Chapter I

INTRODUCTION

I am a cloud in the God’s big sky ........

But so well I can see with my eyes.

I may be slow though,

But I am not dumb

Let me walk with you ......

Hand in hand and not behind

If I had but three wishes.

I’d wish for happiness

I’d probably wish to be whole and

Wish to be accepted for I am¹.

The poem expresses the noble sentiment of a disabled person, who longs to be accepted for what he is worth, affection, recognition,

understanding and respect due to an ordinary human being, and he
does not crave for sympathy.

Every disabled person, either physically or mentally, should
have the right to live in a world that does not see him or her as
handicapped, but as a person with a unique set of abilities and life
potentials. Regardless of this ideal, many people look at individual
differences as problems, as opposed to professionally enlightening
challenges.²

Mental retardation, a condition characterized by some degree of
intellectual impairment, has undoubtedly existed and has been
recognised since the emergence of human race. Such incompetent
individuals, unable to meet demands and expectations, are referred to
in both the oral and written histories of Romans, Medieval Europe and
all known contemporary societies.³

² Michael E. Crawford and Ron Mendell, Therapeutic Recreation and
Adapted Physical Activities for Mentally Retarded Individual, (N.J.: Prentice
³ David Auxter and Jean Pyfer, Principles and Methods of Adapted
Physical Education and Recreation, Sixth Ed. (St. Louis: Times Mirror/Mosby
In its mildest form, mental retardation is typically undetectable in less complex societies where successful adjustment does not rely heavily on language and abstract thinking skills. Contributing further to this lack of visibility in underdeveloped cultures is the fact that mild mental retardation is rarely accompanied by biological defects or obvious physical stigmata. The more severe forms of retardation, however, often caused by brain injury or genetic disorders, are deviant in all cultures, creating significant family and social disruptions as well as highly recognizable pathology in the affected individual, as for example, in Down’s syndrome

Though mental retardation is not an uncommon phenomenon, yet most of the people remain unmoved by it, unless they are directly or indirectly affected at the personal level in the context of family, friends or relatives. Hence little attention has been paid to it. The phenomenon of mental retardation is not restricted to any one social class, as it cuts across all socio-economic levels.

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Early concepts of mental retardation viewed the condition as an inherited disorder that was essentially incurable. This notion resulted in hopelessness on the part professionals to minimize the social and physical separation of persons who were mentally retarded. It is now recognized that mental retardation is not a fixed, unalterable condition that condemns an individual to a static, deprived lifetime of failure. Rather, it is obvious today that cognitive, psychomotor and affective behaviours are dynamic process, and if properly stimulated, can be developed further than ever before imagined. After years of research and innovative programming, it is now recognized that intelligence and other functions are dependant on the readiness and experience of the child, the degree and quality of environmental stimulation, and many other variables.

To gain a real sense of how people view retarded persons, it is helpful to explore some of the common misconceptions one is likely to encounter.

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Misconception 1: Retarded persons are persons to be afraid of because they aren’t rational. They can’t control their actions and feelings.

It is a wrong concept. Retarded persons are as rational as we are and can control their action and feelings as we control them.

Misconception 2: “We should feel sorry for them”.

Pity they do not need. It is counter productive to human development. What they need is acceptance, respect and good educational, vocational and recreational programming and opportunities.

Misconception 3: “Disabled children or persons need to be taken care of and they need this care all of their lives.

Of course the severely retarded do require custodial care but mild and moderate retarded are able to lead independent, self-sufficient lives’.

To discuss the mentally retarded in detail one must address many definitional problems. There are differences among professionals, professional organizations and legal experts regarding

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6 Crawford and Mendell, Therapeutic Recreation and Adapted Physical Activities for Mentally Retarded Individual, P. 4.
the definitions of various countries. Controversy has always surrounded the terminology, classifications and definition of mental retardation. Professionals continue to search for new, more acceptable terms and definitions. The field has a long history since the early 1900's, when terms such as "idiots", "imbecile" and "moron" were used to describe categories of retardation. These terminologies were later replaced by the educational classifications such as 'trainable' and 'custodial' and medical classification terms like 'mild', 'moderate' and 'severe' retardation. Some professionals from USA use terms like 'educationally handicapped' and 'general learning disabled'. The National Association for Retarded Citizens, a parent advocacy, once used terms, 'independent', and 'semi-independent' and 'total care' to categorise the levels of retardation from mild to severe respectively. Unfortunately in time they too will acquire the negative connotations associated with their earlier terminology. 

