dunlop in 1963. A break through in the encouragement of dance for boys was made in 1969 when Jean Carroll and Peter Lofthouse wrote "Creative Dance for Boys." Two books which integrated dance with gymnastics were issued by the Ministry of Education in 1952 and 1953 respectively. Mauldon and Layson in 1965 focused attention on the application of movement education to gymnastics only. Ruth Morison did likewise first in 1956, then in 1960. While Mauldon and Redfern did not agree with the traditional way of teaching games, they felt that children could be encouraged instead to become acquainted with the motion factors. This idea they put forward in their book "Games Teaching. A New Approach for the Primary School," in 1969.

The above authors, including others who were influenced by Laban's theories presented their various works based on the specified theories of Laban and suggested a particular teaching method, that of movement exploration. Liselott Dixon (1966) enumerated progressive steps and phases which are repeated in the learning of motor skills. These phases include the "naive phase" when movements made are spontaneous. Next comes the "reflective phase" during which time the pupil is motivated to reflect on

his own movement performances. Finally there is the "self learning phase" when the pupil not only trains himself, but also repeats particular skills to perfection. According to Diam (1966), these phases are observable in children and should be encouraged. Other authors who have established reasons for movement education include Tillotson et al (1967-1968), Schurr (1967), Fleming (1968), Ludwig (1968) and Freeman (1970). As regards the successful implementation of movement education, Tillotson (1970) suggested five steps which include identification of the problem, presentation of the problem, guided exploration of the problem, identifying and refining the final solution and demonstration for analysis, evaluation and discussion. Similar steps were also suggested by Barrett (1970).

Numerous unsubstantiated claims have been made as regards movement education. An example of such claims is the one made by the Ministry of Education in 1952, that dance can contribute positively to a programme of skill acquisition. There have been research findings both in favour of this claim, while some research findings have been against it. The present study attempted to make its own contribution either in favour of the claim or against it.

Studies of Investigations Relating to Movement Education

Few studies were found concerning the comparative effectiveness of movement education with other methods, such as the traditional explanation-demonstration method of teaching physical education. This was particularly true in studies using students in the elementary grades. This segment of the review of pertinent literature will be divided into three parts:

Research finding in support of the movement exploration method.

Research findings in support of the explanation-demonstration method, and

Research findings not in support of either method being more effective than the other one.

Research Findings in Support of the
Movement Exploration Method.

Estes (1959), compared the strength, flexibility, balance and agility developed by the use of creative play equipment with that developed by regular conditioning exercises. Subjects were fifty-two, third grade pupils enrolled in two regular physical education classes. The experimental unit lasted ten weeks with classes meeting twenty-five minutes twice each week. Tests of arm, shoulder, abdominal, leg and back strength, flexibility, balance and agility were given prior to the beginning of the experimental unit. There was only one significant pre-experiment difference. The group assigned to creative play equipment scored significantly higher on abdominal strength test. Comparison of pretest and post test results indicated that both groups improved on all eight measures. Each group also improved significantly on four of the eight test items. When between group comparisons were made, those children using creative play equipment obtained an improvement rate on arm and shoulder strength and balance that was significantly greater than those using conditioning exercises. There were no other significant differences.

A few other available studies in which elementary school children were used as subjects were conducted by Vitalone (1963), Gravlee (1965), Downin (1969), Leslie (1969) and McRell (1971). Specifically, Vitalone (1963) concluded that the movement exploration method was significantly better in teaching selected skills, fitness parameters, motor ability and running and jumping. Keller (1963) had similar findings though in respect of older children, when he compared the two methods of teaching physical education using secondary school boys as subjects. The boys who were taught motor skills by an informal student-centered method, did better in game competition than students who were taught by a formal, teacher centered method.

The movement exploration research of Gravlee (1965) was supportive of the need for time in order to make evident the effectiveness of the movement exploration method. A movement exploration method and a games method (demonstration, exploration and practice of games using specific skills) were used. Some students received a total of 480 minutes of instruction time. The agility run and standing broad jump were significantly improved by movement exploration, although the Johnson's Throw and Catch test and a batting test were not. Vitalone (1963) had earlier reported greater improvement when movement exploration was used for a total of 720 minutes.

Gravlee (1965) attempted to determine if a game approach such as the movement exploration approach was more effective in teaching selected motor skills to first grade pupils. Subjects were in two different schools and were assigned randomly by toss of a die to one or two possible classes. A total of 120 pupils were involved

in the study. The motor skills investigated were running, jumping, throwing, catching and striking. Prior to a four week unit, a modification of the Johnson Agility Run, a batting test, a throwing and catching test and the standing broad jump was administered to all subjects. The game method group was presented sixteen lessons with four lessons specific to each skill. These employed traditional methods of demonstration, explanation and practice. The movement exploration class was asked to respond to questions and challenges posed by the teacher. Comparison on pretest and post test results indicated that there was no significant difference in the effectiveness of the two methods to improve throwing, catching or hitting, but that the movement exploration method was significantly more effective where running and jumping were concerned.

Van Allen (1966) compared the effects of movement exploration and traditional methods of teaching on acquisition of selected swimming and diving skills. The subjects were women college students fulfilling a part of their physical education requirement. Tests were administered prior to the beginning of instruction and repeated at the end of the semester. There was a significant difference in favour of the movement exploration approach when the amount of improvement in each group was compared.

A study which dealt with developing skills in team sports was that of Russell. Russell (1967), taught the windmill serve in volleyball to three different groups of women physical education majors. One group was taught by traditional methods, one by a problem solving method with emphasis on mechanical principles, while the third group received instruction through a problem solving

approach with emphasis on movement education. Class sizes were nineteen, seventeen and nineteen respectively. Each class met two times per week over a ten week period. Each class was forty minutes in length, but only ten minutes of that time was devoted to developing the serving skill. Serving skills were measured, on the third, eighth, thirteenth and eighteenth days. Both problem solving methods proved effective in improving the serving skill. Both were significantly more effective than the traditional method. When the six highest skilled players and six lowest skilled players were identified on the basis of the first test, the problem solving movement education method was most successful with the low skilled group. The traditional method was more effective than the problem solving mechanical principles group. Both problem solving methods were effective in improving performance of the high skilled group. The traditional method of instruction had a negative effect on the performance of the high skilled group.

Another study which used college age students as regards the development of skills was that of Barendsen. Barendsen (1967) compared the relative effectiveness of movement exploration method to the exploration-demonstration method in developing tennis skills. In this study, thirty female college students enrolled in a beginning tennis class received instruction through the exploration-demonstration method, while another thirty-five students were given instruction through the movement exploration method. The instructional period lasted eleven weeks with classes meeting two times per week. Each class was fifty minutes in length with thirty minutes devoted to instructional time. Since the classes were identical at beginning

skill level, it was assumed that no difference existed in the two groups and the groups were not pre-tested. A battery of post tests consisting of the Dyer Backboard Tennis Test, The Hewitt Tennis Service Test, and a knowledge test devised by the women's Physical Education Department at the University of Washington were administered at the end of the instructional unit. In all cases, differences between the mean scores of the two groups were in favour of the movement exploration method, although none of the differences were significant. However, when the total skill tests and the written test were combined, a significant difference was found favouring the movement exploration method.

The need to understand expected responses before actually performing sports skills effectively necessitated the inclusion of a study conducted by Deelman. Deelman (1968) studied the effects of a unit of movement exploration on the level of internalization of first grade pupils. Internalisation was defined as acceptance by the individual of attitudes, codes and principles that became a part of forming value judgements or determining conduct. For purposes of this particular study, it was determined by an evaluation of filmed responses to a series of physical tasks. Two classes of twenty-six children were given instruction by either traditional methods of physical education or by the use of movement exploration. The experiment period lasted for six months. During this time, classes met two days per week for thirty minutes each class period. Prior to the beginning of the experiment, the spontaneous responses of the children to a series of physical tasks were filmed. These tasks were presented by a teacher who had no other contact with the

subjects and was unaware of the specific nature of the experiment. A group of ten pupils from each method was randomly selected and evaluated on a forced choice scale derived from the Taxonomy of Educational Objectives Volume II. The scale ranged from a low score of zero for failure to pay attention to or to attempt the task presented, to a high score of six for concentrating on the task until it was successfully completed. A jury consisting of two physical educators and an elementary specialist, evaluated each child's response to each task. At the end of six months' period, the same procedure was repeated. Comparisons of gains between the two groups showed a significant difference in improvement of internalisation in favour of the movement exploration class.

Leslie (1969), compared the relative effectiveness of movement exploration with a traditional physical education programme in developing general motor ability and physical fitness. The adapted Glover Physical Fitness Tests for primary grades was used to measure physical fitness. The Iowa-Brace Motor Ability Test for elementary children was used to measure motor ability. The experimental period lasted six months. The movement exploration group was composed of 205 children while there were 214 in the group using the traditional method. Grade levels ranged from kindergarten through third grade and comparisons were made between the total group and also individual grade levels. The two already identified tests were administered before and after the experimental unit. Gains were compared and it was found that both groups improved significantly in physical fitness.

Between group comparisons showed a significant difference in favour of the movement exploration group on the sit-up and seal crawl tests. No other significant differences were found between groups on the Glover Test Battery. The gain in scores on the Iowa-Brace Motor Ability Test was significant in favour of the movement exploration group.

Still in support of necessity for time in the enhancement of the effect of movement exploration, after three years of either a movement education approach or a traditional (explanation-demonstration) approach, fourth and fifth grade children were compared by McRell (1971) on running and throwing. The results of the Godfrey and Thompson Movement Pattern Checklists (1966) showed that those who had movement education training were significantly better on throwing and running than those who had traditional training. While some researchers discovered that the movement exploration method proved more effective than the explanation-demonstration method, in physical fitness gains and sports skills improvement, others discovered the reverse to be true.

Research Findings in Support of The Explanation-Demonstration Method.

Among the relevant literature that lend support for the explanation-demonstration method was the study conducted by Scott. Scott (1967) compared formal physical education method and the movement exploration method. One group received instruction through the explanation-demonstration method while the other group received instruction through the movement exploration method. Comparisons of physical fitness, perceptual motor development and creativity

were made between the groups. The results revealed that the formal or traditional method was better in developing physical fitness.

Masche (1970) compared results obtained from administration of Magnusson's Test of Motor Ability to two groups of seven and eight year old subjects. Each group was comprised of twenty-four subjects. There were twelve boys and twelve girls in each cell. Classes met for thirty minutes two times per week. The experiment lasted for a ten week period. During this time, the movement exploration group engaged in fifteen minutes of exploration and fifteen minutes of low organisation games. The sport group received five weeks' instruction in volley ball and five weeks' in basket ball using modified equipment, facilities and rules. The Magnusson Test Battery consists of ball handling, broad jump, obstacle race, throw for distance and a stock stand. There was no significant difference between groups on pretest score comparison. There was a significant difference in improvement in favour of the sport skill group on the broad jump, stock stand, distance throw and ball handling. There was no significant difference in improvement between the two groups on the obstacle race.

Some research have been completed dealing specifically with the application of the movement education approach to programmes for the mentally retarded. One such research was that conducted by Goodwin. Goodwin (1970) divided thirty-three trainable mentally retarded children into three equal groups. Two groups attended physical education class thirty minutes per day, five days per week for ten weeks. The third group acted as control and had no formal physical education class. Movement exploration method

was used with one experimental group while the second group received instruction through traditional physical education method. The Hayden Physical Fitness Test for Mentally Retarded was, among other tests which measured other indices for possible development in other areas, was administered both before and after the ten week period. There was significant difference in the amount of improvement in physical fitness in favour of the traditional class over the movement exploration class.

Dougherty (1970) not only found out that the command style or explanation-demonstration method was more effective in achieving fitness gains, but he also suggested that in order for the benefits of the movement exploration method be realised in terms of development of fitness and motor skills, the programme must be conducted over a longer period of time. This appeared to be the case in a number of study findings which were in support of the movement exploration method as a more effective method in attaining the development of physical fitness and motor skills. The particular motor skills focused upon by Toole (1982) were throwing, catching and batting performances. Again, her findings were in support of the explanation-demonstration method. While some researchers have discovered that the explanation-demonstration method, when compared with the movement exploration method brings about more gains in respect of physical fitness and sports skills, others have found the movement exploration method to be more superior. Yet a third group of researchers discovered that there is no difference in physical fitness and sports skills gains when the two methods were compared.

Research Findings not in Support of Either Method being more Effective than the Other One.

Howard (1960) experimented with the specific motor skill of ball handling. Two groups of third grade pupils were taught by two different instructional methods. One group was taught through explanation-demonstration method while the second group was taught through movement exploration method. No significant difference was found in skill performance. La Plante (1965) compared the explanation-demonstration method with the movement exploration method in teaching skills in bowling. Again, when the two groups receiving different treatments were compared, no significant difference was detected in improvement between the two groups. Still on the sport, bowling, Coleman (1968), conducted a study in which two groups of students were given unrelated instruction in movement education prior to a unit in bowling. One group received instruction in a unit of movement education and a six week delay before beginning the unit in bowling. A second group received instruction in movement education and moved immediately to the bowling instruction unit. The third group participated only in a unit of bowling instruction. Data collected included an initial and final written examination. Also, initial, mid point and final bowling scores. There was no significant difference in the improvement of skills in bowling between the three groups or in the judge's evaluation of the ability to apply mechanical principles utilized in bowling between the three groups.

Bell (1958) compared the effectiveness of a directed and a non-directed approach to developing physical fitness through the use of climbing apparatus. Third and fourth grade boys and girls

were randomly assigned to one of three groups. Two groups were taught by either the movement exploration method or by the explanation-demonstration method. The third group did nothing. Though both the climbing apparatus groups showed significant improvement, there were no significant differences in improvement between the two groups. Sande (1968), also in an attempt to determine the influence of the movement exploration method and that of the explanation-demonstration method on Grades 1 and 2 pupils' performance in selected tests, discovered that results got were inconclusive.

Grande (1969) employed the Adapted Glover Physical Fitness Test for Primary Grades to compare a conventional type physical education programme with a movement exploration based programme. The Glover Physical Fitness Test was comprised of sit-ups, standing broad jump, thirty yard dash, the seal crawl and a shuttle race. The period of instruction lasted for six months. Tests indicated no significant difference in the fitness level of the four classes involved in the experiment.

Garland (1970) compared the effects of movement exploration and traditional methods of teaching on acquisition of selected swimming and diving skills. He was not able to show significant results from the findings of the study designed to determine the effectiveness of the problem solving method in learning swimming. Lackey (1974) combined measures of physical fitness, motor skill, attitude and self adjustment. Subjects were second grade boys and girls assigned to either the explanation-demonstration method or movement exploration method. The study lasted for one academic

year. Physical fitness was measured by the standing broad jump, forward bend, side step, thirty yard dash, hand grip dynamometer and treadmill. Motor skill was measured by the dodge run, repeated wall volley and soccer wall volley. No significant difference was found in either physical fitness or motor skills developed by the two groups. Similar studies were conducted by Dirocco (1975) and Luebke (1977). Both researchers discovered that the two methods were equally effective in developing physical fitness among pupils.

Thus far, studies in movement education which have been presented were conducted outside Nigeria. It is of little wonder that only meagre literature on movement education in Nigeria was available. Schools in Nigeria are used to the explanation-demonstration method of conducting physical education. The movement exploration approach of movement education is yet to be introduced to primary schools in Nigeria generally and the City of Lagos in particular.

3. Studies of Movement Education Progress In Nigeria.

Movement education is not a familiar aspect of physical education in Nigeria. Most schools are familiar with games, gymnastics, athletics and other aspects of physical education. However, as the movement exploration method is not used in the teaching of physical education in Nigerian schools, particularly at the primary school section, studies in movement education are very few.

Harper (1967) stated that movement education is part and parcel of the African culture and as such should be incorporated into the physical education programme.

Ajasin (1977) introduced to some educators, the theories of movement education, together with its teaching method. She went on to suggest the inclusion of movement education on the primary schools' physical education syllabus in Lagos. Lack of proper orientation of the regular classroom teachers who normally teach physical education, made this impracticable. Furthermore, the application of Laban's principles of motion contributed towards her practical as well as theoretical presentation of "Expression in Movement and the Arts" (Ajasin, 1982).

4. Studies of Deficiency in Physical Education At the Primary Level of Education in Nigeria.

As early as 1959, Reid identified the problems of teaching physical education to girls in Western Nigeria as including staffing, equipment and playing space. These were and indeed still are major problems facing physical education all over Nigeria. Kiri (1965) also made mention of these same problems when she said that in spite of hinderances such as lack of playing fields suitable apparatus and adequate staffing, physical education was still taught in early 1960s. Attention was drawn to the fact that a firm foundation for successful participation in physical education must be laid at the primary school level when Adedeji (1972) pointed out that in spite of opportunities that secondary schools offered, the future success of Nigeria in the field of athletics

lies in the elementary schools where early exposure of pupils to current techniques in jumping, running and throwing would give a prospective athlete a good foundation for future competition. He lamented however that though this would be the ideal situation, lack of equipment, insufficient space and inadequately trained teachers in physical education militated against this ideal situation.

In a study conducted by Fatile (1973) to find fact about physical education student teaching supervision practices in Western Nigeria, one of the problems identified by student teachers was that apparatus was lacking in many schools and students had to use their meagre funds to supply whatever they could. Furthermore, the students believed that exposure to actual teaching situations before student teaching was inadequate. Ekanem's findings were identical to Adedaji's when in 1976 he investigated physical education in Nigerian primary schools and teacher training colleges. Ekanem's study (1980) on "Attitude toward Teaching of Physical Education: A Case Study of Students in Zaria Teacher Training Colleges" also revealed that lack of space, lack of equipment and insufficiently trained teachers do not make the teaching of physical education effective at the primary level. Ajasin (1981) investigated the availability of physical education facilities at government approved nursery schools in the Lagos Metropolis. Pertinent findings were also applicable to all three fee paying primary schools that were subsidized in the City of Lagos and which were studied in this particular research. These findings included the fact that facilities were inadequate and that teachers were not sufficiently trained to effectively conduct physical education.

Conclusion of the Review of Related Literature.

This review of related literature briefly stated how the coming of Rudolf Laban, a German Citizen, to England in the 1930s eventually brought about the revolutionary publications of "Moving and Growing" in 1952 and "Planning the Programme" in 1953 by the Ministry of Education, in England. These books meant the introduction of movement education to primary schools where hitherto, the rigid teacher centered physical education was practiced. Movement education which is child-centered in nature according to the Ministry of Education (1952), Jordan (1967), Sweeney (1970) and Snyder (1975), has proven to be valuable for the following reasons: improved body management skills, higher interest of pupils, free movement, and because pupils are encouraged to repeat performances to perfection, improved physical fitness. In addition to these advantages, Freeman (1970) pointed out that equipment used in movement education is relatively inexpensive. Physical education is rarely taught at the primary school level in the City of Lagos. Reasons for this anomaly include lack of space and insufficient equipments. These problems may be circumvented by the introduction of movement education in the primary schools in the City of Lagos.

Principles of movement education can be applied to different areas of physical education. This is exemplified by authors such as Morison (1956), Preston Dunlop (1963) and Mauldon and Redfern (1969), who applied movement education to gymnastics, dance and games respectively. Researchers have compared the movement exploration method of movement education with the explanation-demonstration

method of the traditional mode of physical education. While some researchers found the former method to be more effective, some discovered that the latter was better. However, a third group of researchers found out that there was no statistical significance between the two methods.

