CHAPTER I

INTRODUCTION

The craze of industrialization and urbanization brought certain benefits to the society, but at the same time, industrialization and urbanization posed problems for the health, happiness and character of mankind. Looking into the problems of health and character building, educationists came to insist on this need for training in character and social adjustment. But to ensure it, they found that children should play under direction and learn while playing. "Altogether, towards the closing years of the last century, there was a gradual realisation by all men thinking of the need to face the dangers of human health, safety and progress arising from the changes in environment” (Govindarajulu, 1949). This realisation was the beginning of various movements, of which the Physical Education movement was one of the most important.

The word physical refers to the body. It is often used in reference to various bodily characteristics such as physical strength, physical development, physical health and physical appearance.

Physical Education is an integral part of the educational process. Through well-directed physical education programme, children develop skills for the worthy use of leisure time, engage in activities conducive to healthful living, develop socially and contribute to their physical and mental health.
A study of history reveals that other civilizations have recognised the important place of physical education in the training of their youth. In ancient Athens for example, three main subjects were studied by every Athenian 1) Gymnastics 2) Grammar and 3) Music.

Physical Education is education through physical activities in which body is the primary tool. Its aim is the same as that of education to bring about an all round development of an individual and make him an effective member of the society. Physical education is the education of body and mind. Plato said, "body and mind should be driven alike: like a pair of horses hitched to a shaft".

Physical Education is defined as "the accumulation of wholesome experiences, through participation in large muscle activities that promote growth and development"

According to Nash, "the aim of physical education is to have healthy, skillful, emotionally adjusted individuals integrated with work while, vocational and recreational activities in home, in community in which he lives."

According to Nixon & Cozens, "organised physical education should aim to make the maximum contribution to the optimum development of the individuals’ potentialities in all phases of life."
1.1 PHYSICAL EDUCATION IN INDIA PRIOR TO INDEPENDENCE

Knowledge of the historical development of physical education in India is essential to an understanding of the conditions now prevailing in this country. Just preceding the arrival of late Mr. Harry Crowe Buck, such knowledge will help also to appraise the contributions made by the pioneer in this field of education.

During the first two decades of the twentieth century the term physical education was little known to the school administrators, as the emphasis then was given mainly on the academic side general education. Little attention towards the wholesome development of the personality of an individual was paid, and no serious thought was ever given to this important aspects. Physical education was not given a due place in the schools, as school authorities were ignorant about the true values of this discipline and so physical education had no proper place in the curriculum. However, a programme of instruction on drill or physical training was entrusted to masters who were ignorant, illiterate and so unable to fit in with the school organisation and consequently the need for organising and conducting activities systematically was not felt. Physical education in those days was thought of, almost exclusively, in terms of drill.

Scientific base to establish the true values of physical education is so vital for the growth and development, was a crying need, but no serious effort was,
however, made either by the educationist authorities or by the government to give thought to the questions pertaining to the health and efficiency of the school child.

With the progressive increase in the extent of knowledge, world was acquiring, more knowledge to believe that play is a basic need for the growth and development of the child. "Plato is often cited as the first to have recognised the practical value of play from his prescription in "the laws" to distribute apples among boys to help them learn Arithmetic, and to give real miniature tools to those three year-olds who were later to become builders. Aristotle too thought that children should be encouraged to lay at what they were to do seriously as adults."(Susana Miller, 1968) But in the middle ages, there was a set-back, and religious fanaticism led to a neglect of the body, which was regarded as an abode of sin. Following the great educational reformers of the renaissance, in the eighteenth and early nineteenth century’s teachers came gradually to accept, in increasing measure, the idea that education should take account of the child's natural interests and stages of development. Ravikumar (2011) compiled the following sequences in the history of physical education in India during pre independence.
Steps taken by government and other organisation for the development of physical education during pre independence period

<table>
<thead>
<tr>
<th>Year</th>
<th>Developments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1882</td>
<td>For the first time it was the Indian Education Organization that recommended physical training to be promoted in the interest of youth in each class of school.</td>
</tr>
<tr>
<td>1884</td>
<td>The question of making physical education as a compulsory subject has considered. What even the programme of physical education existed in pre independence days, it was carried on by the ex-service men employed by school / college authorities.</td>
</tr>
<tr>
<td>1914</td>
<td>Vidya borthers founded Sir Hanuman Vyayam Prasarak Mandal, Amaravathi, basically to serve the course of physical education in India.</td>
</tr>
<tr>
<td>1920</td>
<td>The outstanding development of scientific physical education in India in pre independence days goes to the Y.M.C.A. college of Physical Education, Madras founded in 1920 by H. C. Buck. Since its inception this college has been working tirelessly and selflessly to promote and systematize physical education in India.</td>
</tr>
<tr>
<td>1921</td>
<td>Boys Scout Association of India was formed</td>
</tr>
<tr>
<td>1924</td>
<td>Hanuman Vyayam Prasarak Mandal, Amaravathi, started a five week summer course for young men and women in indigenous activities. A youth completing course was rounded Vyayam Visharad</td>
</tr>
<tr>
<td>1927</td>
<td>Indian Olympic Association (I.O.A) was formed with the efforts of Dr. A. G. Noehren and Mr. H. C. Buck. Mr. Sorabti Tata was its first President with Dr. D. G. Noehren as secretary. Since Indian Olympic Association has been functioning in India and is affiliated with International Olympic Committee (I.O.A). This association started to promote and encourage physical, mental and cultural educations of youth of the nation for the development of Character, good health and good citizenship, also to enforce all rules and regulations of International Olympic Committee and to educate the public of the country as to the value of amateurism in sports.</td>
</tr>
<tr>
<td>1931</td>
<td>Government College of Physical Education, Hyderabad</td>
</tr>
<tr>
<td>1938</td>
<td>Training Institute of Physical Education, Kandivali (Bombay). The three Institutions were established to promote systematic, scientific physical education courses in India</td>
</tr>
</tbody>
</table>
1.2 HISTORY OF PHYSICAL EDUCATION DURING POST INDEPENDENCE

The physical education of today is not a thing apart, an exercise or education just of the physical body. It is simply one phase of the education of the whole child, making its approach from one aspect of his interests and his activities. Some form of education function more effectively when approached from another. Chemistry is taught best in the class room and in the laboratory. Swimming is best learned in the water. Physical courage and many forms of quick and adaptive thinking are test learned in the gymnasium and on the athletic filed. Each of these learning however, affects the behaviour, usefulness and the culture of the individuals taught. So physical education is simply a part of the whole system of education and is taught in appropriate places under most effective conditions.