7 Ibid., P. 6;
The most widely accepted definition of mental retardation is the definition outlined by the American Association on Mental Deficiencies (AAMD) which states that,

"Mental retardation refers to significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period."

There are three major components to the definition of mental retardation:

1. Low intellectual functioning.
2. Deficiency in adaptive behaviour.
3. Acquisition in developmental period.

1. Low Intellectual Functioning:\

A score that deviates more than two standard deviation from the mean of 100 is considered to be significantly different. An individual

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9 Crawford and Mendell, Therapeutic Recreation and Adapted Physical Activities for Mentally Retarded Individuals. P.8.
who scores below two standard deviations in the intelligence test is in the range of mental retardation. Depending upon tests, individuals with IQ's of approximately 68 to 70 or lower would be considered mentally retarded. Children who score between 70 and 84 were previously classified, as borderline retarded but are no longer considered mentally retarded.

2. Deficiency in Adaptive Behaviour:

The ability of an individual to cope with natural and social demands of the environment is adaptive behaviour. Impairment of adaptive behaviour is defined by AAMD as significant limitations in a person's ability to meet the standards of maturation, learning, personal independence and social responsibility that would be expected of another individual of comparable age level and cultural group\(^\text{10}\). Deficits in the adaptive behaviour may vary as a mal-function at the individual's developmental level or some complexity of the cultural

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\(^{10}\) Claudine Sherril. *Adapted Physical Education and Recreation: A Multidisciplinary Approach* (IOWA, Dubuque: W.C. Brown College Division, 1986), P. 152.
context in which he/she must function. For example, deficits in the adaptive behaviour in younger children are generally reflected in the late achievement of maturational benchmarks such as development of sensory motor skills, communication skills, self help skills and socialization. In adolescents, adaptive behaviour problems are typically defined in terms of child’s inability in the application of basic academic skills in daily life activities, the application of appropriate reasoning and judgement in mastery of the environment and social skills. In adults adaptive behaviour is primarily a function of successful, social and vocational responsibility\textsuperscript{11}. For the most part, a deficit exists when a person lacks average ability to adjust responses to environmental demands. Inability to effectively modify behaviour may result from any or all of the following:

(i) A delay in acquiring early perceptual motor skill that are pre-requisites to commanding physical and intellectual tasks.

(ii) A lack of knowledge because of limited experience.

(iii) A lack of understanding of social behaviours needed to maintain oneself in the community in gainful employment, and during exchange with other members of the community\textsuperscript{12}.

3. Acquisition During Development Period:

This means that it should have surfaced some time between the pre-natal period and eighteen years of age. Pre-natal causes of retardation include such things as certain chromosomal anomalies or maternal diseases during the pre-natal period. Problems at birth, such as anoxia or brain damage, can also cause retardation. During the first few years of life, such factors as severe deprivation of stimulation and malnutrition can result in retardation. In a large number of cases the child has been observed by parents to be 'slow' from birth. Delayed sitting, crawling and walking are often the first clues that a child may be mentally retarded. The slowness in acquiring knowledge becomes most apparent when a child reaches school age and his/her

\textsuperscript{12} Auxter and Pyfer, Principles and Methods of Adapted Physical Education and Recreation, P. 192.
performance is compared with that of others in a structured group setting\textsuperscript{13}.

Approximately 6.5 million Americans meet the criteria of the mentally retarded population, 89% are mildly retarded (IQs of 53 to 70). The moderately retarded individuals, who have IQs within the range of 36 to 52, comprise about 6% of the mentally retarded population. Severely mentally retarded individuals who have IQs between 20 and 35 points comprise about 3.5% of the mentally retarded population and profoundly mentally retarded individuals who have IQs between 0 and 20 comprise about 1.5% of the population\textsuperscript{14}.

India being the second most populous country in the world, the proportion of mentally retarded persons in the country is alarming. Unfortunately, however, no national survey has been carried out. Not would it be possible in the near future to estimate the actual number of

\textsuperscript{13} C. Corbin, \textit{A Textbook of Motor Development}, 2\textsuperscript{nd} Ed. (Dubuque, IA: Wm.C. Brown, 1980), P. 28.

mentally retarded, because of paucity of trained manpower and other material resources in addition to motivational factors.