Studies of movement education in Nigeria are very limited. The available studies mostly done outside Nigeria dealt with the nature of movement education. However, little or no research on the relative effectiveness of the subject has been conducted in Nigeria. The present study was probably the first of such study. Kiri (1965), Adedeji (1972), Fatile (1973), Ekanem (1976), Akundayo (1980) and Ajasin (1981), had identified various deficiencies in physical education at the primary level of education in Nigeria. These deficiencies which include lack of space and insufficient equipments could be circumvented by the introduction of movement education into the primary schools in the City of Lagos.

CHAPTER THREE

METHOD AND PROCEDURES

Introduction

This chapter is devoted to the description of the procedures used in obtaining and handling the data. The investigation covered the following:

1. Design of the study.
2. Subjects of the study.
3. Situating movement education within the programme for physical education.
4. Selection of testing instruments.
5. Description and administration of the testing instruments.
6. Establishing reliability and validity for the testing instruments.
7. Description and training of the Judges.
8. Description of teaching sessions, and
9. Statistical analysis of the data.

1. Design of the Study.

A quasi experimental research design was used in this study. One of the characteristics of this design is that it typically involves applied settings where it is not possible to control all the relevant variables, but only some of them. The basic purpose of quasi experimental research is "to approximate the conditions of the true experiment in a setting which does not allow the control and/or manipulation of all relevant variables. Isaac et al (1971).

2. Subjects of the Study.

Schools in the Study.

Three primary schools in the City of Lagos were chosen for this study. The City of Lagos was chosen for specific reasons. Problems that militate against the effective teaching of physical education are obvious in the City of Lagos. Problems such as lack of space, inadequate equipment and non-availability of properly trained teachers in physical education are evident. Furthermore, in terms of getting a fairly representative sample, schools in this area are also considered most suitable for this purpose. Lagos, a cosmopolitan city, attracts people from all over Nigeria. The primary schools in the City of Lagos therefore, are most likely to be populated by children from different parts of the country. With such a fairly representative sample of children, the results of the study could be generalised with more confidence. Furthermore, to the best of the knowledge of the investigator, there has not been any such study conducted in any state of Nigeria.

Definition of the Population of the Study.

A list of fee paying primary schools that were subsidized either by the University of Lagos or by the armed forces or by various religious bodies in the City of Lagos was obtained. Altogether, there were seven such schools in the City of Lagos. These schools were as follows, St. Mary's Private Primary School on Lagos Island; An Army Command School was situated on Victoria Island; Maryland accommodated the Private Primary School, Maryland and not too far at Ikeja, situated within an Army Cantonment was another

Primary School. In Yaba area, there were three primary schools that were subsidized. These schools included the University of Lagos Staff School, an Army Command School and the private primary section of Our Lady of Apostles.

The present study was embarked upon in 1980. A year before this, the Lagos State civilian government had outlawed all fee paying schools. Instead, State schools which offered free primary school education, proliferated. Apart from the fee paying schools which were subsidized either by the University, or by the military forces, or by a religious body, there was yet another group of private primary schools that was not subsidized. All the Corona Schools, St. Saviors at Ikoyi and primary schools specially instituted to cater for particular nationalities such as the Dutch, and the Lebanese, fell in this category.

Names of areas in the City of Lagos, where the subsidized fee paying schools were situated, were written on separate pieces of paper. The areas were, Lagos Island, Yaba, Victoria Island, Maryland and Ikeja. These pieces of paper were thrown in a box and a blind-folded child was asked to pick three pieces of paper out of the box. Ary et al (1972) suggested that this is a valid random sampling technique. The pieces of paper with Lagos Island, Yaba and Maryland written on them were picked. This meant that St. Mary's Private Primary School and the Private Primary School, Maryland were automatically chosen. However, as there were three subsidized private primary schools in Yaba area of the City of Lagos, some elimination had to be made. University of Lagos Staff School was eliminated because the Pilot Study of this research, was conducted

there only a month beforehand. Names of the remaining two schools in Yaba were written out on separate pieces of paper and a blind-folded child was asked to pick one piece of paper out. The Children's Command School, Yaba was thus picked.

The three schools eventually selected to represent the fee paying primary schools that were subsidized were

Children's Command School, Yaba.

The Private Primary School, Maryland and

St. Mary's Private Primary School, Lagos.

Criteria for Selection of the Schools.

Three fee paying primary schools which were subsidized were chosen by random sampling technique in the City of Lagos. All the fee paying primary schools (subsidized or otherwise), together with the non fee paying schools in the City of Lagos, were coeducational.

The criteria for selecting fee paying primary schools that were subsidized were as follows: they were similar in terms of availability of space and of equipment. Moreover, these schools did not have specialist teachers in physical education. Incidentally, the University of Lagos Staff School did have a specialist teacher in physical education but this particular school was eliminated as the Pilot Study was conducted there. However, no other fee paying primary school that was subsidized in the City of Lagos had a specialist teacher in physical education. Instead, the regular class teacher taught all subject, which in all cases included physical education.

Distribution of Children per School.

In some schools in the City of Lagos, there are as many as five arms of each class. Each arm accommodates as many as fifty children. Two arms of Class III of each already identified schools were selected by simple random sampling method for the present study.

Such pupils represented by boys and girls were aged between 7 and 9 years of age.

For the purpose of this study, a total of 42 pupils, 21 boys and 21 girls were randomly chosen from each class. The reasons for randomly choosing a total of 42 boys and girls were:

- (a) To make for a more objective randomization, because in two of the schools, namely Children's Command School, Yaba and St. Mary's Private School, Yaba, the total number of children per class did not exceed 50.
- (b) The child centered nature of movement education requires more individualised attention. If the total number of pupils exceeded 42, meaningful attention could not have been given. Altogether 252 pupils participated in the study at the beginning of the project (see Table 1).

TABLE I

Size of Classes in the Study in Respect of
Each Group at the Beginning of the Study.

Schools	Physical Activities Group			Movement Education Group			
	1	2	3	1	2	3	TOTAL
Boys	21	21	21	21	21	21	126
Girls	21	21	21	21	21	21	126
Total	42	42	42	42	42	42	252

Key: School 1 = Children's Command School, Yaba.

School 2 = Private Primary School, Maryland.

School 3 = St. Mary's Private Primary School, Lagos.

However, by the end of the study experimental mortality totalled 24 which meant that a total of 228 pupils remained. Reasons for this are as follows:

In Children's Command School, Yaba, two pupils one boy and one girl were absent on the days the post tests were conducted. In addition to these missing pupils, one girl left for the United States of America before the study was concluded. In the Private Primary School, Maryland, two boys and two girls were not present at school on the days post tests were conducted. In St. Mary's Private Primary School, Lagos two boys and two girls were absent on the days the post tests were conducted. In an attempt to equalise the number of boys and girls who took part in the project, a boy's

name was picked randomly from the list of names of boys taking part at Children's Command School, Yaba. The eventual number of children who participated in the project totalled 228. An attempt to make the size of classes uniform was made in order to facilitate data handling. Table II shows the distributions of children per school at the end of the study.

TABLE II

Size of Classes in the Study in Respect of Each Group at the End of the Study.

	Physical Activities Group			Movement Education Group			TOTAL
	1	2	3	1	2	3	
Schools							
Boys	19	19	19	19	19	19	114
Girls	19	19	19	19	19	19	114
Total	38	38	38	38	38	38	228

Key: School 1 = Children's Command School, Yaba.

School 2 = Private Primary School, Maryland.

School 3 = St. Mary's Private Primary School, Lagos.

Classes and Groups.

2 arms of Class III of the chosen schools were used for the study. Altogether, 6 classes were used in the study. One arm of Class III was taught physical activities, using the explanation-demonstration method, while the other arm of Class III was taught movement education using the movement exploration method. The class taught physical activities constituted one group, while the class taught movement education constituted another group.

The groups, two in each school, were assigned to be taught either physical activities or movement education quite arbitrarily, based on the assumption that the groups were similar. This assumption was given support by the fact that at the pre testing stage of the Pilot Study, there was no statistical significant difference in the performances of children in both groups.

Chosen Age Group.

Children between seven and nine years were chosen for this study for various reasons. Firstly, children of this age group have not succumbed to increasing peer pressures for conformity.

As Torrance says:

"...Being different doesn't bother young children, but year by year they became more afraid of being individuals, of being themselves. The awesomeness of being considered different or divergent is well understood by children in the fourth, fifth and sixth grades...." (Torrance 1969, p. 27).

The second reason for choosing children aged between seven and nine years is that by the time children have already spent two years in the school, they should be used to various experiences brought about by the nature of the school curriculum. Of this seven year olds, Gesell et al (1943) said:

".... It is an assimilative age, a time for salting down accumulated experience and for relating new experiences to the old."

Movement education was to be yet another new experience for the seven year olds and a little older children in this study. These children were expected to be able to relate the new experience to knowledge already gleaned about the fundamental movements of running, jumping and throwing.

The ages, 7, 8 and 9, were established initially by records produced by the class teachers of the two classes per school, or the total six classes of the three different schools of the study. To confirm information given by the various teachers, on the first day of testing, before the commencement of the pre tests, the Judges who administered the tests and scored the performances, asked all pupils their names and ages. This exercise served two purposes, firstly it verified informations already given by respective teachers, secondly, it helped in the familiarisation of the Judges and the pupils.

3. Situating Movement Education Within The Programmes for Physical Education.

The school subject chosen for this study was physical education. For the purpose of this study the movement exploration method of movement education was used to teach some selected physical activities to the movement education group while the explanation-demonstration method typical of physical education was used to teach similar selected physical activities to the other group designated physical activities group.

Reasons for Movement Education.

The objectives of physical education and subsequently those of movement education are development of ~~motor skills~~, acquisition of knowledge and understanding associated with sports, exercise and dance and emotional development.

The following problems are experienced in the City of Lagos as regards the effective teaching of physical education.

1. There is lack of space.
2. Necessary equipment are not sufficient if available at all, and
3. Properly trained teachers are not available at the primary level to teach physical education.

As a result of these shortcomings, physical education is rarely taught at elementary schools in the City of Lagos. Without the teaching of physical education, its objectives cannot be realised.

Steps were taken to prevent, as much as possible, the contamination of experimental results by extraneous factors. Factors such as the teachers teaching the different experimental groups having unequal teaching abilities, or the children not being of the same age group. Incidentally 7-9 years is considered to be an age group as one could expect to find children of that age range in Class III. This fact applied to Class III children attending fee paying schools which are subsidized, in the City of Lagos.

Two groups were identified as either the physical education group or the movement education group. The reason for this division was that the design of the study, being quasi experimental required a comparison between the two identified groups to be made. Such an exercise would indicate whether or not differences occur after treatment would have been given. In this present case the treatment was to be teaching the physical activities group using the explanation-demonstration method, or teaching the movement education group using the movement exploration method. These two different groups were pretested, to determine their level of physical fitness and that of sports skills, prior to the treatment phase of the experiment.

4. Selection of Testing Instruments.

Established motor skill and physical fitness norms for seven year old children and a little over, are practically non-existent in known physical education research. Among the few researches carried out in physical observations are those by Jenkins (1930), Carpenter (1940), Clarke (1945), Scott et al (1959) and Sheehan (1971).

Two batteries of tests were established for use in the present study to determine

- (a) physical fitness level of 7-9 year old few selected Nigerian boys and girls, and
- (b) sports skills level of 7-9 year old few selected Nigerian boys and girls.

Both batteries of tests had been scaled down from suggested tests for 7-9 year old children in a physical fitness programme and a sports skills' programme. The suggested tests were made by Arnheim and Pestolesi (1978).

Specifically, the Physical Fitness Tests battery consisted of Wall Push Away, Abdominal Curl, Straight Back Raise, Front Lunge, Zig Zag Run and Bench Step. See Diagrams 1, 2, 3, 4 and 5. The Zig Zag Run was not included as the act of running is familiar.

Included in the Sports Skills Test battery were the following test items: 40 yard Dash (36.6 metres) Tennis ball Throw and Standing Long Jump. See Diagrams 6 and 7.

The former battery of tests sought to test specific physical attributes necessary for successful performance. Physical attributes such as joint flexibility, muscular strength, stamina, balance and coordination. While the latter battery of tests sought to measure explosive strength and speed flexibility.

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Diagram 1.

Wall Push Away

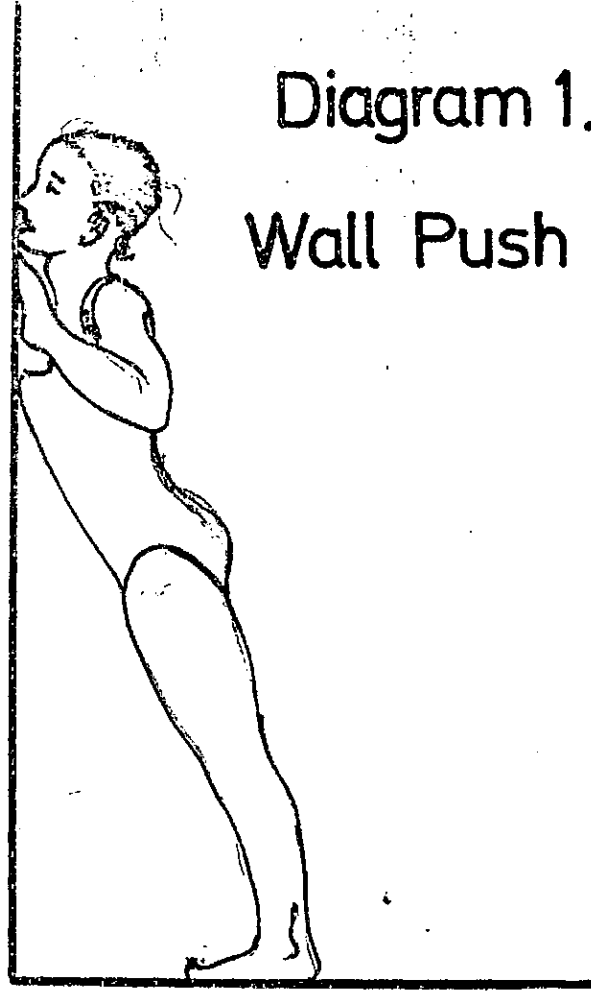
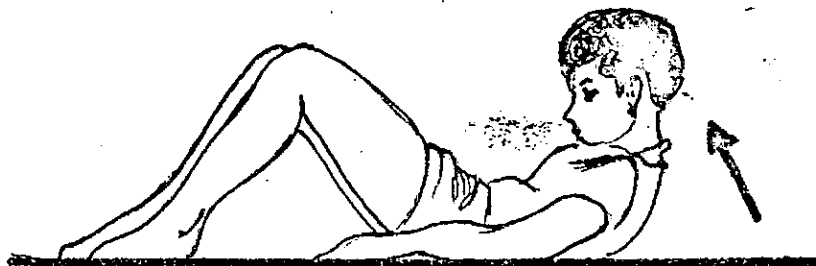


Diagram 2.

Abdominal Curl.



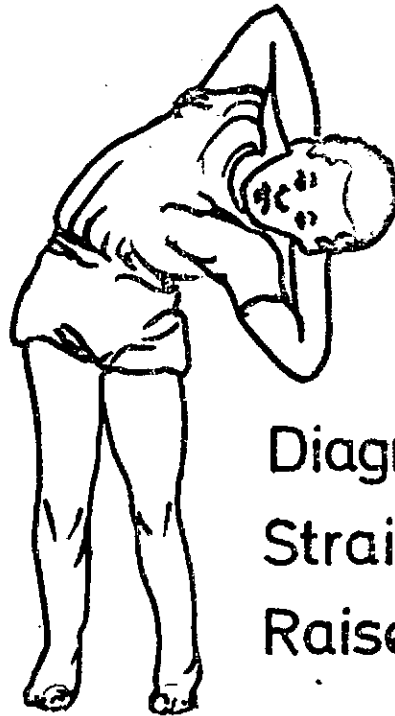


Diagram 3.
Straight Back
Raise.

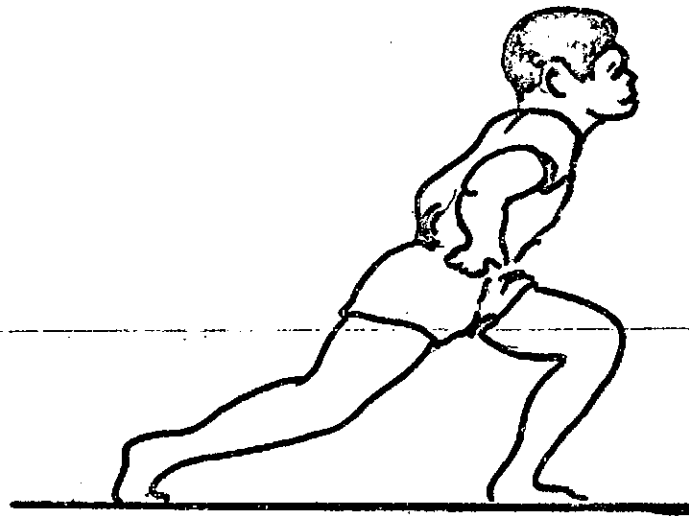


Diagram 4.
Front Lunge.

Diagram 5.
Bench Step.

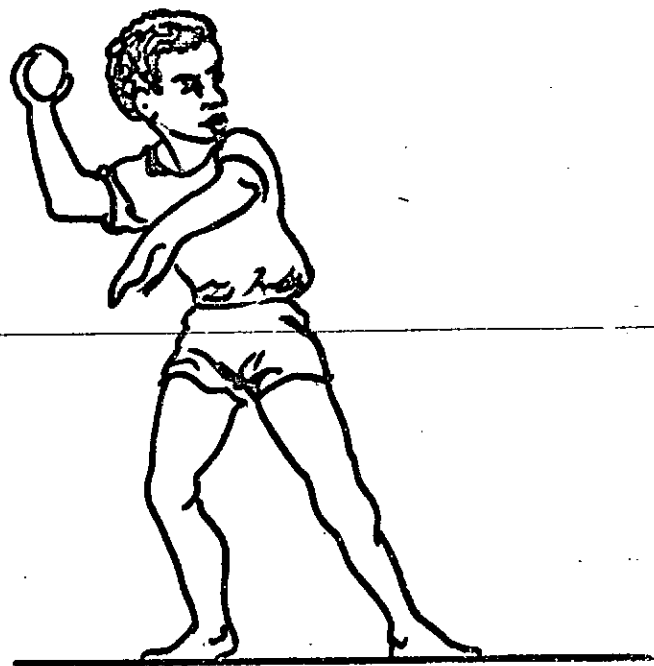


Diagram 6.
Tennis Ball Throw.

55.



Diagram 7.
Standing Long Jump.

5. Description and Administration of the Testing Instruments.

Necessary Consideration for Effective Administration of Tests to the Physical Activities Group and the Movement Education Group.

1. It is important that the child being tested thoroughly understands the directions of each test. The examiner (judge) must therefore DEMONSTRATE, as well as VERBALLY EXPLAIN each aspect of the test before it is executed.
2. Good rapport must be established with the child. He is to be encouraged to put forth his best effort.

Specific Administration and Scoring Procedures of the Physical Fitness Tests.