In addition to being a part of education it must be educational as well. By the apparent technology I mean that it must specifically seek to relate its objectives (Mcclay, 1970).

Charles Bucher purposes that, "Physical Education on integral part of the total education process, is a field of endeavour that has as its aim, the development of physically, mentally, emotionally and socially fit citizens through the medium physical activities that have been selected with a view to realizing these outcomes" (Bucher, 1972).
According to Shermon (1934), Physical education is a part of education. Physical education is well thought is a process of education through interesting self directed activity on the part of the student.

Fall in line with the changing phenomena in physical education and the efforts put by different social minded bodies like young men’s Christian associations the government has accepted the concept that physical education is an integral part of education. The central government retained the vital affairs of education, by coordinating and formulating the directives to the states keeping in view the national objectives to be achieved. (Thousands of social forces started operating in the life of an Indian citizen. As a result in memorable schools, colleges and many new universities case into existence to give impetus to the course of education, on sure industry development, to helved a free revolution and to raise the thousands of living of millions of country men).

It is out of these phenomenal charges that physical education has been considered part and parcel of school education programme. A considerable number of Institutions for training teachers for physical education have come up ever since independence. New schemes have been put into operations to boost up the standard of sports and health standards of people.

Ravikumar (2011) compiled the following sequences in the history of physical education in India during post independence.
## History of Development of Physical Education in India during Post Independence Era

<table>
<thead>
<tr>
<th>Year</th>
<th>Developments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>National Credit Corps (NCC) and Auxiliary Credit Corps (ACC) at school and college levels were introduced.</td>
</tr>
<tr>
<td>1948</td>
<td>Asian Games Committee Constituted.</td>
</tr>
<tr>
<td>1950</td>
<td>The Central Advisory Board of Physical Education and Recreation was setup (CABPER) in the light of the recommendations of the Board. The Union Ministry of Education has taken a number of steps in the field such as development training of leaders in physical education, scholarship for research in physical education, conduct of national physical efficiency drive, conduct of seminar on Physical Education, giving financial assistance to the colleges of physical education, giving directions to the state governments for affecting organization of physical education in their respective states.</td>
</tr>
<tr>
<td>1953</td>
<td>In 1953 Government of India introduced the Rajkumari Coaching Scheme for games and sports with the object of training good athletes and sportsmen. The scheme received wide popularity since famous players like Major Dhayan Chand and Dr. Ram Singh were working under this scheme.</td>
</tr>
<tr>
<td>1954</td>
<td>All India Council of Sports, School Games Federation of India, and National Discipline Scheme (NDS) were established with the aim to regularize the promotions of the sports and working of sports bodies. To make the youth healthy in mind and body and instill in them a sense of patriotism, self reliance, tolerance and self-sacrifice. To develop human values and to build in them a desire to serve the country and humanity.</td>
</tr>
<tr>
<td>1956</td>
<td>A National Syllabus of Physical Activities was formed.</td>
</tr>
<tr>
<td>1957</td>
<td>With the recommendations of CABPER, Laxmi Bai National college of Physical Education at Gwalior (M.P.) was established. This is the only physical education college being run by central government. This institute apart research programmes, training and teaching for physical education personals.</td>
</tr>
<tr>
<td>1958</td>
<td>Government of India set up on Adhoc enquiry committee on games and sports to suggest ways and means to improve the standards of Indian</td>
</tr>
</tbody>
</table>
competitions in all games and sports.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event/Committee/Institute</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1959</td>
<td>Government of India</td>
<td>In 1959, Government of India appointed a Co-ordination Committee, under the chairmanship of Dr. Hirdya Math Kunzuru, to examining the various schemes for physical education, recreation, character building and discipline operating in educational Institutions and to recommend measure for the proper co-ordination.</td>
</tr>
<tr>
<td>1959</td>
<td>The National Physical Efficiency Drive</td>
<td>The National Physical Efficiency Drive was launched by the Union Ministry of Education in 1959-69. The plan consisted of certain items of physical efficiency tests which prescribed standards for achievement. It was hoped that drive would arouse the interest of young and old men and women to check their performance abilities and thus stimulate their keenness for physical fitness.</td>
</tr>
<tr>
<td>1961</td>
<td>Netaji Subhash National Institute of Sports</td>
<td>As a follow up action to the recommendations of the Adhoc-Enquiry Committee of 1958 the Netaji Subhash National Institute of Sports was established by the government of India in 1961 at state Bagh, Palance, Patiala stressing to produce coaches of high caliber in various games.</td>
</tr>
<tr>
<td>1961</td>
<td>Kaul Kapoor Committee</td>
<td>Kaul Kapoor Committee: This committee submitted recommendation on 1961, stating that physical education should be considered as a part of general education in schools and colleges. It should be one of the subjects in the universities for graduates. The Raj Kumari Coaching Scheme ceased to function on 18th October 1961. It has been merged with the NIS.</td>
</tr>
<tr>
<td>1963</td>
<td>The Kunzur Committee</td>
<td>The Kunzur Committee studied the prevailing conditions in other countries, consulted expects including vice-chancellors of convenities, educational administrations, physical educationists etc. and submitted report. The report is probably first authoritative assessment of physical education in this country. The committee admitted that physical education is one of the important basis on which should rest schools and colleges for improving the nations physique.</td>
</tr>
<tr>
<td>1965</td>
<td>National Education Secretaries</td>
<td>The state education secretaries and directors of public instruction met in New Delhi in February and April 1965, and decided unanimously to introduce the National Fitness Corps (NFC) on a compulsory basis in all universities, college and high and higher secondary schools in the country. NFC Time table allotment has drawn up and inculcated throughout all the educational institutions in the country. The colleges of physical education in the country were asked to reformulate their syllabus for various training</td>
</tr>
</tbody>
</table>
Classes, so that teachers who could handle NFC programme could be produced.