Several sample surveys have been carried out from time to time. According to this estimate, over 3 percent of the children between 6 to 16 years of age were retarded. As expected, the majority of them (nearly 90%) were mildly retarded. The proportion of retarded males out numbered retarded females (1.65:1); and retarded children were mainly concentrated in lower school grades.\textsuperscript{15}

Given the current state of medical intervention, for example, it is not likely that an individual born with only half of badly damaged cortex will ever be anything but profoundly mentally retarded. If ever the ability to do brain transplants is achieved, however, even this dire prognosis could be reversed. On the other hand, an individual who is considered as mentally retarded because of emotional disturbance or because of early cultural deprivation may after the remission of emotional symptomatology or under more appropriate conditions of intellectual stimulation, progresses to the point where he/she is no

longer considered as mentally retarded. In short, the AAMD definition has made it possible to be optimistic about mental retardation, particularly in the era of rapid advances in medicine, psychology and education and their related technologies, rather than be hopelessly resigned.

The retarded child is less capable in motor development and motor skills than their normal peers. Gross-motor and fine-motor coordination can be problem. But, these very children have striven great heights at the Special Olympics. They jumped higher, ran faster and become stronger through care and planning. Parents of retarded children should get to the root of the problem instead of hiding their child and efforts should be made to mainstream these children gradually with normal children. It is thus sheer neglect on our part, which has made these children so helpless, and a burden to society. However, these days’ attitudes are changing. One has to slowly push them towards their boundaries so that their movement or vocabulary

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increases and becomes less lopsided\textsuperscript{17}. They can then gain their rightful place in society and be economically sound since motor skills can be profitably used throughout their lifetime.

Physical activity is an important factor in the learning process. Once the child learns the locomotor patterns of walking or running he/she is able to explore his environment and develop the concepts of space. Some researchers have suggested that all learning, academic as well as motor depend upon the early locomotor and manipulative experiences. Successful experiences in physical activity are believed to enhance the development of favourable body image, while sparse or unsuccessful experience contributes to the formation of a poor body image\textsuperscript{18}.

The mentally retarded children can learn skills but has difficulties in integrating them into movement patterns. In teaching them there is a need to go slowly, to repeat often, to drill and to

\textsuperscript{17} Veronica Sherbone, Proceedings of the 7\textsuperscript{th} Commonwealth International Conference of Sports, Physical Education, Recreation and Dance. 1982.

\textsuperscript{18} Charles A. Bucher, Foundation of Physical Education, (St. Louis: C.V. Mosby Company, 1977), P. 404.
review. Verbal direction must be kept to the minimum. The teacher or leader must demonstrate and must participate when needed\(^\text{19}\).

The mentally retarded children need physical education and a valuable service can be rendered by providing programmes for these students. The retarded have poor motor coordination, lack of physical and organic fitness and have poor posture. Research reports indicated that they have been denied a planned programme in physical education. Often they are placed in regular physical education classes without regard to their unique needs\(^\text{20}\).

According to Julien Stein, of crucial importance to improve motor performance capacity of mentally retarded and disabled person are, systematically designed, replicable physical education, recreation, sport and psychomotor function materials which have been evaluated and deemed effective by evidence collected\(^\text{21}\).

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\(^{21}\) Julien V. Stein, "Today is Yesterdays Tomorrow" (Proceedings of the VII Commonwealth and International Conference of Sports, Physical Education, Recreation and Dance, 1982).
In the late 1960s and 1970s institutions in the USA that served retarded persons, began designing and implementing educational programmes intended to develop independent living skills of retarded persons to enable them to function in community settings. As institutionalized retarded individuals rose to the challenge of these educational programmes, a movement began to promote their placement in communities. Thousands of persons were removed from the institutions and allowed to take up their rightful places as contributing members of communities\textsuperscript{22}.

As institutions began to develop viable educational programmes, public schools took up their responsibility toward young mentally retarded children living in the communities. Professionals trained in appropriate teaching techniques were hired by the school system. All except the most severely mentally handicapped individuals are living, going to schools, and working in the community\textsuperscript{23}.