1. Wall Push Away: Test objective of the Wall Push Away was to test arm and shoulder strength and muscle endurance. This is a lead-up activity to regular floor push-ups.

Regulation: The child stands facing the wall with the arms extended at shoulder height, and with the feet a comfortable distance apart positioned about 2 feet from the wall.

Action: The child places the hands on the wall a shoulder width apart and directs the body to the wall until the chest touches. After the child's chest touches the wall, the arms are extended and the body is pushed away from the wall. See Diagram 1.

Scoring: Count the number of correct wall push-aways the child can do WITHIN A 20 SECONDS TIME LIMIT.

2. Abdominal Curl. The test objective of the Abdominal Curl was to test upper abdominal muscle strength and endurance. This facilitates future performance in the sit-up.

Regulation: The child lies on his back with his knees bent and arms at the side of the body.

Action: The child lifts the head up until the chin touches the chest. This having been achieved, the child returns to the starting position. See Diagram 2.

Scoring: Count the number of abdominal curls the child can do WITHIN A 20 SECONDS TIME LIMIT.

3. Straight Back Raise. Test objective of the Straight Back Raise was to test back extensor strength.

Regulation: The child stands with legs comfortably spread with hand clasped behind the neck.

Action: Keeping the back straight and the elbows even with the ears, the child slowly bends from the waist to a right-angle position. He then returns slowly to a standing position. See Diagram 3.

Scoring: One straight back raise is counted each time the child returns to a standing position. Count the number of straight back raises the child can be WITHIN A 20 SECONDS TIME LIMIT.

4. Front Lunge. Test objective of the Front Lunge was to test leg strength and muscle endurance.

Regulation: The child stands straight with hands on his hips.

Action: The child lunges with the left foot (or right) forward, shifting the weight forward and keeping the trunk straight. Then he returns to the starting position only to lunge forward with the right (or left) foot. It is important that the movement is quick. See Diagram 4.

Scoring: Count the number of lunges the child can make
WITHIN A 20 SECONDS TIME LIMIT.

5. Zig Zag Run. Test objective of the Zig Zag Run was to test agility.

Regulation: The child stands erect at the starting line.

Action: At the word "Go!" the child runs as fast as possible in a zig zag course around FIVE chairs which act as obstacles. A total distance of 30 yards is to be covered.

Scoring: The time, IN SECONDS AND TENTHS OF SECONDS, required to complete the course is recorded.

6. Bench Step. Test objective of the Bench Step was to test cardiorespiratory: endurance, leg strength and muscle endurance.

Regulation: The child faces the bench, standing in an erect position with the feet together and the arms at the side.

Action: At a signal, the child steps up onto the bench. He stands erect with both feet together on the bench, then steps back down returning to the starting position. See Diagram 5.

Scoring: Count the number of bench steps the child can make within a 20 SECONDS TIME LIMIT.

Specific Administration and Scoring Procedures of the Sports Skills Tests.

1. 40 Yards Dash (36.6 metres) Test objective of the 40 yd. Dash (36.6 metres), was to test explosive strength and speed.

Regulation and Action: The runner stands behind a starting line. The timer stands at the finish line. On the command, "Get set, go!" the stop watch is instantaneously started and the runner

dashes the 40 yards (36.6 metres).

Scoring: Time required to complete the 40 yards (36.6 metres), is recorded in seconds and tenths of seconds by the timer.

2. Tennis Ball Throw for Distance. Test objective of the Tennis Ball Throw for distance was to test explosive strength and flexibility of the shoulder girdle.

Regulation and Action: The child throws as far as possible from a restraining area that is indicated by two parallel lines 6 feet apart. Three attempts are allowed. See Diagram 6.

Scoring: The greatest distance out of the three throws is recorded.

3. Standing Long Jump. Test objective of standing Long Jump was to test explosive strength of leg, thigh and low back.

Regulation and Action: The child stands with feet comfortably separated and with toes behind a take-off line. On the command "jump", he leaps with both feet simultaneously as far forward as possible, landing on both feet. The greatest distance is achieved by extending both knees at the same time and swinging both arms forward. See Diagram 7.

Scoring: The best out of three trials is recorded. Measurement is taken from the closest heel to the starting point. If the child is unable to maintain balance after the jump and falls back on the hands, measurement must be taken from that point.

The physical fitness tests, together with the sports skills tests used in this study involved procedures that appeared to meet Seil's criteria for the selection of test items for elementary

school children. On Seil's recommendations,

1. test items were rejected that might provide test administration difficulties and consequently influence the subjects' performance;
2. simple equipment was used;
3. lengthy test items were avoided and skilled tasks rejected if they required the amount of effort on the part of the child that could be conducive to fatigue. This would interfere with reliability of performance. (Seil, 1951).

The skills included in the above tests were suggested for use for 6-9 year old children. Specifically, selection were made from the works of Andrews (1957), Jones et al (1950), Pearson (1958), Evans et al (1958) and Arnheim et al (1978).

The criteria used for the selection of skills for the testing instruments were:

1. That they were fundamental movements, and as such, they are considered basic for the 6-9 years old children, and
2. that they would be readily observable. This would make it possible for the judges to rate the various performances.

Parameters Tested in the Various Tests Included
In the Physical Fitness Battery of Tests.

According to Arnheim et al (1978, pp. 223-231), the purpose of Wall Push Away was to test arm and shoulder strength and muscle endurance. As regards Abdominal Curl, the upper abdominal muscle

strength and endurance were being tested. The third test item in this battery of tests was Straight Back Raise which aimed at testing back extensor strength. Next came the Front Lunge which specifically tested leg strength and muscle endurance. The fifth test, Zig Zag Run, tested the agility of the subjects and finally, the purpose of the Bench Step was to test cardiorespiratory endurance, leg strength and muscle endurance.

Parameters Tested in the Various Tests
Included in the Sports Skills Battery of Tests.

According to Arnheim et al (1978, pp. 221-222) the purpose of 40 yd. Dash (36.6 metres), was to test explosive strength and speed while the objective of "Tennis ball" (tennis ball was substituted for softball) Throw, was to test explosive strength and flexibility of the shoulder girdle. Standing Long Jump specifically tested the explosive strength of the leg, thigh and low back.

Refinement of the Testing Instruments.

The measurement instruments, particularly as they were scaled down from already existing similar measurement instruments, which were meant for older children, needed to be refined before they were finally used in the main study. The pilot study provided the opportunity for which to do so. The test items of the two batteries of tests did not prove too difficult, neither did they prove too simple for the subjects to perform or understand. This is evidenced by the fact that a fair proportion of subjects fell within the different ranges of performance abilities from superior to inferior. Very few subjects proved either superior or inferior when rated in Physical Fitness Tests and in Sports Skills. Instead,

the majority of pupils fell in the middle-range. (see Appendix 1 and Appendix 2 respectively). The Rating Scale Norms used in the present study had been approved by the supervisor of this study.

Rating Norms for this Experiment.

Rating norms in respect of

1. physical fitness tests and
2. sports skill test were established.

The rating norms were arrived at after observing children of the appropriate age group perform the necessary skills. In such cases, children of the appropriate age group were either timed or judged as to how many correct responses they could make in a specified time. The rating norms thus arrived at were again further refined at two sessions of pre testing and also two sessions of post testing. The first pre testing was conducted immediately before the treatment period of the pilot study and the post testing was done immediately after the treatment period. The same pattern was repeated in respect of the actual study. It was at the two different pretesting periods and at the two different post testing periods that the rating norms were refined. The scaling down, the refinements and the final norms for this experiment were all approved by the supervisor of this study.

This exercise initially provided validity for the rating norms used in the study. Content validity was later established after the two sessions of pretesting and the two sessions of post testing were conducted. The purpose of establishing norms for the Physical Fitness Tests and the Sports Skills Tests was to be able to evaluate subjects that are being tested with the above instruments, more objectively.

6. Establishing Reliability and Validity For the Testing Instruments.

One of the reasons for conducting a Pilot Study was to establish reliability and validity for the testing instruments. This was necessary because firstly the original tests which were suggested by Arnheim et al (1978) were meant for children from another part of the world namely America. Secondly one of the test items, the 40 yd. Dash was scaled down from 50 yds. a distance meant to be covered as quickly as possible by 10 year old children and a little above.

The testing instruments were pre-tested at the University of Lagos Staff School, a fee paying but subsidized primary school. The Staff School was similar to the schools which were eventually purposefully sampled for the study, in that they were not only fee paying, but they were also subsidized. However, the University of Lagos Staff School was not considered as one of the similar schools when purposeful randomisation was made.

Establishing Reliability and Validity for the Physical Fitness Tests.

Six tests for six different aspects of physical fitness were identified based on test items in physical fitness used by other researchers among them Scott (1967), Goodwin (1970) and Dougherty (1970). In order to show that the selected skills measured what they purported to measure, content validity was established. This was achieved during the Pilot testing. Having thus established content validity, the six test items which included Wall Push Away, Abdominal Curl, Straight Back Raise, Front Lunge, Zig Zag Run and Bench Step were administered to sixty Class III boys and girls aged

between seven and nine years. The tests were administered to provide data for test reliability. All reliability coefficients are reported in terms of the Pearson-Product Moment correlation of test-retest scores. The six test items were repeated by all subjects on a second testing day so that day-to-day variability in performance might be examined.

TABLE III

Reliability Coefficients of the Physical Fitness Test
(N = 60)

(Test-retest Method).

Test Items		r
1.	Wall Push Away	0.64
2.	Abdominal Curl	0.84
3.	Straight Back Raise.	0.87
4.	Front Lunge	0.92
5.	Zig-Zag Run	0.97
6.	Bench Step	0.91

Since the test-retest reliability was greater than 0.80 in five out of the six test items and greater than 0.60 in the remaining one test item of the Physical Fitness Test battery of tests (see Table III) all test items, together with the scoring procedures were retained.

Even though the Wall Push Away had a relatively low reliability, it was not eliminated from further consideration because it represented a facet of physical performance, that is, arm and shoulder strength and muscle endurance, that was considered to be worth evaluating in young children.

Establishing Reliability and
Validity For the Sports Skills Tests.

Three test items were selected based on the test items in sports skills used by other researchers among them Howard (1960), Sande (1968), Masche (1970) and Toole (1982). This provides content validity. Having thus established content validity, the three test items which included 40 yard Dash (36.6 metres), Tennis Ball Throw for Distance and Standing Long Jump were administered to sixty Class III boys and girls aged between seven and nine years. A complete description of these tests can be found earlier on. The subjects attended the University of Lagos Staff School in the City of Lagos. The tests were administered to provide data for the test reliability. All reliability coefficients were reported in terms of the Pearson-Product-Moment correlation of test-retest scores. The three test items were repeated by all subjects on a second testing day so that day-to-day variability in performance might be examined.

TABLE IV

Reliability Coefficients of the Sports Skills Tests.
(N = 60)

(Test-retest Method)

Test Items	r
1. 40 yard dash (36.6 meters)	0.81
2. Tennis ball throw	0.99
3. Standing long jump	0.99

Since the test-retest reliability was greater than 0.80 in all three test items of the Sports Skills Tests (see Table IV), all the test items, together with their scoring procedures were retained.

7. Description and Training of the Judges.

There were 18 Judges in all. 2 Judges were positioned at each of the 9 testing areas. (There were 6 testing areas - a testing area for each test item - in respect of the battery of Physical Fitness Tests, and there were 3 testing areas - a testing area for each test item - in respect of the battery of Sports Skills Tests.)

These Judges, at the time of this research, were second year undergraduate students at the Department of Physical Education, University of Lagos. To have reached this level in their academic carriers, the students had had a previous 3 years training partially in physical education at the end of which period they would have been awarded the National Certificate of Education (N.C.E). The other alternate admission requirement was that having taken their school leaving certificates, and passed, they could have taken an examination organised by the Joint Admission and Matriculation Board (J.A.M.B.). Which examination, if successful in, granted them admission into the University of their choice. All 18 Judges used in the present study belonged to the first category.

It was necessary to engage people knowledgeable about physical education as judges because not only did they have to demonstrate specific skills which were physical in nature, they also had to be able to recognise correct responses in the subjects. Incorrect performances would necessitate a subject having to repeat the performance after he would have taken a short rest.

Specific duties were given to the Judges. These duties included first explaining, with demonstrations, precise actions required, then ascertaining that the demonstrated activities had

been correctly executed by the subjects who performed one after the other. The second set of specific instructions detailed the second Judge at any given testing area to either time or count or measure the performance of each subject. It was also this second Judge that was told to enter scores of every performance into the score sheets that were provided.

Irrespective of the fact that the Judges had some training already in physical education, and presumably were already knowledgeable about right performance of basic and general skill pertaining to physical education, the Judges were specifically trained to demonstrate as well as recognise the responses peculiar to the various activities included in the Physical Fitness Tests and the Sports Skills Tests.

The Judges originally used each other as subjects before they applied the administrative stages of the tests to the subjects of the Pilot Study. This initial practise was necessary because of the need to establish precision of action in demonstrating and also clarity of instructions which were later to be given to the subjects.

The above two stated objectives for training Judges were achieved because subjects in the study neither asked to have explanations or demonstrations repeated nor did they perform the various test items incorrectly.

A very important point that was stressed during the training period of these Judges, was the need to encourage all students to exert themselves maximally in all test items. This was necessary so that the true test abilities of the subjects could be recorded in all test items.

Criteria for Scoring the Physical Fitness Tests.

For the physical fitness tests:

1. Wall push away, the number of correct responses within a given time was recorded per pupil, in their respective group before the collective data was subjected to the stated statistical treatments.
2. In respect of abdominal curl, the number of correct responses were again noted within a given time.
3. Straight back raise also had the number of correct responses noted within a given time.
4. Front lunge, similarly with the foregoing tests also had the number of correct responses noted within a given time.
5. As regards Zig-Zag run, the time spent in completing the given course was recorded in seconds and tenths of seconds.
6. To quantify the last test which was bench step, the number of correct responses were noted within a given time.

Criteria for Scoring the Sports Skills Tests.

For the sports skills:

1. 40 yd. dash (36.6 metres) the time required to cover 40 yds. (36.6 metres) was recorded in seconds and tenths of seconds.
2. Tennis ball throw was recorded in terms of metres and centimeters.
3. Standing long jump was also recorded in terms of metres and centimeters.

Administration of the Testing Instruments.

At the beginning of the third and final term of the school year, pupils chosen for the study were pre-tested in

1. physical fitness and
2. sports skills.

All subjects in Children's Command School, Yaba were given the pre-tests on April 27th 1983. All subjects in Maryland's Private Primary School, Ikeja were given the pre-tests on April 28th 1983. Likewise, all subjects in St. Mary's Private Primary School, Lagos were given the pre-tests on April 29th 1983.

For consistency, these pupils took the tests at the same time of the day, that is between 8.15 a.m. and 11.00 a.m. This is so in order to avoid the debilitating heat of the afternoon hours. The morning hours were chosen for the study because by 4.00 p.m., schools would have been over for the day.

All tests were conducted and scored by specially trained Judges. Altogether, there were 9 testing areas - 6 testing areas for the Physical Fitness Tests and 3 testing areas for the Sports Skills Tests. At each of the 9 testing areas were 2 Judges who either conducted or scored the various performances made by the subjects. One Judge first explained what precise actions were required and then ascertained that the subjects performed correctly. The other Judge timed the various performances. While the Judges conducted, timed and scored the subjects, the Researcher went round to make certain that all duties were being carried out in the prescribed manner.

8. Description of Teaching Sessions.

The two experimental groups namely the physical activities group and the movement education group were taught by the investigator with the cooperation and permission of:

1. The Officer-In-Charge, Education Division,
Army Cantonment, Ikeja.
2. The Headmistress of Maryland's Private Primary School,
Ikeja.
3. The Headmistress of St. Mary's Private Primary School,
Lagos.

The two specified groups existed in each of the three experimental schools. Each group was given a total of sixteen teaching periods during which specified teaching materials and methods were used.

The enrolment of each of the two groups in each of the above schools, ranged between thirty-eight and forty-two pupils. Each group per school was scheduled for approximately three lessons per week. Each lesson lasted twenty minutes. Lessons given to one group centred around physical activities, while lessons given to the other group centred around movement education.

The two different programmes used in the present study - One in physical activities and the other in movement education - attempted "... to permit each pupil to acquire the level of physical fitness and proficiency his potential permits, and of sufficient flexibility to permit each pupil to develop the skills he needs to participate in physical activities of his choice." (Arnheim et al, 1978).

Some Characteristics of Children
Aged Between Seven and Nine Years.

In order to draw up meaningful programmes for the two groups of subjects used in the present study, characteristics of children aged between seven and nine years as identified by Gesell et al (1946) and Arnheim et al (1978), were considered. These characteristics are as follows:

1. Large muscles are more developed than the smaller muscles.
2. Short attention span.
3. Individualistic and possessive.
4. Dramatic, imaginative, imitative, creative and curious.
5. Active, energetic and responsive to rhythmic sounds.
6. Desire chances to act on their own and are annoyed at conformity.
7. Seem to be in perpetual motion.
8. Eye hand coordination well established.
9. Body balance is improving.
10. Children able to focus on near object for longer time.
11. Show little fear in stunts and on apparatus.
12. Do not care to wait for turns.
13. Do not accept criticism too well, but thrive on praise.
14. Tire easily but recover quickly.
15. Enjoy playing in small groups rather than in one large group.
16. Children enjoy vigorous body activities.
17. Do not lose willingly. Have to be helped in acknowledging that they have been caught in tag games.
18. Learn best through active participation.

19. Have difficulty in making decisions.
20. Tend to go to extremes.
21. Sexes keep pace with each other in physical development, attitudes and interest.
22. Wide range of individual differences.
23. Children have more interest in games requiring small muscle control.

Bearing some characteristics of children between seven years of age and nine years of age as suggested by Gesell et al (1946) and Arnheim et al (1978) in mind, the general plan of each class was designed.

The General Plan for Each Experimental Group.

The general plan of the investigation was to divide (a) physical activities classes and (b) movement education classes, into sections. Each physical activities class session. was divided up thus:

1. The INTRODUCTION segment which is to last for five minutes is to involving running and all forms of "tag."
2. INSTRUCTION PERIOD of seven minutes. During this time new activities were explored and previously-learned skills were practiced.
3. GROUP ACTIVITIES, RELAYS AND TEAM GAMES. A period of eight minutes was devoted to this section.

The movement education class was divided up thus:

1. The INTRODUCTION segment which lasted for four minutes involved some form of travelling activity to reawaken awareness of general space and to establish relationship with the teacher.

2. The MOVEMENT TRAINING stage covered aspects which were later to be brought into the last stage, the CLIMAX STAGE.
3. The CLIMAX, based on the MOVEMENT TRAINING section involved use of percussive instruments as well as nursery rhymes and short stories.

Having presented the general plan of lessons given to each group, the INDIVIDUAL PLANS used in the programme of physical activities, covering the sixteen classes which were given, will now be stated.

Individual Plans Used in the
Programme of Physical Activities.

The following group of activities represented the typical physical activities lesson of the present study:

1. Individual and dual activities.
2. Chase and tag games.
3. Relay type games.
4. Apparatus, stunts and tumbling.
5. Singing games and dances.