1984

Sports Authority of India has been established at Delhi. SAI comes forward to establish sports hostel in each state to encourage the players by generating scholarship and coaching. The University Education Commission (1948-49) felt that the all round development of the individual is facilitated through a various commissions’ balance programme of education which shall necessarily include physical education and are complementary to each other and must be integrated in such a way as to form an organic whole. After Independence in India, much emphasis has been given on physical education. Recognising the importance of physical education in schools, colleges and universities. The secondary education commission (1952 53) (Mandaliar Commission) said: unless physical education is accepted as an integral part of education and the educational authorities recognize its need in all schools, the youth of the country which form its most valuable assets will never be able to pull their weight in national welfare.

The Indian Education Commission (1964 66) (Kothari Commission) emphasized the importance of physical education in the following words:

It must be emphasized that such education contributes not only to physical fitness but also to physical efficiency, mental alertness and the development of certain qualities like perseverance, team spirit, leadership, obedience to rules, moderation in victory and balance in defeat.

A bill was passed in the parliament which was known as National Policy of Education 1986. Emphasized the importance of physical education in following ways.

Sports and physical educations are an integral part of the learning process, and will be included in the evaluation of performance. A nation-wide infrastructure for physical education, sports and games will be built into the educational edifice. The infrastructure will consists of play fields, equipment, coaches and teachers of physical education as part of the school improvement programme. Available open spaces in urban areas will be reserved for play grounds, if necessary by legislation, effects will be made to established sports Institution and hostels where specialized attention will be given to sports activities and sports related studies, along with normal education. Appropriate encouragement will be given to those talented in games and sports. The stress will be laid on indigenous traditional games. As a system which promotes an integrated duo of body
and mind. Yoga will revive special authentic effects will be made to introduce in all schools and it will be introduce in teacher training courses. The MPE has recommended for a minimum of 10 periods per week for physical education activities in low primary and upper primary stages, and 7 periods per week at the second stage.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>The NCERT developed the national curriculum for elementary and secondary educations in 1988 to reflect the postulates of the NPE and the programme of action, 1986. The main thrust of this exercise was to provide for the national core curriculum in the school syllabi as postulated in the national policy and to integrate physical education with the academic programme of the schools. The core curriculum states that health and physical education and sports should be integral part of learning process and be included as the evaluation of performance.</td>
</tr>
<tr>
<td>1992</td>
<td>The above policy has been reiterated in the National Policy of Education in 1992.</td>
</tr>
<tr>
<td>1992</td>
<td>NCERT put formed a revised curriculum for school education in 1992, and its revised edition is Nov. 2000. Under the title national curriculum frame work for school education. In this curriculum include health and physical education as one of the core subjects in all levels of school educations. This curriculum was to be revived by NCERT, every five years, therefore, a new edition should be made available in the year 2005.</td>
</tr>
<tr>
<td>1993</td>
<td>A National Advisory Committee was setup by MHRD, on 1993. The committees’ report published in 1993 was reprinted in 2004 under the title learning without bonded. This has been discussed in the Parliament. The chairmen of the committee has Prof. Yashpal.</td>
</tr>
</tbody>
</table>

1.3 DEVELOPMENTS OF PHYSICAL EDUCATION IN TAMIL NADU

As quoted earlier, YMCA movement has contributed much for the development of physical education in the country. Dr.J.H. Gray, a pioneer in modern physical education in 1908 had several leading schools in Calcutta. He conducted classes for school teachers who took the initiative in establishing and conducting inter-school sports.
In the early days, most of the people were indifferent to physical education because, it was beyond the range of their daily experience. Some even questioned about its value. Others regarded it as waste of time. Yet YMCA proclaimed that physical education is as an important part of the christina gospel of the “Whole Man”. “The body is temple of the living God” and as a temple of the living God, it should be kept clean and vigorous by regular exercise, regulated diet and wholesome recreation.

The first Indian YMCA Secretary to qualify for physical education work was P.M. Biswas at the Calcutta YMCA 1811 to 1921.

The National Council of the YMCA’s established a department of physical education in 1913. Dr.Gray was appointed as national physical director and secretary of the department. The department rendered yeoman service to the universities by organising sports activities. Staff worked through the department of education of various state governments. The representatives of the YMCA delivered lectures and demonstrations at teachers training colleges and prepared textbooks on physical education for the guidance of teachers in local schools. Training classes for the retired army drill masters were also conducted physical efficiency tests for boys were conducted with the co-operation of the civic authorities and public play grounds were established.
The pioneers of physical education found no lack of enthusiasm among boys, students and young men. It was also found that governments, municipalities, schools and colleges were willing to support their project financially. The real difficulty was in finding young men who were prepared to qualify as full time workers in the new field.

In order to overcome the lack of qualified secretaries, the council of physical education department decided to establish a training school. The school was started in 1920 under the leadership of H.C. Buck. The Chennai YMCA (then Madras YMCA) cooperated with the department by providing space in the central YMCA Branch for the school. This provided opportunities for practice teaching with its members.

The first YMCA school of physical education was started in 1920, with five young men. In 1923, it was shifted to Royapetah branch of Chennai YMCA. While it was developing, it attracted the educational authorities and also many students. In 1923, there were four graduates, in 1931 there were about 25 graduates. Though it had only simple facilities, it earned a name for the quality of its teaching and the capacity of its graduates to work effectively in schools, colleges and in public play grounds.