\textsuperscript{22} Auxter and Pyfer. Principles and Methods of Adapted Physical Education and Recreation, P. 192.
\textsuperscript{23} Ibid.
Bringing these children into the main stream of life requires well-planned adapted physical education programmes, which provides them opportunities to play and acquire skills to improve their motor capacity. Only then their physical fitness can be improved. Adapted physical education in India is still in the early days of development. There is no national policy pertaining to physical education for the mentally disabled as such. Recently National Council of Educational Research and Training has made some effort to develop adapted physical education curricula for disabled, but it is in the process of field tryout.

Even though there are lots of special schools for mentally disabled individuals, the motor skill instruction is being given by untrained classroom teachers because of the lack of trained professionals in the field of adapted physical education. Another contributing factor that is evident in most of the special education centres is the emphasis placed on Special Olympics rather than on a systematically planned programme for motor skill development. Sports Authority of India conducted some orientation courses for the
teachers of mentally handicapped to acquaint themselves with sports, games and related activities. Unless pressure from parents and professionals is mounted on special education administrators, the efforts to correct the inadequacies for handicapped students, they will remain far below their non-handicapped peers in motor performance.

Despite the differences in attitudes of institutions and organisations responsible for physical education and sports for mentally retarded in different countries, most people do agree on the necessity of an exact knowledge of the individual capacities and on the need for development programmes which include a wide variety of physical, creative and social activities.

The mentally retarded population is comprised of a diverse group of individuals. Thus it is difficult to generalize a set of characteristics to the total population. However, there are general characteristics that are representative of the group. The cognitive and physical guidelines alert the physical educator to the potential nature of the physical education programmes they need.
Alley\textsuperscript{24} analysed the motor performance of 262 learning disabled children and found that the children demonstrated three clearly distinct motor profiles. 26 of the children performed at or above normal standards on all of the perceptual – motor tests. 17 of the children exhibited motor performance 2 to 3 years below peer expectations on all tests. The remaining 210 subjects exhibited a very jagged motor profile. A review of literature reveals that there are many perceptual and cognitive characteristics that may inhibit the learning of motor skills. Examples are less preparation and slower actual movement time and delay in developing postural reflexes.\textsuperscript{25} Also when compared to other persons they are less able to spontaneously predict change.

Two important aspects of learning motor skills are the attention that one gives to the instructional task and the ability to remember and


respond the movement cues. DePauw and Ferrari\textsuperscript{26} indicate that non-handicapped individuals have more difficulty in performing tasks when some interference occurs than the mentally retarded subjects. Thus, once retarded individuals are on task, they are not distracted by extraneous cues and information.

In learning a motor skill, individuals gain information about their responses with no external help. It is intrinsic feedback which is inherent in task itself. Information feedback or augmented feedback is information given to a learner, designated to help him/her repeat correct behaviour, and achieve the desired outcome. Motor performance fails to improve unless augmented feedback is provided. The need of information feedback to improve and sustain performance is an essential learning experience.\textsuperscript{27} Retarded children have difficulties in concept formation (Strain, 1975)\textsuperscript{28}. They can deal with

\textsuperscript{27} M. Pieron, "Physical Education Instruction". The International Encyclopedia of Education, 1985 ed.
\textsuperscript{28} P.S. Strain, "Increasing Social Play of Severely Retarded Pre-Schoolers with Socio-Dramatic Activities". Mental Retardation. 13 (1980): 7-9.
concrete materials but have difficulty in working with abstractions. These children are also considered to have short attention spans (Aloia, 1978). This can be accounted by two factors. First, their attending skills are probably commensurate with their present level of development, which is below that of their chronological peer. Second, their difficulty in attending, inappropriate and difficult task assignments and repeated failures may defer them.

Retarded children often need informative feedback for exposure to information before they can retain it, but some of the memory difficulty is partially related to poor habits such as the inability to organize materials or lack of skill in mental reviewing. Poor memory is also attributed to the difficulty of a retarded person (Rucker and Vincenzo, 1970).

Thus it would seem that a mentally retarded person could make improvement in their movement tasks equal to the improvements of

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their non-retarded counterparts if the retarded individual is helped to understand and remember essential movement information. Another characteristic feature of mentally retarded population is developmental, physical and motor delays. Because of these inherent delays, good physical education programmes are critical for facilitating development. Growth and development is a continuous process in all types of population.