1. Individual and Dual Activities.

Activities usually included in this area are tennis, badminton hand ball, and the like. As a rule, these activities are not included in the elementary school physical education programme. Nonetheless, some time should be provided in the physical education programme for the practicing of skills on an individual basis or with a partner. Bouncing, catching, throwing, kicking dribbling and batting are examples of these skills. Other activities included in this area which are suitable for the elementary school are: rope

Testing Specific Hypotheses - Girls.

Differences in the Pre Test of Physical Fitness Tests. (Girls)

It may be seen from figures presented in Table XIII, that differences between girls in the physical activities group and girls in the movement education group are not statistically significant in all six test items of the physical fitness battery of tests.

TABLE XIII

Comparison on Pre Test Mean Scores of the Girls
on Physical Fitness Tests.

N (P.A. = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away P.A.	9.9474	1.042	-0.73	56	2.01	NS
" " " M.E	10.1053	1.113				
2. Abdominal Curl P.A.	14.2281	1.547	1.06	56	2.01	NS
" " M.E	13.8947	1.460				
3. Straight Back Raise P.A.	14.5263	2.338	0.84	56	2.01	NS
" " " M.E	14.1414	2.318				
4. Front Lunge P.A.	18.0877	3.258	0.97	56	2.01	NS
" " M.E	17.5263	3.112				
5. Zig Zag Run P.A.	12.4245	1.242	-0.77	56	2.01	NS
" " " M.E	12.6035	1.200				
6. Bench Step P.A.	12.2105	1.521	0.12	56	2.01	NS
" " M.E	12.1754	1.501				

Key

NS = Not significant
PA = Physical Activities Group
ME = Movement Education Group .

Differences in the Post Test of Physical Fitness Tests. (Girls)

Going by results presented in Table XIV, while scores obtained by the two groups under investigation failed to reach the stipulated 0.05 confidence level in test items Abdominal Curl, Straight Back Raise and the Front Lunge, Differences between the two groups were significant in the remaining three test items. The girls in the physical activities group were significantly better at the 0.01 confidence level in test items Wall Push Away and Bench Step, while girls in the movement education group were significantly better at the 0.01 confidence level in Zig Zag Run.

TABLE XIV

Comparison of Post Test Mean Scores of Girls on
Physical Fitness Tests.

N (P.A = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away P.A.	14.0175	2.303	3.75	56	2.68	**
" " " M.E	12.6316	1.205				
2. Abdominal Curl P.A.	18.7368	1.828	0.0	56	2.01	NS
" " " M.E	18.7368	1.828				
3. Straight Back Raise P.A.	17.4211	1.772	-1.53	56	2.01	NS
" " " M.E	18.1228	2.626				
4. Front Lunge P.A.	23.6140	3.406	-0.30	56	2.01	NS
" " " M.E	23.7895	3.426				
5. Zig Zag Run P.A.	11.6930	1.228	4.80	56	2.68	**
" " " M.E	10.4526	1.370				
6. Bench Step P.A.	14.0175	1.587	3.20	56	2.68	**
" " " M.E	12.9825	1.778				

Key

** = Significant at .01 confidence level

NS = Not significant

PA = Physical Activities Group

ME = Movement Education Group.

Difference in the Pre-Test of Sports Skills. (Girls)

There was no significant difference at the stipulated 0.05 confidence level between scores obtained by the physical activities group and those obtained by the movement education group in test items 40 yards/36.6 metres Dash and Standing Long Jump. However, there was a significant difference between the two groups at the stipulated 0.05 confidence level in test item Softball Throw. When the confidence level was set at 0.01, there was no significant difference between the two groups. Table XV has all results.

TABLE XV

Comparison on Pre Test Mean Scores of the Girls
On Sports Skills Tests.

N (P.A = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash P.A	9.1491	0.920	0.08	56	2.01	NS
" " " " M.E	9.1368	0.908				
2. Softball Throw P.A	15.4910	0.843	2.53	56	2.01	*
" " M.E	15.0701	0.926				
3. Standing Long Jump P.A	1.4095	0.178	-0.31	56	2.01	NS
" " " M.E	1.4184	0.171				

Key

- * = Significant at .05 confidence level
- NS = Not significant
- PA = Physical Activities Group
- ME = Movement Education Group.

Differences in the Post Test of Sports Skills Tests. (Girls)

Table XVI show that while differences that occurred at the post test level were not significant at the stipulated 0.05 level of confidence in two test items namely the 40 yards/36.6 metres Dash and the Standing Long Jump not only was differences obtained significant at the stipulated 0.05 confidence level in test item Softball Throw, differences obtained were also significant at the 0.01 level of confidence. Pertinent results are shown in Table XVI.

TABLE XVI

Comparison of Post Test Mean scores of Girls on
Sports Skills Tests.

N (P.A = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash P.A	8.0631	0.850	-1.34	56	2.01	NS
" " " " M.E	8.2508	0.866				
2. Softball Throw P.A	18.4929	1.306	3.12	56	2.68	**
" " M.E	17.9219	0.829				
3. Standing Long Jump P.A	1.4947	0.161	-0.09	56	2.01	NS
" " " M.E	1.4974	0.171				

Key

** = Significant at .01 confidence level
 NS = Not significant
 PA = Physical Activities Group
 ME = Movement Education Group.

Testing Specific Hypotheses - Boys Versus Girls.Differences in the Pre-Tests of Physical Fitness Tests.
(Physical Activities Boys Versus Physical Activities Girls)

It was necessary to compare the boys in the physical activities group and girls in the same group on the physical fitness tests battery. Figures obtained when this was done are presented in Table XVII. Not only were there differences between the two groups under consideration, but these differences were significant at the stipulated 0.05 confidence level in two test items, namely the Wall Push Away and the Straight Back Raise. Differences were significant at the 0.01 level of confidence in the remaining four test items, namely the Abdominal Curl, the Front Lunge, Zig Zag Run and Bench Step.

TABLE XVII

Comparison of Pre-Test Mean Scores on Physical Fitness Tests
Between Boys and Girls in the Physical Activities Group.

N (Boys = 57 and N(Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away Boys	10.5088	1.104	2.62	56	2.01	*
" " " Girls	9.9474	1.042				
2. Abdominal Curl Boys	17.0526	1.977	8.02	56	2.68	**
" " Girls	14.2281	1.547				
3. Straight Back Raise Boys	15.3684	1.484	2.61	56	2.01	*
" " " Girls	14.5263	2.338				
4. Front Lunge Boys	20.9825	4.029	4.13	56	2.68	**
" " Girls	18.0877	3.258				
5. Zig Zag Run Boys	11.7526	1.210	-2.93	56	2.68	**
" " " Girls	12.4245	1.242				
6. Bench Step Boys	13.6667	1.629	4.93	56	2.68	**
" " Girls	12.2105	1.521				

Key.

** = Significant at .01 confidence level.

* = Significant at .05 confidence level.

Differences in the Post Test of Physical Fitness Tests.
(Physical Activities Boys Versus Physical Activities Girls)

Although the initial difference of test mean scores for the two groups under consideration did not permit the post-test comparison for significant differences, data is included in Table XVIII to show the changes in post-test mean scores. The main purpose of this exercise was to see whether or not the differences remained consistent. Table XVIII shows the necessary figures.

TABLE XVIII

Comparison of Post Test Mean Scores on Physical Fitness Tests
Between Boys and Girls in the Physical Activities Group

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away Boys	14.3684	2.233	0.81	56	2.01	NS
" " " Girls	14.0175	2.303				
2. Abdominal Curls Boys	20.4561	2.693	3.67	56	2.68	**
" " " Girls	18.7368	1.828				
3. Straight Back Raise Boys	19.3158	2.010	5.57	56	2.68	**
" " " Girls	17.4211	1.772				
4. Front Lunge Boys	26.6316	4.589	3.90	56	2.68	**
" " " Girls	23.6140	3.406				
5. Zig Zag Run Boys	11.0509	1.278	-2.78	56	2.68	**
" " " Girls	11.6930	1.228				
6. Bench Step Boys	15.7719	2.155	5.57	56	2.68	**
" " " Girls	14.0175	1.587				

Key.

** = Significant at .01 confidence level.
 NS = Not significant.

Results obtained at the post test stage was consistent with those obtained at the pre-test stage in four test items namely the Abdominal Curl, the Front Lunge, Zig Zag Run and the Bench Step. Differences in these test items were once again significant at the 0.01 level of confidence. In test item Straight Back Raise, although differences

obtained at the pre-test stage were significant at 0.05 confidence level, at the post test stage they were significant not only at the 0.05 confidence level, but also at 0.01 level of confidence.

Although differences achieved in Wall Push Away was significant at 0.05 level of confidence at the Pre-Test stage, differences arrived at at the post test stage failed to reach a level of significance.

Differences in the Pre-Tests of Physical Fitness Tests.
Movement Education Boys versus Movement Education Girls).

When the boys in the movement education group were compared with the girls in the same group, it was discovered that there was a significant difference between the two groups of subjects. Differences between the two groups was significant in one test item, the Wall Push Away, at the 0.05 confidence level while differences between the two groups was significant at the 0.01 confidence level in all the remaining five test items. These test items were Abdominal Curl, Straight Back Raise, Front Lunge, Zig Zag Run and the Bench Step. Relevant figures are presented in Table XIX.

TABLE XIX

Comparison of Pre-Test Mean Scores on Physical
Fitness Tests Between Boys and Girls in the Movement Education Group

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	p
1. Wall Push Away Boys	10.6316	1.063	2.57	56	2.01	*
" " " Girls	10.1053	1.113				
2. Abdominal Curl Boys	16.6667	2.255	7.50	56	2.68	**
" " Girls	13.8947	1.460				
3. Straight Back Raise Boys	15.4035	1.510	3.55	56	2.68	**
" " " Girls	14.1404	2.318				
4. Front Lunge Boys	20.5439	3.946	4.98	56	2.68	**
" " Girls	17.5263	3.112				
5. Zig Zag Run Boys	11.7614	1.132	-3.84	56	2.68	**
" " " Girls	12.6035	1.200				
6. Bench Step Boys	13.6140	1.601	4.79	56	2.68	**
" " Girls	12.1754	1.501				

Key.

- ** = Significant at .01 confidence level
 * = Significant at .05 confidence level.

Differences in the Post Test of Physical Fitness Tests.
 (Movement Education Boys Versus Movement Education Girls)

Once again, though the initial difference of test mean scores for the two groups under consideration did not permit the post-test comparison for significant differences, data is included in Table XX to show possible changes in post-test mean scores.

TABLE XX

Comparison of Post Test Mean Scores on Physical Fitness
Tests Between Boys and Girls in the Movement Education Group.

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	p
1. Wall Push Away Boys	13.7368	1.383	4.69	56	2.68	**
" " " Girls	12.6313	1.205				
2. Abdominal Curl Boys	22.3509	2.460	8.53	56	2.68	**
" " " Girls	18.7368	1.148				
3. Straight Back Raise Boys	20.0526	1.684	4.85	56	2.68	**
" " " Girls	18.1228	2.626				
4. Front Lunge Boys	28.1228	4.023	6.61	56	2.68	**
" " " Girls	23.7895	3.426				
5. Zig Zag Run Boys	8.9421	1.093	-5.96	56	2.68	**
" " " Girls	10.4526	1.370				
6. Bench Step Boys	15.2456	1.786	6.57	56	2.68	**
" " " Girls	12.9825	1.778				

Key

** = Significant at .01 confidence level.

Indeed, differences between the two groups under consideration did remain constant in that in test items Abdominal Curl, Straight Back Raise, Front Lunge, Zig Zag Run and Bench Step, differences were significant both at the pre-test and post-test levels, at 0.01 level of confidence. However, not only were differences between the two groups significant at the two levels of testing, at the post test level, differences in test item

Wall Push ~~away~~ was at 0.01 confidence level as opposed to the 0.05 level of confidence that was obtained at the pre-test stage.

Differences in the Pre-Tests of Sports Skills Tests.
(Physical Activities Boys Versus Physical Activities Girls)

Comparison of boys in the physical activities group and of girls in the same group at the pre-test stage of the Sports Skills Tests showed that there was a significant difference between the two groups of subjects. Differences obtained in all three test items namely 40 yards/36.6 metres Dash, Tennis ball Throw and Standing Long Jump, were all significant at the 0.01 level. Table XXI shows the obtained figures.

TABLE XXI

Comparison of Pre-Test Mean Scores on Sports Skills Tests
Between Boys and Girls in the Physical Activities Group.

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash Boys	8.2070	0.747	-5.95	56	2.68	**
" " " " Girls	9.1491	0.920				
2. Tennis Ball Throw Boys	16.4798	1.443	4.33	56	2.68	**
" " " Girls	15.4910	0.843				
3. Standing Long Jump Boys	1.6491	0.134	7.91	56	2.68	**
" " " Girls	1.4095	0.178				

Key.

** = Significant at .01 confidence level.

Again, further computation was made to ascertain whether or not the attained level of significance could be maintained.

Differences in the Post Test of Sports Skills Tests.
(Physical Activities Boys Versus Physical Activities Girls)

Going by the results obtained in Table XXII, differences which were established at the pre-test stage between the boys and the girls in the physical activities group remained consistent. Differences between the two groups were significant at 0.01 confidence level in all three test items. Table XXII has the necessary figures.

TABLE XXII

Comparison of Post Test Mean Scores on Sports Skills Tests Between Boys and Girls in the Physical Activities Group

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash Boys	6.5368	0.658	-10.63	56	2.68	**
" " " " Girls	8.0631	0.850				
2. Tennis Ball Throw Boys	20.4183	1.615	6.93	56	2.68	**
" " " Girls	18.4929	1.306				
3. Standing Long Jump Boys	1.7544	0.110	9.90	56	2.68	**
" " " Girls	1.4895	0.172				

Key.

** = Significant at .01 confidence level.

Differences in the Pre-Tests of Sports Skills Tests.
(Movement Education Boys Versus Movement Education Girls)

It was necessary to initially compare movement education boys with movement education girls in Sports Skills Tests. Differences which were all significant at the 0.01 confidence level were obtained in all three test items. These differences occurred in the 40 yards/36.6 metres Dash, in

Tennis Ball Throw and in Standing Long Jump. Table XXIII shows the relevant figures. Further computations were made to see whether or not the attained confidence level of 0.01 would remain constant. Table XXIV shows relevant results.

TABLE XXIII

Comparison of Pre-Test Mean Scores on Sports Skills Tests
Between Boys and Girls in the Movement Education Group

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash Boys	8.2263	0.745	-5.96	56	2.68	**
" " " " Girls	9.1193	0.910				
2. Tennis Ball Throw Boys	16.4008	1.228	6.35	56	2.68	**
" " " " Girls	15.0701	0.928				
3. Standing Long Jump Boys	1.6161	0.120	7.30	56	2.68	**
" " " " Girls	1.4184	0.171				

Key.

** = Significant at .01 confidence level.

TABLE XXIV

Comparison of Post Test Mean Scores on Sports Skills Tests
Between Boys and Girls in the Movement Education Group.

N (Boys = 57) and N (Girls = 57)

Test Items/Sex	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash Boys	7.0754	0.614	-8.37	56	2.68	**
" " " " Girls	8.2508	0.866				
2. Tennis Ball Throw Boys	20.1078	1.311	10.89	56	2.68	**
" " " " Girls	17.9219	0.829				
3. Standing Long Jump Boys	1.7189	0.105	8.59	56	2.68	**
" " " " Girls	1.4974	0.171				

Key.

** = Significant at .01 confidence level.

Differences in the Post Test of Sports Skills Tests.
(Movement Education Boys Versus Movement Education Girls).

Results obtained at the post test level show that differences between the two groups under consideration was not at variance with those obtained at the pre-test level. Once again, the results in all three test items namely 40 yards/36.6 metres Dash, Tennis ball Throw and Standing Long Jump, were all significant at the 0.01 confidence level.

Summary.

In summary of Chapter Four therefore, going by results obtained in the Physical Fitness Tests and in the Sports Skills Tests the group of boys and girls in the physical activities group performed statistically better than the group of boys and girls in the movement education group. Discussions on these results follow in Chapter Five.

CHAPTER FIVE

DISCUSSION OF RESULTS

Two general hypotheses and eight specific ones were tested in the present study. Out of the total of ten hypotheses, only one hypothesis was upheld while the remaining nine were rejected. The specific hypothesis that there will be no significant difference between mean scores on physical fitness tests between boys taught physical activities and boys taught movement education, was upheld. Relevant discussion and interpretation of this result will be given later.

Implications of Development of Physical Fitness

Improvement by either group or by both groups in physical fitness, evidenced by increase in units of test items Wall Push Away, Abdominal Curl, Straight Back Raise, Front Lunge and Bench Step, and recognised by a decrease in timing in test item Zig Zag Run, implied the development of definite physical fitness parameters. According to Arnheim et al (1978), improvements in the test items of the Physical Fitness battery of tests should result in the following:-

1. development of arm and shoulder strength and muscle endurance in test item Wall Push Away;
2. development of upper abdominal muscle strength and endurance in test item Abdominal Curl;
3. development of back extensor strength in test item Straight Back Raise;
4. development of leg strength and muscle endurance in test item Front Lunge;

5. development of agility in test item Zig Zag Run, and
6. development of cardiorespiratory endurance, leg strength and muscle endurance in test item Bench Step (Arnheim et al, 1978, pp. 223-231).

Implications of Improved Standard in Sports Skills.

Improved standard in the various sports skills by either group or by both groups, evidenced by a decrease in timing in test item 40 yard (36.6 metres) Dash, and an increase in the distance covered by the thrown ball or by the subjects in test items, Tennis ball Throw and Standing Long Jump respectively implied the development of definite sports skills parameters. According to Arnheim et al (1978), improved standard in all test items of the selected sports skills should result in the following:-

1. encouragement of explosive strength and speed needed for the successful performance of 40 yard (36.6 metres) Dash;
2. development of explosive strength and flexibility of the shoulder girdle needed for the sudden thrust of the ball in test item Tennis ball Throw, and
3. development of explosive strength of leg, thigh and low back which are necessary factors for the successful execution of Standing Long Jump. (Arnheim et al, 1978, pp. 221-222).

The Focus of the Present Study

The present study seeks answers to the following questions:-

1. Has movement education been able to encourage the same level of physical fitness as, physical activities, where 7-9 year old primary school children in the City of Lagos are concerned?

2. Has movement education been able to develop the same standard in sports skills as physical activities, where 7-9 year old primary school children in the City of Lagos are concerned?
3. Furthermore, has movement education encouraged comparable growth of other objectives of physical education which are:
 - (i) Cognitive growth, and
 - (ii) affective growth
 where 7-9 year old primary school children in the City of Lagos are concerned?

Discussion and interpretation that follow relate to the results obtained from the two groups used in the experiment namely, the movement education group and the physical activities group.

Discussion and Interpretation of General Hypothesis 1

The first general hypothesis that there will be no significant difference in the level of physical fitness between the group taught physical activities and the group taught movement education was rejected through the group taught movement education performed better and scored higher than the group taught physical activities in test items Abdominal Curl, Straight Back Raise, Front Lunge and Zig Zag Run. Results obtained indicated that physical activities encouraged a higher level of physical fitness than movement education in two test items thereby encouraging:

1. the development of arm and shoulder strength and muscle endurance in test item Wall Push Away, and
2. cardiorespiratory endurance, leg strength and muscle endurance in test item Bench Step.