In 1931 the government of India submitted a report to the secretary of state as follows:-
“Probably the most successful and most important institution for training leaders in physical culture is the national YMCA school of physical education in Chennai, whose students are recruited from all parts of India. Its course of instruction have obtained definite recognition not only from Madras, but also from the Provinces of British India and graduates from the school were in great demand from numerous educational institutions, municipal play grounds and welfare organisations that require directors, or instructors in physical training”.

It was in 1930, the school shifted from the Royapettah YMCA to its present Campus, a 64 acre site between Mount Road and the Adyar River – in the municipal limits of Saidapet. It is the part of the city of Chennai today. This site was placed at the disposal of the YMCA by the government of Chennai. Apart from running physical education college, the staff of the college took active part in various sports organisations such as the Madras Boxing Association, the Inter-Collegiate Sports Organisation, the Madras Volleyball Association.

In 1938, the then Chief Minister of Madras State Sri Rajagopalachari requested YMCA College to initiate a programme of rural recreation in the district where the government introduced prohibition. In 1940, the physical education teachers’ training college for women, government of Madras was shifted from the campus of Queen Mary’s College to the YMCA College at Saidapet. A special programme was developed for women to be trained in physical education.
Until the independence there was only one physical education college, “The YMCA College of Physical Education” for the whole of South India, which is in Chennai (then Madras) capital of Tamil Nadu state. After the independence Maruthi College of Physical Education was established in Coimbatore, which mainly served for men physical education teacher trainees, then Sarada College of Physical Education, Salem, which served for women physical education teacher trainees. All these three physical education colleges were aided by the state government. When a number of philanthropists came forward to start self-financing colleges in Arts, Science, Engineering, Education colleges, Dr. B.Sivanthi Adityan amongst other educational institutions, started physical education college at Tiruchendur.

1.4 ESTABLISHMENT OF TAMIL NADU PHYSICAL EDUCATION AND SPORTS UNIVERSITY

In order to meet the modern competitive sports requirements of highly scientific and technical support systems that enable an individual athlete to achieve peak performance consistently and to spot out and nurture the talents among the youth and enable them to be greater sportsmen and to have interdisciplinary approach between physical education and sports sciences and to augment the development of sports in India on par with western countries, the government of Tamil Nadu established the Tamil Nadu Physical Education and Sports University by an act of the government of Tamil Nadu in 2004, which is
unique and the first of its kind in India as an affiliatory University, exclusively for physical education and sports. After obtaining the accent from his Excellency the president of India on 5th August 2005, the said act came into force with effect from 15th September 2005.

It is a rare coincidence that the University has started functioning from December 2005, declared by the United Nations as international year for sport and physical education. At present the university has four faculties, eleven departments and thirteen affiliated colleges. Further the university now offers select physical education and allied courses, through collaborative programme and distance education stream also.
### Colleges affiliated to Tamil Nadu Physical Education and Sports University

<table>
<thead>
<tr>
<th>No.</th>
<th>College Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y.M.C.A. College of Physical Education, Chennai – 600 035</td>
<td>Chennai – 600 035</td>
</tr>
<tr>
<td>2</td>
<td>Maruthi College of Physical Education, Coimbatore</td>
<td>Coimbatore</td>
</tr>
<tr>
<td>3</td>
<td>Sri Saradha College of Physical Education for Women, Salem</td>
<td>Salem</td>
</tr>
<tr>
<td>4</td>
<td>Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur</td>
<td>Tiruchendur</td>
</tr>
<tr>
<td>5</td>
<td>Rabindranath Tagore College of Physical Education for Women, Veerachipalayam, Sankarai T.k, Salem</td>
<td>Veerachipalayam, Sankarai T.k, Salem</td>
</tr>
<tr>
<td>6</td>
<td>Vivekananda College of Physical Education, Unjanai, Tiruchengodu, Namakkal</td>
<td>Unjanai, Tiruchengodu, Namakkal</td>
</tr>
<tr>
<td>7</td>
<td>Gnanamani College of Physical Education, A.K. Samudram, Namakkal</td>
<td>A.K. Samudram, Namakkal</td>
</tr>
<tr>
<td>8</td>
<td>Selvam College of Physical Education Pappanaickenpatti, Namakkal</td>
<td>Pappanaickenpatti, Namakkal</td>
</tr>
<tr>
<td>9</td>
<td>Ramakrishnan Chandra College of Physical Education for Women, Kulappa Goundenpatty, Cumbum</td>
<td>Kulappa Goundenpatty, Cumbum</td>
</tr>
<tr>
<td>10</td>
<td>Meenatchi Physical Education College, Thathanur, Udayarpalayam T.K., Perambular District</td>
<td>Thathanur, Udayarpalayam T.K., Perambular District</td>
</tr>
<tr>
<td>11</td>
<td>Koviloor Andavar College of Physical Education and Sports Science, Koviloor Madalayam, Koviloor, Sivagangti District</td>
<td>Koviloor Madalayam, Koviloor, Sivagangti District</td>
</tr>
<tr>
<td>12</td>
<td>Christian College of Physical Education, K.P.Road, Nagercoil</td>
<td>K.P.Road, Nagercoil</td>
</tr>
<tr>
<td>13</td>
<td>St.John's College of Physical Education, Veeravanallur, Tirunelveli District</td>
<td>Veeravanallur, Tirunelveli District</td>
</tr>
</tbody>
</table>

### 1.5 SELECTION TESTS FOR PHYSICAL EDUCATION COURSES

Apart from the above thirteen affiliated colleges, the TNPES University itself conducts graduate and under graduate courses physical education courses. The undergraduate course is considered as basic degree for physical education
teachers. The post graduate courses are specializations and research oriented. Since the course content of physical education teacher training programmes included varied physical activities and sports programmes, the candidates for physical education courses are tested for their physical efficiency and sports proficiency, apart from academic qualifications and age criteria.

1.6 IMPORTANCE OF PHYSICAL FITNESS

Physical fitness is an important outcome of physical education and it is physical education in the school system that is most capable of bringing it out. The physical fitness over a long span and examination of the same reflect the status of health. Physical examination assesses the growth pattern and functional efficiency of sensory and motor organs, functional efficiency of the body in terms of strength, cardio-respiratory endurance, flexibility, speed, agility, balance and neuromuscular co-ordination.