Yabe et al.\textsuperscript{31} found that as subjects with IQ’s of 40 and above increased in chronological age, their reaction times and individual variability decreased. Thus it is reasonable to expect retarded individuals to continually grow and develop through proper physical education programme.

The cardiovascular system is less well developed in many mentally retarded individuals. Poor respiration and susceptibility to respiratory infections may accompany the underdeveloped cardiovascular system. However, there is evidence that the

cardiovascular system can be developed through training regimens. Wright and Cowden 1986\(^{32}\) report the development of cardiovascular endurance through participation in Special Olympics swimming training programmes. Thus mentally retarded person may not need a specific cardiovascular training programme if he/she is given the opportunity to participate in the sports training programmes.

This knowledge of the characteristics of mentally retarded population provides information about the types of programmes that need to be implemented to serve them. This can be accomplished only if those responsible for the conduct of adapted physical education programme are fully knowledgeable about the characteristics and needs of the handicapped and are equipped to put this knowledge to use in designing and conducting physical education programme of appropriate nature\(^{33}\).


In human history, the concept of adapted physical education is a freshly planted seed. The basic of the idea is the awareness that handicapped individuals have the right to experience satisfaction (enjoyment) from purposeful movement, and also the right to participate in movement for remediation and normalization.

After World War I, physical education changed gradually its formal nature to move lively forms like play and sports activities. Even though many schools accepted the play of concept, they still provided a special physical education class to improve posture, but gradually the scope expanded to include a great variety of handicapping conditions.

Special physical education gradually expanded its offerings to incorporate sports, games and rhythms adapted to the needs of the handicapped child. Through the efforts of such pioneers as George Stafford, numerous physical education and recreational activities were found to benefit the total development of the exceptional person.

Many names have been given to the specialized area of physical education that deals with the less endowed individual. These names
have only succeeded in causing confusion as to the real nature and the full scope of the activities available to the handicapped through physical education. The following contain the numerous name attributes to the physical education for the handicapped. They are medical gymnastics, corrective, remedial and rehabilitative physical education, modified, restricted or limited physical education. Special physical education, Developmental physical education, Perceptual motor, Sensoriomotor therapy\textsuperscript{34} etc.

As it is apparent, that great number of names given to the area of adapted physical education only serve to emphasise the wide divergence of opinion as to what these classes really should mean to the student. Consequently, some course titles tend to stigmatisate the student, limit scope and in essence, distort the real intention of the programme.

Because of the great confusion as to the most descriptive title, a survey on recommended terminology was conducted by the committee on adapted physical education of the American Association

\textsuperscript{34} Auxter and Pyfer. *Principles and Methods of Adapted Physical Education and Recreation*. PP. 17-18.
of Health, Physical Education and Recreation in 1947. This survey indicated that "adapted physical education" was the most appropriate title to describe the broad functions of the programme. It is defined as—

"……………… a diversified programme of developmental activities, games, sports, rhythms, suited to the interest capacities and limitations of students with disabilities who may not safely or successfully engage in unrestricted participation in the vigorous activities of the general (physical) education programme". 35

Thus definition was viable throughout the next two decades since adapted physical education teaching practices paralleled the special education procedure of segregating handicapped students in separate classes and / or special schools. Factors contributing to the changes in adapted physical education from 1960s through 1980s include — (a) research; (b) establishment of a structure within AAHPERD to serve handicapped person; and (c) development of athletic programmes for various handicapped groups.

35 Ibid.
Research for the past two decades has created a virtual knowledge explosion within the field of adapted physical education. Three definitions are needed to explain the believing, doing and knowing components of adapted physical education in the changing environment. First, adapted physical education is an attitude, a way of teaching in both mainstream and segregated environments, that is reflected in the beliefs and practices of teachers who adjust learning experiences to meet individual needs and assure optimal success in physical and motor functioning. This definition may be most appropriate for school personnel already in the field, particularly physical educationists.