Movement education encouraged a higher level of physical fitness than physical activities also in two test items which encouraged.

1. the development of upper abdominal muscle strength and endurance in test item Abdominal Curl, and
2. the development of agility in test item Zig Zag Run.

Although the first general hypothesis was rejected, differences between the two groups under consideration were statistically significant in four out of the six test items. In the remaining two, differences between the two groups were not statistically significant. The balance of this evidence is that movement education was just as suitable as physical activities in encouraging the development of

1. Back extensor strength which is the purpose of Straight Back Raise, and
2. Leg strength and muscle endurance which is the purpose of Front Lunge.

Amheim et al (1978, p. 222) said that physical fitness is not general, but specific to different body parts. Results obtained in this study appeared to support this statement. Movement education has encouraged more improvement in certain test items. Movement education trains children in body awareness together with space awareness, awareness of rhythm and of flow inherent in movement. Movement education concerns itself with making children to be constantly aware of these motion factors. These motion factors are not only evident in all movements, but their practical as well as theoretical application to sports skills, to gymnastics and to dance, should result in successful

performances. Jordan (1938), Morison (1956), Preston-Dunlop (1963) and Mauldon et al (1969), were of this same opinion. The importance of the motion factors therefore necessitated this researcher to focus attention on them either singly or combinely when teaching the experimental group that was taught movement education. It will be seen in Chapter 3's DESCRIPTION OF TEACHING SESSIONS, that themes of all sixteen lessons given to the movement education group dealt with the motion factors either singly or collectively.

That movement education was more effective in the development of upper abdominal muscle strength and endurance in Abdominal Curl was expected because "the centre" that is the stomach area, is one of the parts of the body the child is made particularly conscious of. There are three "centres" of the body in the movement education context. Firstly, there is "centre of levity" which is located around the sternum region of the chest. "Centre of levity" aids elevation. Secondly, there is "centre of gravity" which is located around the hip area. The "centre of gravity" aids the successful preparation of the body weight downwards especially in the case of preparing to spring upwards such as in blocking a ball in Volley ball. The "centre of gravity" also gives more force to a driven or thrown ball if properly aligned with the pathway of the ball. The third is the "centre". The "centre" is located around the waist region. The main function of the "centre" is that it connects movements made in the upper part of the body with that made in the lower part of the body so that a coordinated and effective movement results. Preston-Dunlop (1963, p. 6.)

Because of this important role, the "centre" must always be in a

ready state, that is in a semi contracted state ready for any given action. When teaching movement education, it is usual to treat awareness of the three centres, especially that of the "centre". This procedure was also followed when teaching the movement education group in this study. As can be seen on all sixteen class meeting days with this particular group, in Chapter Three, attention was consistently focused upon the three levels - that is high, medium and low levels. This was so for two reasons. Firstly, to train the body to perform effectively at these three levels; this includes the proper and smooth transition from one level to another. Secondly, in the case of creative movement, the repeated use of the three levels offers more variety to work engaged in at the CLIMAX stage of each movement education lesson. See a typical lesson for the movement education group in Chapter Three.

That movement education encouraged higher scores than did physical activities when considering the development of agility in Zig Zag Run was again to be expected. In an attempt to train the moving body to be aware of stationary objects as well as to be able to skillfully maneuver one's body so as to avoid colliding with other moving bodies, agility results. One not only learns how to manage one's body better but also to better utilise space.

The time factor also appeared to have contributed to the eventual achievement of agility in this present study. According to Dunlop-Preston (1963, pp. 21-23), there is free flow and there is bound flow. While the former can be described as "fluent", "uncontrolled" giving way to action which is difficult to stop suddenly, the latter can be described as "controlled", "cautious"

giving way to action which can be stopped and held without difficulty during the course of any given movement. Agility is encouraged by both "free" and "bound" movements. The "free" movement gives way to the fluent movement which encourages the gathering of momentum, while the "bound" movement provides the necessary pause required when changing direction. In movement education classes, pupils are encouraged to build sequences. Sequences, as described by Dunlop-Preston (1963, pp. 82-83) are continuous movements which include varied actions. Varied actions such as "free" and "bound" ones. In Chapter 3 during lessons designed for the movement education group it can be seen that the subjects were encouraged to build sequences practically on all days. On days 1, 2 and 5, free flow in particular was focused upon. While bound flow was stressed particularly on days 12, 14 and 16.

As mentioned above, the building of sequences include both free and bound flows. For the successful transition one to another, it is necessary that one is balanced. On days 4 and 6 in Chapter Three, balance was particularly treated. Balance involves moving and momentarily stopping to effect a possible change in direction. For a successful completion of test item Zig Zag Run, not only was the subject required to run, but he was to stop momentarily during which time he changed the direction in which he was moving.

It is assumed that the movement training described above must have transferred to the successful completion of test item Zig Zag Run, hence the movement education group scoring higher and performing better than the physical activities group in this test item. Exemplified here therefore is transfer of training which

Gillion (1970), Kirchner (1978) among others described. Furthermore, Este (1959) and Vitalone (1963) also demonstrated in their research findings that movement education encourages physical fitness more than physical activities does.

While movement education specifically trains children to develop more of fine muscle groups of the body such as the upper abdominal muscles, physical activities appears to train children to develop more of the gross muscles groups of the body. Examples of the latter are the development of arm and shoulder muscle groups needed for test item Wall Push Away and leg muscles needed for test item Bench Step. Scott (1967) and Goodwin (1970) are supportive of these findings. However, in test items Straight Back Raise and Front Lunge, because differences between the two groups under consideration were not statistically significant, movement education was just as appropriate as physical activities in encouraging the development of back extensor muscle, strength and leg strength and muscle endurance respectively. Movement training given on days 1, 2, 3, 4, 5, 6 and 10, in the training programme for the movement education group in Chapter 3, encouraged the development of back extensor strength, while movement training prepared for the same group as above on day 4, encouraged the development of leg strength and muscle endurance.

Discussion and Interpretation of General Hypothesis 2.

The second general hypothesis that there will be no significant difference in sports skills performance between the group taught physical activities and the group taught movement education was rejected. Results obtained showed that physical activities encouraged the attainment of higher standards in the selected sports

skills than did movement education thereby

1. encouraging explosive strength and speed needed for the successful completion of the 40 yards/36.6 metres Dash, and
2. developing explosive strength and flexibility of the shoulder girdle needed for the length in distance to be covered in the Tennis ball Throw.

However, differences between the two groups were not statistically significant in test item Standing Long Jump. This means that movement education was just as capable as physical activities in achieving explosive strength of leg, thigh and low back.

The same arguments which were put forward while discussing the first general hypothesis in respect of physical activities and the development of large muscle groups which are needed for gross movements of the body are also applicable here. In the course of teaching movement education, children are also encouraged to use large muscle groups though not to the same extent as children in physical activities group are encouraged to use large muscle groups.

In the teaching of movement education, particularly at the initial stage of each lesson (See Chapter 3) children were encouraged to discover and practice ways of using their bodies in space. These ways included the combination of locomotor movements such as running and turning, running and skipping, running and striking, running and jumping. This introductory segment or the warming up section of the lesson lasted in the case of the two groups in question, for approximately five minutes per class. The only difference was however that in the physical activities group, the

subjects were told precisely what to do whether through explanation alone or through a combination of explanation and demonstration. Whereas in the movement education group, the children were guided to discover ways of combining running with turning or running with skipping and so on. Whichever approach was used, the same end result was achieved. Children in the two groups were maximally engaged physically. This finding supports Gravlee (1965), Van Allen (1966) and Barendson (1967).

Findings of Masche (1970), Dougherty (1970) and of Toole (1982) are all supportive of the fact that physical activities encourage the development of sports skills more than does movement education. This has also been a main finding of the present study.

The above two general hypotheses were further examined through eight specific hypotheses. Interpretations on apparent trends will be given later. To conclude, as far as physical fitness tests and the sports skills tests as applied in this study are concerned, the movement education group scored significantly higher than the physical activities group in a total of two test items, while the physical activities group scored significantly higher than the movement education group in a total of four test items. Differences between the two groups in a total of three test items were not significant.

While physical activities appear to cater for the development of large muscle groups, movement education caters to the development of the finer muscle groups. Both physical activities and movement education make their own definite contributions. Both physical activities and movement education are important to the achievements of physical education objectives.

Inasmuch as correct performances are recorded for all subjects taught education, it would appear that cognition is involved. It can therefore be safely assumed that movement education contributed to cognitive growth of the subjects of this study. Cognitive growth is the first of two objectives of physical education not measured directly in this study. Thinking is stimulated in a regular physical education class where, in order to successfully execute a complex action, certain factors must be taken into consideration. Factors such as timing, coordination, application of the right amount of force. Thinking is also involved in a regular movement education class. For instance, in a movement education class, instead of specifically telling the pupils to run as in obstacle relay race, they were asked to choose a body part on which they were to move as fast as they were able to. Instead of telling the pupils to throw as in "dodgeball", pupils in movement education classes were asked to propel the ball from different angles. Subjects in the movement education group therefore had to make a conscious effort not to propel the ball in the same path way each time the ball was propelled. Examples given indicate that pupils in movement education classes, in order to succeed in movement classes must think about how to tackle challenges posed by the movement facilitators. Having thought, they then put the various possibilities into action. Cognitive growth, the first of the two intangible gains, though not directly measured in this study, can be inferred.

The second objective not directly measured in this experiment is in the affective domain. Deelman (1968) investigated the effect of "internalisation" on first grade pupils. Deelman defined

"internalisation" as acceptance by the individual of attitudes, codes and principles that became a part of forming value judgements or determining conduct. He used children in a regular physical education class and children in a regular movement education class as subjects. Comparison of gains between the two groups showed a significant difference in improvement of internalisation in favour of the movement education class. Although growth in the affective domain was not directly measured in this study, it can be inferred. The mere fact that the total of 228 pupils used as subjects in the study displayed cooperation among themselves and with the investigator who also taught the two different groups throughout the treatment period, indicated that the affective domain was also being developed.

Eight specific hypotheses were also formulated for the purpose of further examining the already discussed two general hypotheses. The results obtained in relationship to the specific hypotheses will now be discussed and interpreted.

Discussion and Interpretation of Specific Hypotheses.

Specific Hypothesis 1

The first specific hypothesis that there will be no significant difference between mean scores on physical fitness between boys taught physical activities and boys taught movement education was upheld in favour of boys taught movement education. Results obtained by this group was significantly higher than those obtained by boys taught physical activities in Abdominal Curl and in Zig Zag Run. This implies that training in movement education encouraged

1. the development of upper abdominal muscle strength and endurance which are purposes of Abdominal Curl, and
2. the development of agility which is the purpose of Zig Zag Run.

Taken as a group, the boys and girls in the movement education group as exhibited in the first general hypothesis, also performed significantly better than the boys and girls in the physical activities group in test items Abdominal Curl and Zig Zag Run. Therefore, the same points for discussion that were raised earlier are also applicable here. Whether the same will also be true in the case of the girls in the movement education group, is yet to be seen.

Results of the remaining four test items of the Physical Fitness Test Battery namely Wall Push Away, Straight Back Raise, Front Lunge and Bench Step were not significantly different. In essence this means that no one teaching method of the two under consideration is better than the other one in achieving

1. development of arm and shoulder strength and muscle endurance,
2. development of back extensor strength,
3. development of leg strength and muscle endurance, and
4. development of cardiorespiratory endurance, leg strength and muscle endurance.

That the two teaching methods were both effective, though not significantly, is reflected when comparing the mean scores of the above four test items at the pretest level with the same at the

post test . stage. Following are possible factors that were inherent in the actual teaching materials and in the movement exploration teaching method of movement education.

In Chapter 3, in the teaching guide prepared for the movement education group, on days 1 and 2, the pupils were asked to move on different body parts. Movement on either hands and feet combined, or on hands alone were possibilities that were attempted. These actions helped in the development of arm and shoulder strength and muscle endurance needed for the effective performance of Wall Push Away.

On days 1, 2, 3, 4 and 5 in particular in the same portion of Chapter Three as described above, pupils were asked to make continuous movements in the course of which they were to change levels. The change of levels involved a certain amount of trunk mobility. On day 10, the children focused on continuously moving into the six basic directions. This also involved change of levels which resulted in trunk mobility. Body swing and trunk twisting was specifically focused upon on day 6. The actions that have been mentioned helped in the development of back extensor strength required for the effective performance of Straight Back Raise.

Still in Chapter 3, particularly on day 4, the pupils were encouraged to do a considerable amount of running, hopping and jumping. These actions aided leg strength which was necessary for the successful performance of Front Lunge.

Leg strength and cardiorespiratory endurance which was needed for the effective performance of Bench Step was aided by the very nature of sequence building. Sequence building which involves continuous movement (Preston-Dunlop 1963, pp. 80-83) was encouraged

throughout the movement education programme on all sixteen days.

These findings show that boys responded well to movement education. By the mere fact that the boys in movement education performed so well in the physical fitness test items, it is presumed that they must have also improved in the cognitive and affective domains as well. Furthermore, lack of space, insufficient equipment and supplies could not have been hinderances. In the light of these results therefore, movement education is adequate as a substitute for physical education in the City of Lagos, in respect of boys.

Specific Hypothesis Two

The second specific hypothesis that there will be no significant difference between mean scores on sports skills tests between boys taught physical activities and boys taught movement education was rejected.

Boys in the physical activities group performed significantly better than boys in the movement education group in 40 yard (36.6 metres) Dash. This implied that physical activities better developed explosive strength and speed.

However, there was no significant difference between the two groups in Tennis ball Throw and in Standing Long Jump though the two groups improved in their performance by the end of the treatment period as reflected in the results that were obtained. This imply that movement education was capable of encouraging explosive strength of the shoulder girdle and its agility, also of developing explosive strength of the leg just as effectively as physical activities could. In the case of the movement education group,

movement education classes conducted on days 1, 2, 7, 8, and 9 in particular encouraged the former movement parameters while movement education classes conducted on day 4 in particular, encouraged the latter movement parameters.

Specific Hypothesis Three

The third specific hypothesis that there will be no significant difference between mean scores on physical fitness tests between girls taught physical activities and girls taught movement education, was rejected.

Girls in the physical activities group performed significantly better than girls in the movement education group in test items Wall Push Away, and Bench Step. This implied that physical activities better developed arm and shoulder strength and muscle endurance and leg strength and muscle endurance respectively.

Girls in the movement education group performed significantly better than girls in the physical activities group in test item Zig Zag Run. This indicated that movement education better developed agility than did physical activities. In respect of whether materials taught during the treatment period of the group taught movement education, actually contributed to the acquisition of agility, work covered on days 2, 3 and 4 in particular in Chapter Three, did. In order to be agile, one needs to be able to swiftly change direction, without losing momentum that might have been gathered. The building of sequences encourage change of direction, and work done by the movement education group included sequence building on all 16 days. However on days 2, 3 and 4 particular attention was paid to factors such as the need to have a definite focus of

attention, and leading the movement with a definite body part both of which contribute to effective change of direction.

While there were significant differences in three test items between the two groups, there were no significant differences in the remaining three test items of the physical fitness test battery. The test items were Abdominal Curl, Straight Back Raise and Front Lunge. The same points that were raised when discussing specific hypothesis One, particularly in relationship with the fact that there were no significant differences between the two groups of boys in test items Straight Back Raise and Front Lunge, again apply here. Boys in the movement education group performed significantly better in test item Abdominal Curl. Although girls in the movement education group failed to do likewise, there was no significant difference between this group of girls and girls in physical activities in this test item. It can be said, therefore, that movement education is suitable for developing upper abdominal muscle strength and endurance. Therefore the same portions of Chapter Three which helped bring about this development, are also instrumental in this particular instance.

Specific Hypothesis Four.

Specific hypothesis four, that there will be no significant difference between mean scores on sports skills tests between girls taught physical activities and girls taught movement education was rejected. While movement education was adequate in two of the three test items, physical activities proved to be significantly more effective in the remaining one test item. Movement education encouraged the development of explosive strength and speed, being

jumping, hoop rolling and hoola hooping, quoit throwing and others. This Investigator offered the latter group of activities to the Physical Activities group in each of the three schools.

2. Chase and Tag Games.

The presence of these games in physical activities classes reflected the recommendation of the literature that, chase and tag games are suitable for children between the ages of six and nine and that they should make up a large portion of any programme designed for them. Dauer (1975), Voltmer et al (1958). Such activities included "Siamese Twin Tag" and "Chain Tag."

3. Relay Type Games.

Relays put skills and drills into action. There are different types of relay. They are:

- (a) Modified - conducted in heats or stages.
- (b) True - continuous performance until all have had a turn.
- (c) Shuttle - teams divided in half and team mates exchange places.
- (d) Combination of any of the other types.

In an attempt to vary interests, all the four different types of relays mentioned were used in the study.

4. Apparatus Stunts and Tumbling.

Apparatus included available playground equipment and locally made mats. Stunts and tumbling are usually classified together and were classified together in this present study. Examples of stunts used are crab walk, wheelbarrow, partner get-up, forward and backward rolls.

5. Singing Games and Dances.

Traditional games and dances which have definite formations and distinct songs which elicit specific responses were used. Examples of such traditional games and dances are, "Eye melo tolongo waiye", "Mo le se bayi dola nitori buredi!" Although the traditional dances might be sung in the local dialect, the subsequent guiding and encouragement to extend the scope of use of body or of space, to give two examples of the motion factors, was done in English by the Researcher who also taught all classes.

Having described the various areas included in the physical activities classes, the contents of the sixteen classes conducted by the investigator are hereby presented.

Class Meeting, Day 1.

Introduction.

1. Preliminary activity - "Whistle game" or running and stopping, according to the whistle signal.
2. Running and chasing game - "Keep the basket full."
3. Skills of locomotion - Walking, running, hopping.

Instructional Period.

1. Partner stunt - back-to-back rise.
2. Log roll.
3. Leap frog.

Group Activities.

1. Throwing and catching game - "Call ball."
2. Low organisation game - "Run for your supper."

Class Meeting, Day 2.

Introduction.

1. Preliminary activity - Running, galloping, hopping,

skipping, jumping, and sliding were demonstrated by the teacher, then executed by the children.

2. Running and chasing game - "Race against a ball."
3. Axial movements - bending, curling, stretching, rising, falling, swinging and turning were demonstrated by the teacher, then executed by the children.

Instructional Period.

1. Tumbling stunt - "Log roll," and "rocking chair."
2. Partner stunt - "Wheelbarrow."
3. "Leap frog."

Group Activities.

1. Throwing and catching game - "Broken bottles."
2. Low organisation game - "Jump the brock."

Class Meeting, Day 3.

Introduction.

1. Preliminary activity - "Whistle game" or running and stopping according to the whistle signal.
2. "Jump the snake," or children running over moving rope.
3. Individual throwing and catching of beanbags.

Instructional Period.

1. Partner stunt - "Partner get up."
2. Tumbling stunt - "Forward roll."
3. "Leap frog" and "Through vault."

Group Activities.

1. Modified dodge ball (rolling the ball)
2. Organised game - "Chinese wall."

Class Meeting, Day 4.Introduction.

1. Preliminary activity - "Listen to the whistle."
2. Practiced ball bouncing and catching, individually and with a partner.
3. "Chain tag."

Instructional Period.

1. Partner stunt - "Wheelbarrow."
2. "Frog jump" to handstand with support.
3. "Cock fight."

Group Activities.