Physical fitness is a combination of qualities that enable a person to perform well in vigorous physical activities. These qualities include agility, endurance, flexibility and strength. Physical fitness and good health are not the same, though each influences the other (The World Book Encyclopedia, 1993).

Physical fitness represents one of the several facets of sports and physical activity, which can have definite influences on the health and the well being of children and adolescents, as well as adults. The measurement of physical fitness
raises several conceptual, methodological and technical problems, which explain why surveys including such measures have been scarce until recently (Michaud and Narring, 1996).

In westernized countries the sedentary lifestyle in conjunction with a hyper caloric diet has caused an increase in the number of obese adults. Moreover, recent studies suggest that the prevalence of overweight in children increased during the last decade (Leyk 2005). This shows the importance of physical fitness.

The importance of specific physical fitness components are described as below:
1.6.1 Importance of Shoulder Strength

The development of strength is generally understood to be the ability of an individual to use muscular force in order to overcome an external resistance or to counter external forces acting on the body. The shoulder strength can be determined by the individuals’ performance in pull-ups for boys (Muthiyah, 1989).

Strength is necessary for good appearance. Strength is basic to good performance in skills. Strength is valued highly as a measure of physical fitness, physical strength, determines one’s abilities capacities and potentialities that an individual does exhibit. There are various other factors such as arm strength, grip strength, back and leg strength and so on, which determine the physical strength as a whole. Among them arm strength is an important factor. There are number of physical exercises and activities which develop arm strength to a great extent.

Strength is a conditional ability, that is, it depends largely on the energy liberalization process in the muscles. Strength is also perhaps the most important motor ability in sports as it is a direct product of muscle contractions. All movements in sports are caused by muscle contractions and, therefore, strength is a part and parcel of all motor abilities, technical skills and tactical actions. The role of strength training was for general health, good posture and for prevention of injuries.
There are different tests available to measure the shoulder strength of an individual. The American Alliance of Health, Physical Education, Recreation Department (AAHPERD) has developed a battery of tests. It has been suggested different methods for boys and girls. For boys, pull-ups is suggested and for girls flexed arm hang is suggested.

1.6.2 Importance of Abdominal strength

Abdominal muscles and oblique muscles that flex and twist the trunk respectively are referred to as the mid section muscles. Although most mid section muscles, hip flexion is actually performed by the underlying Illipsoas and pectineus muscles. Because traditional sit-ups involve both trunk flexion and hip flexion, the abdominal muscles are the prime mover muscle group for the first phase of the movement but the hip flexors are responsible for the second phase of the movement. While there is nothing wrong with exercise that combine trunk flexion and hip flexion, specialized movements will be presented for those people who prefer to train the midsection muscles independently.

The abdominal strength is very much important in sports because the abdominal part become the axis of the body the centre of gravity also will fall mainly in the abdomen. The abdominal strength help to maintain the body posture there by involving in many activities in the field of sports and games.

A sit-up is basically an exercise for the lower back but it also brings abdominal muscles in to action. Since it is difficult to isolate these muscles with a
particular movement sitting up is commonly used to strengthen the abdominal wall.

1.6.3 Importance of Agility

Agility refers to the controlled ability to change position and direction rapidly and accurately. Two conditions exist under which the ability of the performer should be influenced diversely (1) a reaction of a known type and in a known direction, to a stimulus that is anticipated and (2) a reaction of an undermined type and in an unknown direction to a set of stimuli that may vary widely and hence, somewhat unpredictable (Gupta, 2003).

Agility is the physical ability which enables an individual to rapidly change body position and direction in a precise manner.

Agility plays a significant role in the training of technique and in competition. The aim in training skills is to bring the athlete closer to the ideal form of the sequence of moment.

The performance of shuttle run, up and down four times reveals the agility of an individual. The AAPHERD youth fitness suggested shuttle of four times of 10 yards distance.

1.6.4 Importance of Power

This is the ability of an individual to overcome external resistances by developing a high rate of muscular contraction. Developing and improving power
necessitates the provision of training conditions such that it is possible to avoid an accumulation of fatigue. The load must be sub-maximal but the execution of each exercise must be explosive with in a range of 70 to 90 % of the maximal performance ability.

Power is about the rate at which work can be done. In athletic situations it is closely related to the development of strength and speed. In physical terms, work is done when an object is moved against the resistance of an opposing force (Watson 1983). Thus work of an individual can be said as follows:

\[ \text{work} = \text{force} \times \text{distance} \]

It is easy to calculate the work done when an object is moved through a vertical distance because the motion is opposed by gravity. In a 200 lb man step on to a chair 1.5 feet high the work done is 200 x 1.5 ft. lb, OR 300 ft lb.

Reducing some of the waste force should optimize power output. Well designed foot wear and other equipment will increase traction and allow more force to be usefully applied. Tissue resistance and extraneous weight should be reduced to a minimum. Maximum power output is increased when muscle temperature is raised. Power is the amount of work done in unit time. Therefore

\[ \text{Power} = \frac{\text{Work}}{\text{Time}} = \frac{\text{force} \times \text{distance}}{\text{time}} \]

Since speed is distance/time, power is also equal to force x speed.
AAPHERD youth fitness test suggests performing of standing broad jump to measure power of an individual.

1.6.5 Importance of Speed

Speed is an important ingredient in many sports. Speed in sports contest can have several different meanings, one being instantaneous speed used for jump, throw or 100 meter run. Speed will mean maximal speed and thus apply to sports events where the highest possible speed is strived for a single short lasting effort are in a repeated maximal efforts together lasting less than about ten seconds.

The term “Speed” is applied to a variety of different phenomena that occurs in sport, fast reaction, a burst of rapid movement, ability to run continuously at high speed. Reaction time is a property of nervous system and depends upon the speed at which information is processed. A burst of rapid movement involves the translation of reaction into motion. It requires acceleration of the body, or part of it, and the continuation of movement at high speed.