Adapted physical education is also a comprehensive service delivery system designed to identify and ameliorate problems in the psychomotor domain. Services include individualized educational planning, psychomotor assessment, developmental and/or prescriptive teaching, fitness and leisure counseling, co-ordinating related services

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36 Sherrill, Adapted Physical Education and Recreation: A Multidisciplinary Approach, PP. 10-11.
and resources, and advocacy experience in all human beings.\textsuperscript{37} This definition of adapted physical education as a profession seems more appropriate for adapted physical education specialists. Adapted physical education is body knowledge that focuses upon identification and remediation of problems with psychomotor domain in individuals who need assistance in the mainstream and/or specially designed physical education services.\textsuperscript{38} This definition is most appropriate for describing what is taught in university courses.

The major purpose of adapted physical education is the same as that of regular physical education: to change psychomotor behaviours thereby facilitating self-actualisation, particularly as it relates to understanding and appreciation of body and its capacity for movement.

Every effort must be made to ensure that mentally retarded students are provided an appropriate physical education programme that will promote their eventual ability to perform as independently as is humanly possible. Parent and educators must insist that

\textsuperscript{37} Ibid.
\textsuperscript{38} Ibid.
handicapped students are appropriately placed in physical education on the basis of individual test results and that qualified adapted physical educator provide appropriate programme to ensure educational gains.

Motivation is essential to the learning process. People can be placed in learning situation but if they are not motivated they will not learn. When even a mentally retarded child is successful in performing any part of an activity or skills, he/she should receive genuine praise and encouragement.

Reward serves as a powerful source of motivation for the children to continue to try to live up to the expectations. If their efforts go unnoticed or unappreciated, they may lose their interest gradually. Rewards play three important roles in teaching children to behave in a socially approved way. First, they give an educational value, second, rewards serves as motivations to repeat socially approved behaviour.

And third, reward serves to reinforce socially approved behaviour and absence of rewards weakens the desire to repeat the behaviour.\footnote{Elizabeth B. Hurlock, \textit{Child Development} (Koga Kusha: McGraw Hill Inc., 1978), P. 399.}

The need of the hour is ‘action’ and a concerted effort to get these mentally retarded children in to the mainstream of life. There is no better way to develop confidence in the mentally retarded than through a systematic and scientific programme of special/adapted physical education. In India the concept of adapted physical education is in the primary stages of development. The Union government would do better to implement regulations that ensure a comprehensive service delivery system in physical education to handicapped. Preparation and subsequent employment of adapted physical educators is perhaps the key factor in assuring that handicapped individuals receive appropriate physical education services. Most of the special school authorities and other agencies are ignoring the requirement of trained adapted physical education teachers to be placed in the school systems of this country. As a result, the needs of
the handicapped children relating to adapted physical education continue to go unfulfilled.

At present there are only very few universities in this country preparing professional with skills to adequately teach or lead recreation for handicapped. There is a need for more universities/institutes to train teachers so that they can provide quality assured physical education to handicapped individuals.

Physical education for handicapped has been mandated for over decades. As a result of mandated physical education programmes, there are undoubtedly several model programmes in operation. Even with financial assistance from the government to develop adapted physical education teachers and programmes, physical education for handicapped is still inadequate. In India, it is painfully clear that physical education for handicapped students remains a woefully neglected and underdeveloped area of school programme.

Progress must be an end product of all; efforts and use of resources must result in productive findings. Keeping the above factors in mind the research scholar felt a need to undertake a study
with a purpose to substantiate the effect of adapted physical education programme on the motor performance of mentally retarded individuals.

**Statement of the Problem**

The purpose of the study was to find out the effect of 24 weeks adapted physical education programme with and without reward upon motor performance of educable and trainable mentally retarded individuals.

**Delimitations**

The study was delimited to the following:

(i) The study was delimited to the male and female students of Pratheeksha Training Centre for Mentally Retarded at Irinjalakuda, Kerala.

(ii) The study was delimited to age group from 10 to 15 years for both the sexes.
(iii) The study was delimited to 24 weeks adapted physical education programme.

(iv) The study was further delimited to tangible reward technique.

(v) The study was also delimited to following test items from the Basic Motor Ability Test (BMAT).\(^{42}\)

Sub Test:

7. Chair pushups.
5. Standing broad jump.

(vi) The study was further delimited to following test items from the Bruininks – Oseretsky test of Motor Proficiency.\(^{43}\)

Sub Test: Item no. Item


2. Balance. 2. Standing on preferred leg


on balance beam.