1. Low organisation game - "Run for your supper."
2. Plain relay race.

Class Meeting, Day 5.Introduction.

1. Preliminary activity - Running, galloping, hopping, skipping, jumping, sliding were demonstrated by the teacher then executed by the children.
2. "Jump the snake" or Children running over moving rope.
3. Running and chasing game - "Race against a ball."

Instructional Period.

1. Tumbling stunt - "Forward roll" and continuous "forward roll."
2. "Frog jump" to handstand with and without support.
3. "Through vault."

Group Activities.

1. "Dodge ball" (Bouncing the ball.)
2. Singing game, "Eiye melo tolongo waiye, tolongo."

Class Meeting, Day 6.Introduction.

1. Preliminary activity - "Whistle game" or running and stopping according to the whistle signal.
2. Tag game - "Siamese twin tag."
3. Skills of locomotion - running, leaping, sliding.

Instructional Period.

1. Hoop rolling individually. Hoop rolling in partners.
2. In twos, one hoop rolls, the other runs through.
3. In twos, one hoop rolls, the other does a forward roll through.

Group Activities.

1. Throwing and catching game - "Donkey."
2. Low organisation game - "Run for your supper."
3. Leaping and sliding relay.

Class Meeting, Day 7.Introduction.

1. Preliminary activity - Running galloping, hopping, skipping, jumping, sliding were demonstrated by the teacher, then executed by the children.
2. Running and chasing game - "Keep the basket full."
3. Tag game - "Chain tag."

Instructional Period.

1. Half of class rope skipping - individually, in twos and in threes. Other half of class jumped over canes supported by skittles. The two halves changed over after a short period.
2. "Handstand" and "Cartwheel."

Group Activities.

1. "Dodge ball."
2. Skipping relay.

Class Meeting, Day 8.Introduction.

1. Preliminary activity - "Whistle game" or running and stopping according to whistle signal.
2. Ball bouncing and catching practice, alone and with a partner.
3. Running and chasing game - "All in races."

Instructional Period.

1. "Handstand" and "Cartwheel."
2. "Through vault."
3. Partner stunt - "Wringer."

Group Activities.

1. Singing game - "Fire on the Mountain."
2. Collection Relay.

Class Meeting, Day 9.Introduction.

1. Preliminary activity - Running and chasing game - "Keep the basket full."
2. Tag game - "Chain tag."
3. Axial movements - Curling, stretching, swinging and turning.

Instructional Period.

1. "Thread the needle."
2. Partner stunt - Continuous "leap frog"
3. "Cartwheel."

Group Activities.

1. Organised game - "Boundary ball."
2. Throwing and catching game - "Centre base."

Class Meeting, Day 10.

1. Preliminary activity - Running and chasing game of "Race against a ball."
2. Tag game - "Chain tag."
3. Skills common to games and sports - dodging and turning.

Instructional Period.

1. "Jump through arms"
2. "Cartwheels."

Group Activities.

1. "Dodge ball."
2. Organised games - Team tag.
3. Obstacle relay race.

Class Meeting, Day 11.Introduction.

1. Preliminary activity - Running and chasing game, "Listen to the whistle."
2. Tag game of "Chain tag."
3. Skills common to stunts and tumbling - running, jumping and landing on feet. Executing different types of jumps such as "banana jump", "starjump", and proper landing on feet.

Instructional Period.

1. Continuous "leap frog."
2. "Dive forward roll."
3. Rope and hoop skipping.

Group Activities.

1. Organised game, "Chinese wall."
2. Low organisation game, "Run for your supper."
3. "Rebound relay."

Class Meeting, Day 12.Introduction.

1. Preliminary activity - "Whistle game" or running and stopping according to whistle signal.
2. Running and chasing game of "keep the basket full."
3. Skills common to games and sports - Dodging and turning.

Instructional Period.

1. "Thread the Needle"
2. Partner stunt - "Wringer."
3. Using balls, two players keeping ball away from a third player by throwing, rolling or bouncing.

Group Activities.

1. Circle "dodge ball."
2. Organised game - "Chinese wall."
3. Singing game of "Fire on the mountain."

Class Meeting, Day 13.Introduction.

1. Preliminary activity - "Jump the snake," or children running over a moving rope..
2. Running and chasing game of "race against a ball,"
3. Skills involving resistance to objects - "Cock fighting," tug of war in twos.

Instructional Period.

1. "Wheelbarrow" racing.
2. "Through vault."
3. Continuous running through rolled hoop.

Group Activities.

1. Continuous passing in groups
2. Team tag.
3. "Run for your supper."

Class Meeting, Day 14.Introduction.

1. Preliminary activity - Rope and hoop skipping individually, in twos and in threes.
2. In twos, throwing and catching; bouncing and catching; passing by hand on move.

Instructional Period.

1. "Crab walk."
2. Continuous "leap frog."
3. "Cartwheel."

Group Activities.

1. "Jump the brook."
2. "Keep the ball moving."

Class Meeting, Day 15.Introduction.

1. Preliminary activity - "Keep the basket full."
2. Tag game - "Siamese Twin."
3. Skills common to stunts and tumbling - different types of jumps ("star jump," "banana jump") and landing on feet.

Instructional Period.

1. Continuous "through vault."
2. Continuous running through a rolled hoop.
3. "Piggy in the middle" or ball between three players.

Group Activities.

1. "Dodge ball."
2. "Broken bottles."

Class Meeting, Day 16.Introduction.

1. Preliminary activity - Running, galloping, hopping, skipping, jumping, sliding were demonstrated by the teacher then executed by the children.
2. Axial movements - Curling, stretching, swinging, turning.

Instructional Period.

1. Continuous "forward roll" after "dive roll" through a hoop.
2. "Backward roll."
3. "Piggy in the middle" or ball between three players.

Group Activities.

1. "Keep the ball moving."
2. Skipping relay.

Individual Plans Used in the Programme of Movement Education.

Overall, the following group of activities represented the typical movement education classes of the present study:

1. Locomotor movement skills.
2. Exploration of small pieces of apparatus.

3. Stunts and tumbling.

At the initial stage of lessons presented, locomotor movement skills were introduced and explored. During movement training stage and also during the climax stage when innovative work was done, exploration of small pieces of apparatus also stunts and tumbling, were encouraged.

Locomotor Movement Skills.

The area of locomotor movement skills is an important section of each lesson presented in movement education. Because of this fact, the investigator is mindful of the principle that movement fundamentals are basic to all physical education activities. This view was held by Broer (1960), Wessel (1961) and Andrews (1954).

In exploring movement, the children discovered and practiced ways to use their bodies. These ways included the various locomotor body and combination movements such as skipping, galloping, striking, twisting. The application of movement fundamentals was made to other areas of physical education such as in relationship to small pieces of apparatus, also to stunts and tumbling. Dramatic Play was another area in which the application of movement fundamentals was made, so was the area of singing games and dances.

Ball and Hoop Exploration.

The development of ball and hoop skills through exploration emphasised progression. The investigator provided different types of balls, particularly tennis balls. However the children who initially explored with the larger balls changed with the children using the smaller ones so as to appreciate the different weights. Cane hoops of various sizes were also similarly distributed and used.

Stunts and Tumbling.

The children were encouraged to arrive at the performances of recognised stunts such as the "seal crawl", the "crab walk" and the "wheel barrow". The important feature of movement education of listening and following instruction, as opposed to imitating a demonstration, was made obvious. The stunts which were simple, were performed successfully by all the children.

Dramatic Play.

Dramatic play is defined by Dauer (1975) as the interpretation of stories or objects through body movement. This activity area utilizes the dramatic, imaginative, imitative and creative characteristics of seven to nine year old children. This feature was noted by Gesell et al. (1946). Dramatic play lent itself to other areas of the general school curriculum. Of particular interest in this present study were letters of the alphabet in word building.

Singing Games and Dances.

Traditional singing games and dances in Nigeria were originally meant for dramatisation and entertainment in the evenings. They are usually action packed and suitable for the restless nature of children. Though specific responses are expected to accompany particular songs, in order to accommodate the creative nature of movement education, the expected responses were substituted with other responses. Movements emphasising body awareness were substituted with a body part other than the one presented. Movements focusing attention on a movement tempo whether fast or slow, was substituted with its opposite. Movement drawing attention towards a particular direction was diverted towards another direction. Such variations were encouraged in the present study.

Having described the various areas included in the movement education classes, contents of the sixteen classes conducted by the investigator are hereby presented.

Class Meeting, Day 1.

Introduction.

Movement exploration - Non manipulative skills.

Theme - Body awareness, space awareness and flow.

Locomotor movement skills - Identification of different body parts and exploration of possible movements of these body parts.

Movement training - Making continuous movement with three different body parts, one part after another.

Climax - Innovative work... Making "movement statements" by joining together the three distinct movements made earlier. "Showing" of these "movement statements" by alternate half of the class.

Discussion - "Movement statements" and their relationships to body awareness, space awareness and flow, were discussed.

Class Meeting, Day 2.

Movement exploration - Non manipulative skills.

Theme - Space awareness, body awareness and flow.

Locomotor movement skills - Moving about on different body parts.

Movement training - Walk variations in different directions.

Followed by moving about on other different body parts apart from the feet. The six basic dimensions were identified and moved into.

Climax - Innovative work. Pupils chose two opposite directions such as up and down, and used them as basis for "movement statements." "Showing" of the resultant patterns by alternate half of the class.

Discussion - The "movement statements" based on two opposite directions and their relationships to space awareness, body awareness and flow, were discussed.

Class Meeting, Day 3.

Introduction.

Movement exploration - Non manipulative skills.

Theme - Body awareness, space awareness and awareness of force and time (rhythm.)

Locomotor movement skills - Walk and run. Involved animal walk around the play area. Pupils walked in high and low dimensions. They walked with fast, then slow tempos. They also walked in a smooth manner as well as in a bumpy manner.

Movement training - Walk variations with space, that is, involving levels and directions. Run variations with space, that is, involving levels and directions.

Climax - Innovative work. The children were encouraged to make "floor pictures" or "floor patterns." "Showing of these patterns by alternate half of the class.

Discussion - The "floor patterns" and their relationship to body, space and rhythm, were discussed.

Class Meeting, Day 4.

Movement exploration - Individual. Non manipulative skills.

Theme - Body awareness, space awareness and awareness of force and time (rhythm). Balance was also involved.

Locomotor movement skills - Running and stopping, hopping and stopping, jumping and stopping. Change of directions was obvious, so was focus of attention.

Movement training - Choosing either running or hopping or jumping. Used chosen locomotor skill as basis of "movement statement" which involved moving and momentarily stopping. The momentary stopping was coupled with change of direction.

Climax - Innovative work. The children were encouraged to make "movement statement" of moving and stopping, for better grasp of the properties of balance, the children were to either run and stop, hop and stop or jump and stop. "Showing" of the "movement statements" by alternate half of the class.

Discussion - The "movement statements" and their relationship to body, space and rhythm, were discussed.

Class Meeting, Day 5.

Movement exploration - Individual and free form rhythms.

Theme - Force and time (rhythm), space awareness, flow and body awareness.

Locomotor movement skills - Axial movement involving arm swings at different levels.

Movement training - Swings of other body parts, again at different levels.

Climax - Innovative work. Dramatized ideas of being clocks and canoe paddlers.

"Showing" of the various ideas by alternate half of the class.

Discussion - The various ideas and their relationship to rhythm, space, flow and body, were discussed.

Class Meeting, Day 6.

Movement exploration - Individual and couple. Self testing activity. Non manipulative skills.

Theme - Balance and base of support, space, and body.

Locomotor movement skills - Arm swings with variation in size of body base. Progress from wide to narrow base of support. Body swings - trunk twisting.

Movement training - Progress to machines that remain in one place. Progress to machines that move from one place to another.

Clinax - Innovative work. Working in twos, the children complemented each others movement and worked at either machines that remain in one place, or machine that move from one place to another.

"Showing" of these patterns by alternate half of the class.

Class Meeting, Day 7.

Movement exploration - Individual and couple. Manipulative skills - balls.

Theme - Rhythm space and body.

Locomotor movement skills - Three variations of ball manipulation with hands.

Movement training - Working in twos (1) Pupil A propelled the ball with the hand, pupil B received the ball with the hands, then with other body parts. (2) Pupil A propelled the ball with other body parts apart from the

hands, while Pupils B received the ball with the hands as well as with other body parts. (3) Pupil B changed role with pupil A and became the one to propel the ball. Climax - The ball was propelled continuously by the couples. "Showing" of the various throwing and catching sequences by alternate half of the class.

Class Meeting, Day 8.

Movement exploration - Individual and couple activity.

Manipulative skills - balls.

Theme - Rhythm, space and body.

Locomotor movement skills - Individual work with balls. Three ways to make the ball go. (a) using one hand, then the opposite hand, (b) using both hands, (c) seated on the floor.

Movement training - Bounced the ball upwards, then downwards.

Progression by bouncing the ball in couples, to one another. Pathway of the ball was varied for instance, it was bounced in straight, then curved lines.

Climax - Innovative work. Couples worked at developing a game using balls.

"Showing" of the different games by alternate half of the class.

Discussion - The games and the relationship of space, body and rhythm to the balls, was discussed.

Class Meeting, Day 9.

Movement exploration - Individual and couple, self testing activity. Non manipulative skills.

Theme - Balance and base of support or space.

Locomotor movement skills - Arm swings with variation in size of body base. Progress from wide to narrow base of support. Continued the same at various levels.

Movement training - Moving on one hand and two feet.

Variation - Moving in different pathways on one hand and two feet.

Climax - Continued exploration by moving on two hands and two feet. This movement done with the stomach down resulted in the "Seal Crawl." When walking on both hands and both feet, the "Crab walk" resulted.

Partner work - Problem solving required the base partner on hands only assisted by the partner in the bid to move around. The "Wheelbarrow" resulted.

Class Meeting, Day 10.

Movement exploration - Individual and group. Non manipulative skills.

Theme - Space, body and rhythm.

Locomotor movement skills - Continuously moving into the six basic directions in space. Movement was either very fast, or very slow. Different body parts were used in moving in consonant with a tamborine.

Movement training - Introduction of a popular singing game, "Eiye nelo tolongo waiye, tolongo." Expected movements to go with the song were introduced. The whole class worked as one group.

Climax - Innovative work. The group split into two groups. Each group moved accordingly to the song. Progressed into moving into other directions other than downwards

at the point in the song when the children should move downwards. Progressed further to keeping the feet fixed but rather, to move other body parts into any of the basic directions.

"Showing" of the different responses by alternate half of the class, or group.

Class Meeting, Day 11.

Movement exploration - Individual and couple activity.

Manipulative skills - hoops.

Theme - Space and rhythm.

Locomotor movement skills - Rolling the hoop around it. Giving the hoop to ones partner to do likewise. Having gained sufficient control over the hoop the child in possession of the hoop (a) moved around it (b) move over it before it is finally flat on the floor (c) moved through it (d) spun the hoop and attempted a stunt before it finally fell to the ground.

Movement training - Couple activity. Repeated the movements attempted when working alone.

Climax - Innovative work. Working in twos, they continuously rolled the hoop from one child to another. During which time they took it in turns to move around the hoop or move through it and so forth.

"Showing" of different responses by alternate half of the class.

Class Meeting, Day 12.

Movement exploration - Individual. Non manipulative skills.

Theme - Space, body, rhythm and flow.

Locomotor movement skills - filling space by using different body parts to initiate the movement. Punctuating the flow with short pauses.

Movement training - Visual stimulus alphabet letters were used.

Letters A, B, M, K were chosen for particular lesson.

Individual interpretation of the Letters was encouraged, particularly those involving animals.

Climax - Innovative work. Time was allowed for germination of idea before encouragement to choose movements of one animal only. Following animals were popular, antelope, baboon, monkey, kangaroo.

"Showing" of the various interpretations to a partner, who pronounced which animal had been imitated.

Class Meeting, Day 13.

Movement exploration - Individual. Non-manipulative skills.

Theme - Space.

Locomotor movement skills - Filling space. Increasing and decreasing ranges of movement.

Movement training - Review of movement ideas of previous movement lesson. Further exploration of these ideas by clearly showing two kinds of "range." Baby-hood to adulthood of the animals already experimented with, was encouraged. Percussive instruments were used as stimulus.

Climax - Innovative work. Explore in movement, two kinds of "range,"

"Showing" of the different responses by alternate half of the class.

Class Meeting, Day 14.

Movement exploration - Individual. Non-manipulative skills.

Theme - Space, body, rhythm and flow.

Locomotor movement skills - Filling space by using different body parts to initiate the movement. Punctuating the flow with short pauses.

Movement training - Visual stimulus alphabet letters were used.

Letters of the alphabet D, C, E, L, were projected.

Individual interpretation of the letters was encouraged, particularly those related to animals.

Climax - Innovative work. Time was allowed for germination of idea before the children were encouraged to choose movements of one animal only. Following animals were imitated the donkey, the dog, the elephant, the octopus, the ostrich and the leopard.

"Showing" of the various interpretations to a partner, who pronounced which animal had been imitated.

Class Meeting, Day 15.

Movement exploration - Individual. Non-manipulative skills.

Theme - Space.

Locomotor movement skills - Filling space. Increasing and decreasing ranges of movement.

Movement training - Review of movement ideas of previous movement lesson, clearly identifying at least one movement pattern which is typical of any given animal.

Climax - Innovative work. Experimentation with two animals that move with different tempo.

"Showing" of the different responses by alternate half of the class.

Discussion - The responses and their relationship to time (Fast and slow), were discussed.

Class Meeting, Day 16.

Movement exploration - Individual and group. Non-manipulative skills.

Theme - Space, body, rhythm and flow.

Locomotor movement skills - Filling space by using different body parts to initiate the movement. Punctuating the flow with short pauses.

Movement training - Review of movement ideas of Days 12 and 14.

Climax - Innovative work entitled "At the Zoo."

Children were grouped according to what animal they chose to imitate. At the sound of the tamborine, all ventured out of their specified cages, moving all over the play area. At the seizure of the sound, they hurried back to their cages.

"Showing" of the different responses by alternate half of the class.

9. Statistical Analysis of the Data.

The present investigator used the statistical critical t-test to ascertain if there were significant differences between test mean scores obtained by the group taught physical activities using the explanation-demonstration method and the group taught movement education, using the movement exploration method. Test mean scores were obtained in respect of physical fitness and sports skills.

Furthermore, Pearson's product moment correlation was used to determine whether relationships existed between scores obtained on the first day of testings, and those obtained from the same group of subjects, twenty four hours later in respect of Physical Fitness Tests and Sports Skills Tests. This was done to establish reliability for the two batteries of tests used. Content validity had been established for the Physical Fitness Tests based on works of previous Researchers.

Data collected were subjected to computer Analysis. The Statistical Package for Social Studies (S.P.S.S.) was used.

CHAPTER FOUR

RESULTS OF THE INVESTIGATION

This study investigated the extent to which movement education could adequately substitute for physical education in selected primary schools in the City of Lagos. Two batteries of tests were used to determine possible differences between the subjects taught using the traditional explanation-demonstration teaching method used in conducting traditional physical education and the subjects taught using the movement exploration method used in teaching movement education. The two batteries of tests used, either measured the level of physical fitness or the standard of performances in sports skills. There were six test items in the physical fitness battery of tests, and three test items in the sports skills battery of tests. The total of nine test items which were used in the present investigation were considered by the investigator to be important in dealing with seven, eight and nine year old children. This is so because at these ages, children can be easily taught movements and skills as observed during the Pilot Study.