In mechanical terms, speed is the distance covered in a given time.

\[ \text{Speed} = \frac{\text{Distance}}{\text{Time}} \]
Speed is a conditional ability. It has a complex nature as it depends to a considerable extend on the central nervous system. Speed ability should not be equated with mechanical speed which is equal to the distance covered per unit of time. In several sports actions no distance is covered at all. Speed ability primarily signifies the ability to execute motor movements with high speed, these movements should be cyclic in nature.

1.6.6 Importance of Endurance

Endurance implies that the athlete operate like many mechanical engines which are able to develop maximum power until they finally breakdown or run out of fuel. In the case of the human machine the situation is less straight forward the power that can be developed depends upon the duration of the activity. This becomes apparent when the relationship between race length and running speed is examined. There is no particular achievement is being able to run continuously for four minutes; but it is very much harder to do so at a pace, which results in a mile being covered. Superficially this may appear to be a matter of speed rather than endurance, but in fact endurance is very much involved.

Endurance represents cardiac as well as muscular capacity of the athlete continuous performance of relatively heavy localized activity which may make only small demands on the functions of respiration and circulation before exhaustion set in. The more often a muscle performs a movement in training over the same range, against same resistance, and at the same frequency and speed as required in competition, then the less likely it becomes locally fatigued by the
movement during competition. The improvement is primarily due to the functional involvement of more muscle fiber (Motor units) as a result of overload. Overload also improves the utilization of oxygen by involving more capillaries, thus providing the working muscles with more oxygen and fuel, as well as facilitating the removal of the metabolic waste products of strenuous exercise (Rex, 1987).

Hardayal Singh (1991) states, “Endurance is the ability to do sports movements, with the desired quality and speed, under conditions of fatigue.” Endurance is a very important ability in sports. But at the same time it is an ability that the importance of which is often over looked in several sports. Endurance is the product of all psychic and physical organs and systems. No other motor ability depends so much on the working capacity of complete psycho-physical apparatus of humans as endurance. All other performance factors depend on one or more parts of this psycho-physical apparatus and the result are directly or indirectly affected by endurance.

1.6.7 Physical Fitness for Sports Performances

Physical fitness helps to enjoy physical activity sustain skills, learning and enhance performance on the athletic field. Specific physiological systems of the body should be adopted to support a particular game. Since different games make different demands upon the organism with respect to neurological, cardio-respiratory systems are highly adaptable to exercise (Willmore, 1982).
For a good performance in any sports or athletic event, the high standard of fitness is a basic requirement. More participation in sports activity is not enough to improve fitness. The fitness must be gained through conditioning programme. According to Hardayal Singh (1991) for achieving high sports physical fitness is regular and systematic training over eight to ten years or more is required to achieve the required level of physical fitness.

1.7 TEST

For every student the word “Test” surely conjures up a vivid picture of writing answer to questions presented on a page of paper. The term test is applied in a broader sense. Test refers to any specific instrument, procedure or technique used by a test administrator to elicit a response from a test taker.

Test generally is used to describe instrument procedures and techniques that result in responses that can be evaluated in terms of their correctness. Instruments, procedures and techniques that assess effective qualities of one’s interests, attitudes, beliefs or personal values can be included within the general definition of test. They are however more commonly referred to as inventories to emphasize that they do not have clearly defined right and wrong answers (Barrow, 1989).
A test is an instrument or tool used to make the particular measurement. This tool may be written, oral, a mechanical device or another variation (Marrow, 1947).

A test is administered more than one student are usually interested in the extent to which they have improved. They like to compare their current score with a previous score, which in itself, can be a motivational factor. The use of test for motivation is most effective if scores are viewed in the context of areas needing improvement rather than in a primitive sense. In other words, the test should be used a positive factor in performance before, during and after the test’s administration.

Tests have many users in school and non-school settings. A test may be administered for one purpose or for multiple purposes, as determined by the test user. Usually the rational for using a test encompasses more than one purpose. The following are a few of the uses of tests in physical education and the exercise sciences.

1.8 CONSTRUCTION OF TEST

James S. Bosco and Willim F. Gustafson, (1983) recommended the following steps for constructing a new test: Establish philosophically the traits or characteristics to be measured. Use a few experts in the field involved and one or more exerts on test construction, carefully prepare the testing specifications for
each item including exact instructions for giving and scoring items, give the test to a sample of subjects with consideration given to the randomness adequacy and representativeness of the sample for the purpose at hand, consider the feasibility of an external validity criterion, so that the validation can be done on ‘outside criterion’ rather than the composite score of all items in the battery. However correlating each item against the total score is one validity scheme, after giving the test, arrange to retest the group to check on the routine experimental errors unless such reliability coefficients are well known from similar work under identical conditions. In a new test, a complete check would include retests for reliability and objectivity, study the physical accuracy of measurements including possibly, the mechanical calibrations of the instruments used, compute the mean, standard deviation, range and standard scores for each item and criteria also compute and construct a norms table that includes matches standard scores at increments of five standard scores from zero – hundred, determine all inter-correlations by correlating each item with each other item previous correlation method is preferred, and compute the criterion correlation that is each item is correlated against the composite standard scores.

The criteria used to evaluate a test in terms of its scientific worth are reliability, objectivity, validity and norms. Reliability and objectivity simply refer to the consistency of the measurement for any giving test, that is, if the tests were
administered to a group the same results would be had from the test if it were administered to the identical group another time.

Hardayal Singh, (1991) describes that a test has validity if it measures what it purports to measure. For example, first a group of players would be administered a given test. Next a group of coaches/experts thoroughly familiar with the rules and tactics of the game would subjectively rank the players in term of their playing ability. Then the coaches/experts judgment and the test scores agree, it could be concluded that the test is valid.