5. Walking forward on balance beam.

3. Bilateral Coordination. 6. Jumping up and clapping hands.

7. Jumping up and touching heels with hands.

4. Sit-ups. 2. Sit-ups.

5. Upper limb coordination. 3. Catching a tossed ball with both hands.

5. Throwing a ball at a target with preferred hand.

**Limitations**

The subjects were from different socio-economic status, having different dietary habits, following different modes of living and with differences in terms of interaction with peers. The effects that might have accrued due to these uncontrollable factors were recognized as limitations of the study.
Hypotheses

1. It was hypothesised that educable and trainable mentally retarded individuals may improve in motor performance due to the implementation of twenty-four weeks adapted physical education programme.

2. It was also hypothesised that significant difference in motor performance may also occur among the groups with respect to the rewards offered.

Definition and Explanation of Terms

Adapted Physical Education

Adapted physical education is an attitude, a way of teaching in both mainstream and segregated environments, that is reflected in the beliefs and practices of teachers who adjust learning experience to meet individual needs and assure optional success in physical and motor functioning.\(^4\)

\(^4\) Sherrill, *Adapted Physical Education and Recreation*, P. 10.
Motor Performance

Motor Performance can be defined as the ability to perform motor skills such as speed, power, agility, reaction time, balance and neuromuscular co-ordination in an efficient manner.

Motor Performance qualities include speed, power, agility, co-ordination and balance.⁴⁵

Results of the measurement of motor abilities at a particular time. (An inconsistent and variable component in assessment, particularly with special populations).⁴⁶

Mental Retardation

Mental retardation refers to significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period.⁴⁷

⁴⁶ Crawford and Mendell, Therapeutic Recreation and Adapted Physical Activities for Mentally Retarded Individuals, P. 262.
⁴⁷ H. Grossman, Terminology and classification in Mental Retardation, P. 11.
Educable and Trainable Mentally Retarded Children

The mentally retarded are classified educable mentally retarded and trainable mentally retarded according to the degree of sub-average general intellectual functioning and performance conditions outlined by American Association on Mental Deficiency (AAMD) for mild and moderate mental retardation. Educable mentally retarded must have a measured IQ of between 50 to approximately 68 and trainable mentally retarded have a measured IQ of 36 to 51 with concomitant mild and moderate deficits in assessed adaptive behaviour functioning. Table 1 showing different levels of retardation determined by IQ range are presented below.
Table 1

Levels of Retardation Determined By IQ Range.\(^{48}\)

<table>
<thead>
<tr>
<th>IQ Range (Stanford – Binnet)</th>
<th>Levels of Retardation</th>
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<tbody>
<tr>
<td>52-68</td>
<td>Mild Mental Retardation.</td>
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<tr>
<td>36-51</td>
<td>Moderate mental retardation.</td>
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<tr>
<td>20-35</td>
<td>Severe mental retardation.</td>
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<tr>
<td>19 and below</td>
<td>Profound mental retardation.</td>
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</tbody>
</table>

**Significance of the Study**

The very aim of the study was to establish the need and importance of adapted physical education for mentally retarded individuals to develop their skills to provide security through improved function and increased ability to meet the physical demands of day-to-day life. The information generated purport the need of comprehensive service delivery system designed to identify problems of children in physical and motor fitness fundamental motor

performance and skills, and sports skills and games. The study also substantiate the demand of adequately prepared adapted physical education teachers to be placed in the school system of this country to deliver quality assured physical education to the retarded and handicapped children.

The finding of this study may be of use for those involved in educating and training mentally handicapped to live as worthy citizens with in the limitation of their capabilities. The results of the study may contribute effectively to guide the users in the following way:

1. The study may provide adequate knowledge for the teachers in institutions for mentally retarded in planning and administering a specific physical education programme for the retarded children.

2. The result of this study may reveal the extent to which an adapted physical education programme contributes to the development of motor performance of mentally retarded.
3. It is likely that the results of this study may help in assessing the transfer of the effectiveness of training to performance outside the instructional programme.

4. This study will also be helpful in assessing the infrastructure required to improve upon the existing facilities in school primarily educating such children.

5. The study may motivate other researchers who are interested in this area to take up similar studies and help to bring mentally retarded in to the mainstream.