Results of this investigation are presented under the following headings:

Results pertaining to the 2 general hypotheses, and
results pertaining to the 8 specific hypotheses.

Results Pertaining to the General Hypotheses.

Differences in Pre Test of Physical Fitness Tests.

It was necessary to compare the two groups, that is the physical activities group and the movement education group, on the initial administration of the Physical Fitness Tests to determine whether

there was a significant difference between the two groups of subjects in physical fitness. Table 5 shows the results of the comparison made between the two group.

TABLE V

Comparison on Pre-Test Mean Scores on
Physical Fitness Tests.

N. (P.A. = 114) and N. (M.E. = 114)

Test Items/ Methods	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away P.A	10.2281	1.105	-0.90	113	1.98	NS
" " " M.E	10.3684	1.115				
2. Abdominal Curl P.A	15.6404	2.266	1.37	113	1.98	NS
" " M.E	15.2807	2.348				
3. Straight Back Raise P.A.	14.9474	1.995	0.63	113	1.98	NS
Straight Back Raise M.E.	14.7719	2.048				
4. Front Lunge P.A	19.5351	3.927	1.05	113	1.98	NS
" " M.E	19.0351	3.849				
5. Zig Zag Run P.A	12.0886	1.266	0.57	113	1.98	NS
" " " M.E	12.1824	1.236				
6. Bench Step P.A	12.9386	1.731	0.20	113	1.98	NS
" " M.E	12.8947	1.706				

Key

** = Significant at .01 confidence level.

* = Significant at .05 confidence level.

NS = Not significant.

PA = Physical Activities Group.

ME = Movement Education Group.

It can be seen that there was no significant difference between the scores obtained by the physical activities group and those obtained by the movement education group in all six test items of the Physical Fitness battery of tests. The six test items were Wall Push Away, Abdominal Curl, Straight Back Raise, Front Lunge, Zig Zag Run and Bench Step.

Differences in the Post Test of Physical Fitness Tests.

Results obtained at the post test stage of the physical fitness tests as shown in Table VI, indicate that while differences obtained by the physical activities group and the movement education group was not significant in test item Front Lunge, differences between the two groups were significant in the remaining five test items. The physical activities group was significantly better at the .01 confidence level in two test items, Wall Push Away and Bench Step. While the movement education group was significantly better at the .05 level of confidence in Straight Back Raise and the same group was significantly better at the .01 confidence level in the remaining two test items, Abdominal Curl and Zig Zag Run.

Differences in Post Tests of Physical Fitness Tests.

TABLE VI

Comparison of Post Test Mean Scores on
Physical Fitness Tests

N. (P.A. = 114) and N. (M.E. = 114)

Test Items/ Methods	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away P.A	14.1930	2.265	3.78	113	2.63	**
" " " M.E	13.1842	1.405				
2. Abdominal Curl P.A	19.5965	2.448	-2.88	113	2.63	**
" " " M.E	20.5439	2.794				
3. Straight Back Raise P.A	18.3684	2.113	-2.41	113	1.98	*
" " " M.E	19.0877	2.400				
4. Front Lunge P.A	25.1228	4.299	-1.56	113	1.98	NS
" " " M.E	25.9561	4.310				
5. Zig Zag Run P.A	11.3719	1.289	9.41	113	2.63	**
" " " M.E	9.6973	1.448				
6. Bench Step P.A	14.8947	2.080	3.06	113	2.63	**
" " " M.E	14.1140	2.107				

Key

** = Significant at .01 Confidence level.

* = Significant at .05 Confidence level.

NS = Not Significant.

PA = Physical Activities Group.

ME = Movement Education Group.

Differences in Pre-Test of Sports Skills.

The second ^{battery} / of tests used to determine whether or not any differences existed between the physical activities group and the movement education group was that of selected sports skills. It was necessary to compare the two groups on the initial administration of Sports Skills Tests to determine whether there was a significant difference between the two groups of subjects.

Table VII gives these results.

TABLE VII

Comparison on Initial Mean Scores on Sports Skills Tests.

N. (P.A = 114) and N. (M.E = 114)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash P.A	8.6780	0.959	-0.04	113	1.98	NS
" " " M.E	8.6816	0.945				
2. Tennis Ball Throw P.A	15.9854	1.277	1.77	113	1.98	NS
" " " M.E	15.7355	1.273				
3. Standing Long Jump P.A	1.5293	0.198	0.67	113	1.98	NS
" " " M.E	1.5173	0.177				

Key

NS = Not Significant.
 PA = Physical Activities Group
 ME = Movement Education Group.

Table VII shows that there was no significant difference between the initial scores of the two groups under investigation in sports skills tests.

Differences in the Post Test of Sports Skills.

Results obtained at the post testing stage of the sports skills tests are shown in Table VIII.

Table VIII shows that while differences obtained by the physical activities group and the movement education group were not significant in Standing Long Jump, in the remaining two test items of the Sports Skills battery of tests namely the 40 yards/36.6 metres dash, and the tennis ball throw, the physical activities group was significantly better at the .01 level of confidence.

TABLE VIII

Comparison of Post Test Mean Scores on Sports Skills Tests

N. (P.A = 114) and N. (M.E = 114)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash P.A	7.300	1.077	-4.11	113	2.63	**
" " " " M.E	7.6631	0.952				
2. Tennis Ball Throw P.A	19.4546	1.780	2.85	113	2.63	**
" " " M.E	19.0148	1.549				
3. Standing Long Jump P.A	1.6246	0.189	0.95	113	1.98	NS
" " " M.E	1.6082	0.180				

Key

** = Significant at .01

NS = Not Significant.

P.A = Physical Activities Group.

ME = Movement Education Group.

Testing Specific Hypotheses - Boys.Differences in the Pre-Test of Physical Fitness Tests. (Boys)

It was necessary to compare the two groups of boys on the initial administration of the physical fitness tests to determine whether there was a significant difference between the two groups of subjects. Table IX shows the necessary figures.

TABLE IX

Comparison on Pre-Test Mean Scores of the Boys on Physical Fitness Tests

N. (P.A. = 57) and N. (M.E. = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away P.A.	10.5088	1.104	-0.54	56	2.01	NS
" " " M.E.	10.6316	1.063				
2. Abdominal Curl P.A.	17.0526	1.977	0.91	56	2.01	NS
" " " M.E.	16.6667	2.255				
3. Straight Back Raise P.A.	15.8684	1.484	-0.11	56	2.01	NS
" " " M.E.	15.4035	1.510				
4. Front Lunge P.A.	20.9825	4.029	0.57	56	2.01	NS
" " " M.E.	20.5439	3.946				
5. Zig Zag Run P.A.	11.7526	1.210	-0.04	56	2.01	NS
" " " M.E.	11.7614	1.132				
6. Bench Step P.A.	13.6667	1.629	0.16	56	2.01	NS
" " " M.E.	13.6140	1.601				

Key

NS = Not Significant
 PA = Physical Activities Group
 ME = Movement Education Group.

It may be seen that there was no significant difference between the scores on the six test items of the Physical Fitness Tests battery between the group of boys in the physical activities group and the group of boys in the movement education group. Table X shows differences in post tests of the Physical Fitness Tests in respect of boys.

TABLE X

Comparison of Post Test Mean Scores of the Boys on Physical Fitness Tests

N (P.A = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. Wall Push Away P.A	14.3684	2.233	1.65	56	2.01	NS
" " " M.E	13.7368	1.383				
2. Abdominal Curl P.A	20.4561	2.693	-3.55	56	2.68	**
" " " M.E	22.3509	2.460				
3. Straight Back Raise P.A	19.3158	2.010	-1.99	56	2.01	NS
" " " M.E	20.0526	1.684				
4. Front Lunge P.A	26.6316	4.589	-1.67	56	2.01	NS
" " " M.E	28.1228	4.023				
5. Zig Zag Run P.A	11.0509	1.273	9.05	56	2.68	**
" " " M.E	8.9421	1.093				
6. Bench Step P.A	15.7719	2.155	1.33	56	2.01	NS
" " " M.E	15.2456	1.786				

Key

** = Significant at .01 confidence level.
 NS = Not significant.
 PA = Physical Activities Group
 ME = Movement Education Group.

Differences in the Post Test of Physical Fitness Tests (Boys).

Differences obtained by the two groups under consideration failed to reach the stipulated 0.05 level of confidence in four test items, namely Wall Push Away, Straight Back Raise, Front Lunge and Bench Step. However, the boys in the movement education group obtained gains which were significant at the 0.01 confidence level in the two remaining test items of the Physical Fitness Test battery, namely the Abdominal Curl and Zig Zag Run.

Differences in the Pre Test of Sports Skills Tests (Boys).

Again, it was necessary to compare the two groups of boys on the initial administration of the Sports Skills tests in order to determine whether there was a significant difference between the two groups of subjects in Sports Skills. Table XI shows the result.

TABLE XI
Comparison on Initial Mean Scores of the Boys on
Sports Skills Tests.

N (P.A = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash P.A	8.2070	0.747	-0.17	56	2.01	NS
" " " " M.E	8.2263	0.745				
2. Tennis Ball Throw P.A	16.4758	1.443	0.35	56	2.01	NS
" " " " M.E	16.4008	1.228				
3. Standing Long Jump P.A	1.6491	0.134	1.60	56	2.01	NS
" " " " M.E	1.6161	0.120				

Key

NS = Not significant.
PA = Physical Activities Group
ME = Movement Education Group.

There was no significant difference between scores obtained by the two different groups on all three test items of the sports skills. Table XII shows the changes in post-test mean scores.

TABLE XII

Comparison of Post Test Mean Scores of the Boys
on Sports Skills Tests.

N (P.A = 57) and N (M.E = 57)

Test Items/Methods	Mean	Standard Deviation	t	df	Table Value	P
1. 40 yds./36.6 metres Dash P.A	6.5368	0.658	-5.20	56	2.68	**
" " " " M.E	7.0754	0.614				
2. Tennis Ball Throw P.A	20.4163	1.675	1.24	56	2.01	NS
" " " " M.E	20.1078	1.311				
3. Standing Long Jump P.A	1.7544	0.110	1.82	56	2.01	NS
" " " " M.E	1.7191	0.105				

Key

- ** = Significant at .01 confidence
 NS = Not significant.
 P.A = Physical Activities Group.
 M.E = Movement Education Group.

Differences in the Post Test of Sports Skills Tests. (Boys)

While difference obtained by boys in the physical activities group and by boys in the movement education group was not statistically significant in two test items, Tennis Ball Throw and Standing Long Jump, the t value being -5.20 in test item 40 yards/36.6 metres Dash, resulted at the 0.01 level of confidence in favour of boys in the physical activities group.

factors measured in the 40 yard (36.6 meters) dash, also explosive strength of leg, thigh and low back being factors measured in Standing Long Jump, just as efficiently as did physical activities. However, explosive strength and flexibility of the shoulder girdle which are factors measured in test item Tennis ball Throw, was better developed by physical activities. Thus far, a pattern appears to be unfolding. This pattern is that while movement education encouraged developments in the various aspects of physical fitness, physical activities does likewise where sports skills are concerned. While the teaching approach of physical activities is explanation demonstration, that of movement education, as explained in Chapter Two, under subheading Method of Teaching Movement Education, is movement exploration. In physical activities, children are told precisely what to do, whereas in movement education, they are guided to find out about the factors of movement. As a direct result of these, while the pupils in physical activities are maximally active throughout the lesson time, children in movement education can be said to be less active. The segments of the lesson during which pupils in the movement education class can be said to be maximally active are at the beginning just before the "Movement Exploration" segment when the teacher aims to establish mobility and the necessary rapport with the children as a movement facilitator. During this period she attunes the children to responding to her voice only. The other moment during the course of the lesson when the children are maximally active in a movement education class, is about $\frac{3}{4}$ of the way through the lesson when pupils are consolidating their sequences for the day. Prior

to this, they would have experimented with various ideas. Having done this, they will then sift what they, together with the teacher, consider to be relevant movements to the theme of the day. This section of the lesson is highly stimulating and invigorating for the pupils in a typical movement education class. See Chapter Three for a typical lesson plan in respect of the two groups.

The remaining hypotheses to be considered centre around sex. Schools in the City of Lagos are coeducational. All classes, and physical education classes are coeducational. Research evidence over the past forty years indicate that the trend in motor performance of school age children is toward not only an improvement with age for both boys and girls, but that the average performance of boys usually exceeded the average performance of girls at each age level. Some such researchers are Wickstrom (1977), Singer (1973) and Espenschade and Eckert (1980).

That is why this study, was interested in finding out whether

1. average performance of the physical activities boys exceeded the average performance of the physical activities girls; and
2. whether average performance of the movement education boys exceeded the average performance of the movement education girls.

Specific Hypothesis Five

Specific hypothesis five is that there will be no significant difference between the mean scores on physical fitness tests

between boys taught physical activities and girls taught physical activities. This hypothesis was rejected, although movement

education proved to be adequate in Wall Push Away. In other words, the girls in the physical activities group developed arm and shoulder strength and muscle endurance which is the purpose of Wall Push Away, just as the boys in the physical activities group did.

However, boys in the physical activities group proved to be significantly better than girls in the same group in the development of the following fitness parameters:-

1. Upper abdominal muscle strength and endurance which is necessary for Abdominal Curl.
2. Back extensor strength which is essential for Straight Back Raise.
3. Leg strength and muscle endurance, which is the purpose of Front Lunge.
4. Agility, which also is the purpose of Zig Zag Run and
5. Cardiorespiratory endurance, leg strength and muscle endurance which are all necessary for Bench Step.

Although the boys' group and the girls' group both proved to be mainly incompatible at the beginning, in an attempt to see whether the incompatibility will be consistent, post tests were carried out. The only test item in which both groups were comparable at the pre-test stage was in the Straight Back Raise. However, at the post test stage, not only did boys in the physical activities group perform significantly better than girls in the physical activities group in the Straight Back Raise, they also did likewise in Front Lunge, in the Bench Step, in the Abdominal Curl, and the Zig Zag Run.

An interesting point developed in relationship to the Wall Push Away. In this test item, boys performed significantly better than the girls at the pre-test stage. However, at the post test stage, the differences were not statistically significant. This is an indication that arm and shoulder strength and muscle endurance, which is the purpose of test item Wall Push Away, did not develop at the same rate as did the other physical fitness parameters. Activities such as "duck fighting", the "hand stand", and "cartwheel" should be incorporated more into the given programme for the physical activities group in Chapter 3. The physical activities group is specifically mentioned because that is the group that was told precisely what they were to do. Through activities similar to or even identical to the ones mentioned above might be attempted by individuals in the movement education group, it would be in the context of challenging the pupils to find different ways of bearing body weight on hands. The process of getting the pupils to perform the "handstand" in movement education can therefore be seen to be one which would require much time for it to be realised.

By closer inspection of actual gains made by boys in the physical activities group and by girls in the same group, gains made by girls in terms of improvement in Wall Push Away, Abdominal Curl and in the Zig Zag Run exceeded those made by the boys. See Table XVII and XVIII. These results indicate that girls in the physical activities group in the present study obviously enjoyed doing activities which better promoted the successful performance of Wall Push Away, activities such as "bunnyjumps", "through vault". Also indicated is the fact that this same calibre of girls engaged in activities which better promoted the successful performance of Abdominal Curl, activities such as axial movements

of bending, curling, stretching, rising, falling, swinging and turning. Thirdly, the girls in the physical activities group also enjoyed participating in activities which promoted the successful performance of the Zig Zag Run, activities such as running and stopping and the "dodge ball" (See lessons for the physical activities group in Chapter Three).

Going by the findings of this present study, generally speaking, average performance of boys in the physical activities group exceeded the average performance of girls in the physical activities group. This is in line with the findings of Wickstrom (1977), Singer (1973) and Espenschade and Eckert (1980) that the average performance of boys usually exceeded the average performance of girls.

Specific Hypothesis Six

Specific hypothesis six, that there will be no significant difference between the mean scores on physical fitness tests between boys taught movement education and girls taught movement education, was rejected. At the pre-test stage the two groups were not comparable in five out of the six test items. At the post test stage boys proved to be significantly better in their performances of the entire six test items. These results were expected in the light of findings made by Singer (1973), Wickstrom (1977) and Espenschade and Eckert (1980) who discovered that the average performance of boys usually exceeded those of girls. However, when we consider that boys in movement education performed significantly better than girls in movement education in all six test items at the post test stage (See Table XX), and that boys in physical activities performed significantly better than girls

in physical activities in all but one test item at the post test stage (See Table XVIII), it can be assumed that boys in movement education gained more than boys in physical activities in terms of physical fitness development. This assumption is further confirmed by results obtained in Table X which indicate that although physical activities boys were comparable to movement education boys in four test items, in the remaining two test items, movement education boys performed significantly better than physical activities boys.

Training in movement education encourages body awareness, space awareness, awareness of rhythm and of flow. Fitness is said to be specific to different parts of the body (Arnheim et al, 1978). Movement education in particular focuses attention to the use of different body parts. This in turn encourages the development of physical fitness parameters in different parts of the body, as can be seen in the case of boys in the movement education group of the present study.

Specific Hypothesis Seven

Specific hypothesis seven, that there will be no significant difference between the mean scores on sports skills tests between the group of boys taught physical activities and the group of girls taught physical activities was rejected.

Right from the onset, the group of boys proved to be significantly better in all test items. This was again maintained at the post test stage. In essence therefore, boys proved to be significantly better than girls in

1. explosive strength and speed, these being factors measured in the 40 yard (36.6 metres) Dash;
2. explosive strength and flexibility of the shoulder girdle, these being the factors measured in the Tennis ball Throw; and
3. explosive strength of leg, thigh and low back, these being factors measured in Standing Long Jump.

Once again, these findings are in line with those of Wickstrom (1977), Singer (1973) and Espenschade and Eckert (1980) that the average performance of boys usually exceeded the average performance of girls.

Specific Hypothesis Eight

Specific hypothesis eight, that there will be no significant difference between the mean scores on sports skills tests between the group of boys taught movement education and the group of girls taught movement education, was rejected. At both the pretest stage and the post test stage, the boys proved to be significantly better than the girls in all three test items of the Sports Skills Tests. Yet again, these findings are in line with those of Wickstrom (1977), Singer (1973) and Espenschade and Eckert (1980), that the average performance of boys usually exceeded those of girls.

To summarise this section which compared performances of the boys and those of the girls in the two batteries of tests used in this study therefore, three conclusions were arrived at:

1. Boys, whether in the physical activities group or in the movement education group, performed significantly better than the girls in the corresponding groups.

keep pace with each other in physical development, attitudes and interest. However, it was not specified as to whether it is boys who keep pace with girls, or vice versa. It is assumed that one would be ahead of the other sex at any rate. We know (See Chapter Three) that children have a wide range of individual differences, that children enjoy vigorous body activities, that boys are generally more active and boisterous than girls. The fact that the boys were challenged more might have been another factor which was responsible for boys in the present study to have more favourable results than the girls.