Tests and measurements in coaching are of recent innovation. Tests must be evaluated in terms of improved service to the growth and happiness of learners and players. It is an attempt to measure/assess the needs and capabilities of individuals with a view to help and never to make invidious distinction. A coach must know the innate capabilities and present abilities of every one of his players if his coaching is to be effective. Testing could never take the place of coaching, but on the contrary it makes coaching definite and concrete, and the learning becomes a meaningful experience. It is only though measurements the effect of coaching and teaching can be determined and progress could be known. The attitude of a coach or a teacher must be both “liberal” and “critical” in administering a test, and the over riding objective is to help and never to score the learners away.
The selection tests for physical education courses in Tamil Nadu are being followed to test physical efficiency of the candidates. Different physical education colleges follow different tests to test the physical efficiency of the candidates. There was no uniform method being followed for the reason that prior to the establishment of Tamil Nadu Physical Education and Sports University, then colleges of physical education were affiliated to different Universities, like, Madras University, Periyar University, Bharathidasan University, Manonmaniam University etc. Even after these physical education colleges were affiliated with the newly established TNPEU university, still they are following different patterns of physical efficiency tests and construction of uniform Physical efficiency test that can be used by all the physical education colleges in the state would not only help the physical education colleges, but also to the physical education profession itself.

1.9 CONSTRUCTION OF NORMS

A norm is standard point of reference that can provide a basis for judgment. Norms are used to interpret relative standing to compare scores or groups and either to combine or average scores. Norms imply a large number of cases. One hundred cases are minimal and several hundred is more desirable. The norms taken for the study identifies a person in relation to a given sample whose norm has been determined. Any judgment made about the norm is made by the person using the norm score.
Grade, age, percentile and standard score norms are the four types of norms, which have been most commonly used. Computing the average of raw scores for each grade, and using the grade equivalent in place of the average determine grade norms. Computing the average of the raw scores for each age and using the equivalent in place of the average determine age norm. Percentile norms are determined by the percentage of individual in the norm group who falls below an individual score. Standard score norms are represented by the distance of a given raw score above or below mean of the norm group as expected in the standard deviation units. Although all types of norms have advantage and disadvantages, the use of standard scores or percentile is generally recommended.

Barrow and McGee, (1979) defines norms a scale that permits conversion from a raw score to a score capable of comparison and interpretation. If a test is accompanied by norms, its usefulness is enhanced. Its characteristic of average and range are known. The norms prepared should not be accepted at face value. A raw score becomes capable of comparison and interpretation when there is a norm. Norms are representative of some larger population. Sufficient cases alone so not make good norms but, coupled with proper sampling, they provide a symmetric distribution. If the performance of a group is not similar in rang and average to the normative group, then the norms are not appropriate and should not be used for interpretative purpose. The norm scale should be sufficiently sensitive to mark discrimination between the scores of the different subjects. The final
choice of the norm scales constructed in the present investigation has been based on Hull scale.

Hebbel and Borms, (1974) the Hull scale has been preferred over the other sigma because this scoring scale is more applicable to realistic testing situation, where great variations are present. Norms are derived scored determined from the raw scores obtained by a specific group on a specific test. A norm should not be believed as a standard against which students are to be judged. Whenever percentile norms are determined for a given group of examinees, half will score above the middle of the distribution and half will score below. No inherent value is attached to any given norm score. The norm describes an examinee in relation to a large sample of people who have taken the test whose norm has been determined. Any judgment made about the norm is made by the test user. Transforming the raw scores of a given group into some type of derived score so that they may be interpreted more easily develops norms. Raw scores can be converted to percentage correct scores, in which the scores actually determined on the test scores. This type of conversion is useful for tests of motor skills and abilities, but cannot be used for comparison among tests (Safrit, 1955).

The norm scales are accepted as valid and practical criteria for evaluating the individual physical fitness tests. When norm scales are being constructed one must consider the practical, statistical and educational principles. There are several factors, which are important in developing and using norms. Yobu (1991)
says that the following principles play a vital role in the construction of norms. Sample is having a very important role in the construction of norms. For constructing norms sufficient numbers of subjects are to be tested. The sample must be based on the wide distribution of the population. Administration refers to the selection and implementation of the tests. The tests selected for the data collection should achieve scientific authenticity and administrative feasibility. That is, the administration of the test must be standardized. Temporariness highlight that norms are temporary standards subjective to revisions. They must be periodically evaluated.

There are many test to measure the ability of individual, attempt should be made to construct norms. Norms are very useful in classifying the students in particular activity according to their ability. Norms are also used to grade the students. Norms may be evaluated on the basis of two criteria they are sufficient number of subjects have been tested to guarantee reliability of the norm’s scores. The data have been obtained from a random population (Donald K. Mathews, 1973).

Educators have been interested in this function of measurement. One way of knowing how much a student has achieved is to examine his score in relation to the score of others on the same test. In essence a student’s scores are compared with other student’s scores. Here again, individual differences are anticipated because some students are expected to perform better that others this function
identifies the test as a norm referenced. Each and every team is realizing the increasing importance of both individual skills and team tactics to achieve success, in the modern game. Hence to evaluate the individual in skills, tests are essential for the coach to get better results (Safrit, 1995).

1.10 REASONS FOR SELECTION OF THE STUDY

Untill the establishment of Tamil Nadu Physical Education and Sports University, the physical education colleges in the state were affiliated to different universities, such as Madras University, Periyar University, Bharathiar University, Manonmaniam Sundaranar University etcetera. The physical education colleges followed selection tests, consisting of physical efficiency and sports skills tests apart from sports participation, academic qualifications, personal interview and other credentials. Though the trainees were imparted standard physical education programmes approved by the universities concerned, there were differences noticed among the end products of these training institutions, namely the quality of the teacher trainees passed out from these institutions. Though the cognitive development mostly depend upon the individual differences of the trainees, in physical education courses, the basic physical fitness and sports skills formed the basis to become a successful physical education teacher. Bearing in mind these necessities, the physical education colleges created of their own criteria for as selection tests for the candidates appearing for admissions into physical education colleges, which resulted in
differences at the point of admission to the courses of physical education and resulted in the end product when they pass out as physical education teacher.