Kinesthesia, which according to Scott (1955), contributes to the ability to learn well as well as perform motor skills, is specifically encouraged to develop in movement education classes. The repeated performances of any physical act encourages the "consciousness of muscular movement and effort and a keenly developed sense." Scott (1955). In physical activities classes of the present study, certain recognisable physical acts such as the "handstand" was demonstrated to the children. Having observed such an act, they practiced its execution. They kept on practicing the handstand until they could perform the "handstand". The more they practiced the handstand, the more kinesthetically aware they became as regards doing the handstand. Very often in the movement education classes, children performed activities which were not recognisable as "the handstand". The reason for this was concerned that the teacher \angle herself with the aim of making the child aware of the basic principles of movement which applies not only to

doing the handstand, but also to doing other physical acts in general. Laban (1948), Cullen and Huelster (1962), Barrett (1970) and Kirchner (1978) among others, encouraged the teaching of movement principles. They speculated that transfer of this training will result in general physical readiness for the development of physical skills and sports skills (See Chapter Two). While the explanation/demonstration teaching approach of the physical activities yields faster results in terms of children being able to perform recognised skills, the movement exploration approach of movement education yields desirable results after a longer period. The important point is that eventually, both approaches will yield desirable results. Time is needed for the effectiveness of movement education to be realised. This is evidenced in this study by the fact that despite the short treatment period (6 weeks) more gains were achieved by the pupils in the movement education group than were achieved by pupils in the physical activities group in a number of test items. (See Tables VI, X and XVI respectively) If the treatment period had been lengthened, findings of the study might well be in line with those of Vitalone (1963), Gravlee (1965), Leslie (1969), Dougherty (1970), McRell (1971) who are all supportive of the need for time in order to make evident the effectiveness of movement education.

The present study was undertaken to see whether or not movement education can be a substitute for physical education where the children attending the particular primary schools in the City of Lagos used in the present investigation, are concerned. To be adequate implies either being significantly better than the other

group, or not having the other group proving to be significantly better than the group under consideration. The group under consideration in this study is the movement education group while the other group is the physical activities group. Following is a summary of results which directly addressed themselves to particular hypotheses.

In comparing post test mean scores of physical fitness tests when considering the entire population of physical activities group and the entire population of movement education group, the physical activities group proved to be significantly better in two test items only, out of the six test items.

In comparing post test mean scores of sports skills tests when comparing the entire population of physical activities group and the entire population of movement education group, the former group proved to be significantly better in two out of three test items.

In respect of boys versus boys, in physical fitness tests, boys in the physical activities group was not significantly better in any of the six test items.

When boys in physical activities group were compared with boys in the movement education group in sports skills boys in the physical activities group was significantly better in only one out of the three test items.

As regards performances of girls, girls in the physical activities group did significantly better in two out of the six test items of the physical fitness tests.

Finally, girls in the physical activities group did significantly better than girls in the movement education group in only one out of the three sports skills test items.

By and large, it has been demonstrated in the present study that movement education can adequately substitute for physical education where those children, attending the particular primary schools in the City of Lagos, used in the present investigation are concerned. Results obtained indicate that the problems of space and equipment can be circumvented.

CHAPTER SIX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The study was undertaken to determine the extent to which movement education can adequately lead to the realisation of physical education objectives at some primary schools in the City of Lagos. Concisely, physical education objectives include the acquisition of physical fitness, the development of sports skills, the possession of knowledge and understandings associated with sports, exercise and dance, and emotional and social growth through the experience of participation in a group and through the experience of failures and successes at performances. The primary focus of this research was directed to see whether similar or better gains in the development of physical fitness skills and sports skills would be achieved through movement education compared to physical activities. The former is conducted with the movement exploration approach while the latter is conducted with the explanation demonstration approach.

Effects of change over a period of six weeks or more precisely, a total of sixteen 25 minutes long teaching periods, was determined through two measurements. The two test batteries used as measurements were:-

1. Modified Physical Fitness Tests, and
2. Modified Sports Skills Tests.

The information included in this chapter must be considered in view of the limitations of this study.

The study was limited to the final research sample of 228 subjects.

The study included children aged between seven and nine years firstly because children of this age group have not succumbed to increasing peer pressure and secondly because of the time children reach ages between seven and nine years they should be used to various experiences brought about by the nature of the school curriculum. This study was limited to three fee paying primary schools for various reasons:

- (a) To have access to the use of more space, more sports equipment and to be assured of scheduled physical education periods on the schools' timetables.
- (b) English, which is the medium of instruction in the schools chosen, is more suitable for movement exploration instruction in movement education.

The scope of ascertaining to what extent physical education objectives have been realised was limited to two objectives only. They are the improvement of physical fitness and the development of sports skills. Though not directly measured in the present study, cognitive growth and affective development were indirectly measured. It is implied that by the mere fact that there is evidence of improvement in the physical fitness tests and in the sports skills tests, the subjects must have had to involve the thinking process. Furthermore, cordial interaction must have taken place among the pupils during the activity sessions held during the treatment period, hence the opportunity to improve in physical fitness and in sports skills.

explanation demonstration. It is direct, it is to the point. However the teaching approach of teaching movement education is movement exploration. Movement exploration, rather than precisely instructing the pupils as to what to do, guides them towards the realisation of definite goals.

Pupils in a movement education class are trained to develop "awareness" which Morison (1960), Randall (1956) and Cameron et al (1963) talked about in Chapter II. According to these authors, awareness implied transfer of learning. They claimed that through awareness, "mobility is maintained, coordination is developed and the correct application is developed." The sweeping nature of this statement spurred Munrow (1952) to pose the question as to whether the physical training involved in a study of the art of movement would contribute to an all round general ability in the performance of specific skills. Munrow eventually came to the conclusion "... by a sound grounding in certain fundamental types of movement, one can prepare the ground, so to speak, for the super position of the particular skills which require the particular movements." He concluded by saying, "I will not question the transference of this sort of training." Randall also succinctly concluded, when deliberating on the question of transfer of training, "So presumably, basic movement should be a foundation for all physical skills." The training of the body in basic movements is time consuming, for one has to understand, internalise and eventually practicalise the motion factors. Randall, together with Morison and Munrow all implied the need for time for the basic training in movement education. This basic training lays a firm foundation for later

The evaluative instruments were limited to three gross motor skills tests and to six items on a battery of physical fitness tests.

Summary of Results

The resultant calculations of both pre-tests and post-tests mean scores of (a) Physical Fitness Tests and (b) Sports Skills Tests indicate the tendency for the movement education subjects to gain more on the Physical Fitness Tests and for the physical activities subjects to gain more on the Sports Skills Tests. The boys scored higher and performed better than the girls in both the Physical Fitness Tests and in the Sports Skills Tests.

Physical Fitness Tests.

The first general hypothesis, that there will be no significant difference in the level of physical fitness between the group taught physical activities and the group taught movement education, was rejected. This was so because the physical activities group scored higher and performed better in two of the six test items. However, the movement education group not only scored higher and performed better in two test items, but also proved to be adequate in the last two test items. Adequate, in terms of the physical activities group not being significantly better than the movement education group.

The specific hypothesis stating that there will be no significant difference between mean scores on physical fitness tests between boys taught physical activities and boys taught movement education was upheld. This was so because not only was movement

education adequate in four of the six test items, boys in the movement education group scored higher and performed better in the remaining two test items. These findings show that boys responded very well to the movement exploration approach of movement education. Improvement in all the physical fitness test items made by the boys in the movement education group exceeded those made by the boys in the physical activities group.

Another specific hypothesis which states that there will be no significant difference in mean scores on physical fitness tests between girls taught physical activities and girls taught movement education was rejected. Although not only was movement education adequate in three of the six test items, girls in the movement education group scored higher and performed better in one test item. Going by the foregoing, movement education appears to encourage the development of physical fitness more than physical activities does. The fact that in a few instances, subjects in physical activities scored higher and performed better in some physical fitness test items, is meaningful. According to Arnheim et al (1978), physical fitness of the body is not general, but specific. While certain types of exercises and while certain approaches of teaching these exercises encourage the fitness of particular parts of the body, other types of exercises and other approaches of teaching these exercises encourage the fitness of other parts of the body. This theory is supported by the findings of this study. The movement exploration approach of teaching movement education encourages body awareness, space awareness awareness of rhythm and also the recognition of the appropriate flow of any given

action. (See Chapter Three) The resulting "effort training" (Laban, 1948), definitely encourages physical fitness of a large proportion of the body.

Sports Skills Tests.

The second general hypothesis that there will be no significant difference in sports skills performances between the group taught physical activities and the group taught movement education is rejected, although the movement education group proved adequate in one of the three test items, while the physical activities group scored higher and performed better in the remaining two test items.

The Specific hypothesis which states that there will be no significant difference in sports skills performance between the mean scores on sports skills tests between boys taught physical activities and boys taught movement education was rejected although movement education proved to be adequate in two of the three test items. Boys in the physical activities group scored higher and performed better in one test item.

Another specific hypothesis which states that there will be no significant difference between mean scores on sports skills tests between girls taught physical activities and girls taught movement education was rejected, although movement education again proved to be adequate in two of the three test items. Girls in the physical activities group scored higher and performed better in one test item.

It can be said therefore, that physical activities encourages the development of sports skills more than movement education does. The teaching approach of conducting physical activities is

learning of sports skills. Empirical studies have since been carried out and findings of studies by Vitalone (1963), Gravlee (1965), Leslie (1969), Dougherty (1970), and McRell (1971) are all supportive of the fact that time is a much needed factor in order to make evident effectiveness of movement education.

The last four hypotheses deal with sex. Findings of the present study are in agreement with those of Singer (1973), Wickstrom (1977) and Espenschade and Eckert (1967), that the average performance of boys usually exceeded the average performance of girls.

Results of the present study have demonstrated the followings:

1. That movement education has been able to encourage the development of physical fitness in 7-9 year old children in some primary schools in the City of Lagos.
2. That movement education has, though not to the same extent as in physical fitness, been able to encourage the development of sports skills in the same category of children.
3. For children involved in movement education, not only was cognitive growth encouraged, but affective development also.

All these results were obtained inspite of relative

1. Lack of space and
2. Insufficient equipment and supplies.

Relative in terms of expected available space and equipment and supplies needed in the effective teaching of physical education anywhere else in the world such as in Great Britain and Canada.

Educational Implications Emerging from the Findings.

It is important to point out some important practical educational implications of the present study and findings. The evidence of this study that movement education is adequate as a substitute for physical education in some primary schools in the City of Lagos appears to have some practical educational implications. These are:

1. That movement education can be taught in primary schools in the City of Lagos, instead of merely attempting to teach physical education. By so doing objectives of physical education will be more fully realised.
2. That material for teaching movement education can easily be obtained. The Federal Ministry of Education Syllabus may well be a good source.
3. That the present available space even classroom space can be utilised for the purpose of teaching movement education in many primary schools.
4. That the present available equipment and supplies can be used in conducting movement education in primary schools.

In the light of the above therefore it is hereby recommended

1. that movement education be taught on a regular basis in primary schools in the City of Lagos;
2. that movement education be included in the training of primary school teachers; and
3. that periodic training courses in movement education be conducted for the purpose of familiarising the already qualified primary school teachers, with movement education.

Suggestion for Further Study.

One suggestion for future research seems apparent as a result of findings in the present study. A similar study should be conducted over a longer period of time. The same age subjects should be used and the treatment period should extend to a period of six months. It would be interesting to see whether the movement education group will prove superior to the physical activities group not only in all six test items of the physical fitness tests, but also in the three test items of the sports skills tests.

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APPENDIX 1PHYSICAL FITNESS NORMS *1. Wall Push Away.

	Sex: Male Class III					TOTAL SUBJECTS
	Superior or 19 or more w.p.a.	Good or 16-18 w.p.a.	Fair or 14-15 w.p.a.	Poor or 12-13 w.p.a.	Inferior or 11 and Less w.p.a.	
Number of Subject in the range	6	11	10	3	0	30
% of subject in the range	20%	36.7%	33.3%	10%	0	100%

Wall Push Away

	Sex: Female Class III					TOTAL SUBJECTS
	Superior or 18 or more w.p.a.	Good or 16-17 w.p.a.	Fair or 14-15 w.p.a.	Poor or 12-13 w.p.a.	Inferior or 11 and Less w.p.a.	
Number of subject in the range	7	10	10	3	0	30
% of subject in the range	23.3%	33.3%	33.3%	10%	0	99.9%

Key.

- * Modified from Physical Fitness Norms for older children by Arnthoin et al. (1978, pp 36-38), based on scores obtained by a total of 60 subjects of the Pilot Study conducted by this Researcher.

2. Abdominal Curl

Sex: Male		Class III				
	Superior or 27 or More a.c.	Good or 23-26 a.c.	Fair or 17-22 a.c.	Poor or 14-16 a.c.	Inferior or 13 or Less a.c.	TOTAL SUBJECTS
Number of Subjects in the range	9	10	10	1	0	30
% of subjects in the range	30%	33.3%	33.3%	3.3%	0	99.9%

Abdominal Curl

	Sex: Female	Class III				
	Superior or 26 or More a.c.	Good or 22-25 a.c.	Fair or 18-21 a.c.	Poor or 16-17 a.c.	Inferior or 15 or Less a.c.	TOTAL SUBJECTS
Number of subject in the range	9	11	8	2	0	30
% of Subjects in the range	30%	36.7%	26.7%	6.7%	0	100%

3. Straight Back Raise:

	Sex:	Male	Class III			
	Superior or 20 or More s.b.r	Good or 17-19 s.b.r.	Fair or 15-16 s.b.r.	Poor or 13-14 s.b.r.	Inferior or 12 or Less s.b.r.	TOTAL SUBJECTS
Number of subject in the range	6	11	11	2	0	30
% of subject in the range	20%	36.7%	36.7%	6.7%	0	100%

Straight Back Raise

Sex: Female Class III						
	Superior or 19 or more s.b.r.	Good or 17-18 s.b.r.	Fair or 15-16 s.b.r.	Poor or 13-14 s.b.r.	Inferior or 12 or Less s.b.r.	TOTAL SUBJECTS
Number of subjects in the range	8	12	8	2	0	30
% of subjects in the range	26.7%	40%	26.7%	6.7%	0	100%

4. Front Lunge

Sex: Male Class III						
	Superior or 35 or more f.l.	Good or 30-34 f.l.	Fair or 26-29 f.l.	Poor or 22-25	Inferior 18-21 Less f.l.	TOTAL SUBJECTS
Number of subjects in the range	4	10	9	4	3	30
% of subject in the range	13.3%	33.3%	30%	13.3%	10%	99.9%

Front Lunge

Sex: Female Class III						
	Superior or 36 or more f.l.	Good or 28-35 f.l.	Fair or 23-27 f.l.	Poor or 18-22 f.l.	Inferior or 17 or less f.l.	TOTAL SUBJECTS
Number of subject in the range	8	9	7	5	1	30
% of subjects in the range	26.7%	30%	23.3%	16.7%	3.3%	100%

5. Zig-Zag Run

Sex: Male Class III						
	Superior or 10.8 Secs. & Less	Good or 10.8- 11.9 Secs.	Fair or 12.0- 12.9 Secs.	Poor or 13.0- 13.9 Secs.	Inferior or 14.0-14.9 Secs.	TOTAL SUBJECTS
Number of Subjects in the range	1	16	11	2	0	30
% of subjects in the range	3.3%	53.3%	36.7%	6.7%	0	100%

Zig-Zag Run

Sex: Female Class III						
	Superior or 11.0 & Less Secs	Good or 11.1- 11.9 Secs.	Fair or 12.0- 12.5 Secs.	Poor or 12.6- 15.0 Secs.	Inferior or 15.1 and Less Secs.	Total Subjects
Number of subjects in the range	6	10	11	3	0	30
% of subjects in the range	20%	33.3%	36.7%	10%	0	100%

6. Bench Step

Sex: Male Class III						
	Superior or 16 or more b.s.	Good or 13-15 b.s.	Fair or 11-12 b.s.	Poor or 9-10 b.s.	Inferior or 7-8 less b.s.	TOTAL SUBJECTS
Number of subjects in the range	9	13	7	1	0	30
% of subject in the range	30%	43.3%	23.3%	3.3%	0	99.9%

Bench Step

Sex: Female Class III						
	Superior or 16 or more b.s.	Good or 14-15 b.s.	Fair or 12-13 b.s.	Poor or 10-11 b.s.	Inferior or 9 or less b.s.	TOTAL SUBJECTS
Number of subjects in the range	6	11	10	3	0	30
% of subjects in the range	20%	36.7%	33.3%	10%	0	100%

APPENDIX 2

SPORTS SKILLS NORMS1. 40 Yards Dash (36.6 metres).

Sex: Male		Class III				TOTAL SUBJECTS
	Superior or 6.6 or Less Secs.	Good or 6.7-7.0 Secs.	Fair or 7.1-7.4 Secs.	Poor or 7.5-7.6 Secs.	Inferior or 7.7 or more Secs.	
Number of subjects in the range	8	13	6	3	0	30
% of subjects in the range	26.7% approx.	43.3% approx.	20%	10%	0	100%

2. 40 Yards Dash (36.6 metres).

Sex: Female		Class III				TOTAL SUBJECTS
	Superior or 7.0 or less Secs.	Good or 7.1-7.8 Secs.	Fair or 7.9-8.9 Secs.	Poor or 9.0-10.0 Secs.	Inferior or 10.1 or more Secs.	
Number of subjects in the range	8	11	10	1	0	30
% of subjects in the range	26.7% approx.	36.7% approx.	33.3% approx.	3.3% approx.	0	100%

3. Softball Throw

Sex: Male		Class III				TOTAL SUBJECTS
	Superior or 24 metres or more	Good or 20-23.99 metres	Fair or 15-19.99 metres	Poor or 12-14.99 metres	Inferior or 11.99 metres or less	
Number of subject in the range	7	10	9	4	0	30
% of subjects in the range	23.3%	33.3%	30%	13.3%	0	99.9%

Key.

- + Modified from Sports Skills Norms for older children by Arnthelm et al. (1978, pp. 221-222), based on scores obtained by a total of 60 subjects of the Pilot Study conducted by this Researcher.

4. Softball Throw

		Sex: Female Class III				
	Superior or 18 Metres or more	Good or 12-14.9 metres	Fair or 9.91- 11.99 metres	Poor or 8-9.90 metres	Inferior or 7.99 or less metres	TOTAL SUBJECTS
Number of subject in the range	8	11	10	1	0	30
% of subject in the range	26.7% approx.	36.7% approx.	33.3% approx.	3.3% approx.	0	100%

5. Standing Long Jump

		Sex: Male Class III				
	Superior or 1.90 metres or more	Good or 1.80- 1.89 metres	Fair or 1.70- 1.79 metres	Poor or 1.60- 1.69 metres	Inferior or 1.59 metres or less	TOTAL SUBJECTS
Number of subjects in the range	5	11	11	3	0	30
% of subjects in the range	16.7% approx.	36.7% approx.	36.7% approx.	10%	0	100%

6. Standing Long Jump

		Sex: Female Class III				
	Superior or 1.80 metres or more	Good or 1.65- 1.79 metres	Fair or 1.30- 1.64 metres	Poor or .98- 1.29 metres	Inferior or .97 metres or less	TOTAL SUBJECTS
Number of subjects in the range	5	11	13	1	0	30
% of subjects in the range	16.7% approx.	36.7% approx.	43.3% approx.	3.3% approx.	0	100%