Now that a separate University, Tamil Nadu Physical Education and Sports University have been formed and all the physical education colleges in the state have been affiliated with this university. It became the prime responsibility of the university to frame uniform selection tests and norms for selection of candidates for physical education courses, which would remove the disparities at the admission stage and might remove the imbalances in the finish product, namely, the physical education teachers trained through this university and affiliated colleges. Hence, the investigator was interested to standardization of physical fitness tests through constructing norms for selected physical fitness variables and skill variables.

1.12 OBJECTIVE OF THE STUDY

Even though there are many tests to measure the ability of an individual, no attempt have been made to construct norms through standardization of physical fitness and skill tests for selection of candidates of physical education teacher trainees in the State. Hence, the prime objective of this study was to formulate standardised physical fitness tests and skill tests for selected games.

Norms are very useful in classifying student in particular activity according to their ability. Norms are also used to grade the students. To make the
standardised physical fitness and skill tests are useful for the selection of candidates, norms for the standardized tests would be constructed in this study.

Tamil Nadu Physical Education and Sports University and other physical education colleges are using the physical variables and performance variables to assess the performance of players to seek admission in the colleges and universities in Tamil Nadu. Based upon the performance of the applicants there are ranked and admitted in the physical education colleges and universities. No common norm or procedure is being followed now for the selection in the physical education colleges and universities in Tamil Nadu. This motivated the investigator to conduct the study and to construct the norms for the physical fitness entrance test.

1.13 STATEMENT OF THE PROBLEM

The Tamil Nadu Physical Education and Sports University and its affiliated colleges are conducting physical fitness test for the intake of students every year. Physical fitness is very much essential for the students who are seeking admission in physical education colleges. The students are ranked and admitted based upon their physical fitness test performance. Bearing all the above aspects in mind, the research scholar made an honest attempt to standardise the physical fitness tests conducted by different physical education colleges and to construct norms for the physical fitness and skill variables that can be used to test
candidates seeking admission in various colleges affiliated under the Tamil Nadu Physical Education and Sports University.

Thus, the purpose of this study was to standardize the physical fitness and skill tests for physical education entrance tests in Tamil Nadu Physical Education and Sports University and to construct norms for the newly standardised tests.

1.14 HYPOTHESES

1. It is hypothesized that the newly designed battery of tests would truly measure the physical efficiency and skills on selected games of an individual.

2. Physical Efficiency and Skills of the games can be measured through the performance of subjects in physical fitness and skills test of the battery proposed.

3. The physical efficiency tested and skills in games tested will have positive correlation with the experts rating on the game performance.

4. The constructed tests would have the reliability, objectivity and validity to be accepted as valid battery.

5. The constructed norms can be successfully applied to classify the candidates according to their levels.
1.15 SIGNIFICANCE OF THE STUDY

1. The study may help to classify the player’s ability on the basis of their performance in physical fitness by using these new norms.

2. The results of the study may help the coaches and physical education teachers to identify the individual proficiency in physical fitness.

3. The results of the study may help the coaches and physical education teachers to construct sound training program for the admission seekers in the physical education colleges.

4. The study and the computed norm will provide an opportunity to identify the right individual for the physical education colleges.

5. The finding of the study may contribute to the body of the knowledge in the specialised area of the test construction and norm computation.

6. This study may help to provide clear guidelines in selecting potential talents.

7. The results of this study may be helpful to have uniformity in selecting students for physical education colleges in Tamil Nadu.

8. This study would further motivate others for further research studies on other area of the country for norm construction.
9. The norm construction may be used as a measuring physical fitness scale for testing the college men.

10. This study may be significant in providing feed-back mechanism and will add to the critical literature in the field of sports.

1.16 DELIMITATION

This study was delimited to the following aspects.

1. This study was conducted only to the physical education college men in the age group of 18 to 25 years, in Tamil Nadu state.

2. Only students admitted during the academic year 2010-11 academic year were considered for this study.

3. Newly admitted students in randomly selected five physical education colleges in the state, numbering 300 men were considered for this study.

4. This study was conducted only on selected physical fitness and skill tests on selected games.

5. The data were collected on the following variables.

**Physical Fitness Variable**

   a. Speed
b. Leg Explosive Power

c. Abdominal Strength

d. Muscular endurance

**Skill Variables of Selected Games**

e. Basketball
   i. Dribbling
   ii. Passing
   iii. Shooting

f. Football
   i. Dribbling
   ii. Passing
   iii. Shooting

g. Hockey
   i. Dribbling
   ii. Passing
   iii. Shooting

6. Reliability of the constructed skill tests were determined through simple correlation coefficient through test and retest method.

7. Objectivity of the constructed skill tests were determined through Correlation coefficient Pearson correlation coefficient stepped up with Spearman-Brown prophecy formula.
8. The validity of the constructed skill tests were determined through rank order correlation, construction norms and determining the standards of the playing ability of subjects using the newly constructed tests

1.17 LIMITATION OF THE STUDY

1. The external factors like diet, food, climatic conditions and other environmental factors, which may have an effect on the results of this study were not taken into consideration, while interpreting the results.

2. The impact of training schedules, motivational factors and various physical activities and the playing ability of the subjects were not taken into account.

3. No special motivational techniques were used during the testing which might have an effect on the results of this study.

4. The differences that might exist among the subjects due to varied social, cultural, economical, religious activities and the participation in the intramural and other physical activities by the subjects were considered as the limitation.

1.18 OPERATIONAL DEFINITIONS OF THE TERMS

Though the key terms employed are general and they are defined as the purpose of limitations.
1.18.1. TEST

1. “The test is commonly defined as a tool or instrument of measurement that is used to obtain data about a specific trait of characteristic of an individual or group” (Philips and Hornak, 1979).

2. According to Bucher (1976), test is “an instrument that is used to gain information about subjects or individuals”.

1.18.2. TEST BATTERY

1. Test battery is defined by Mathews (1973), as “A group of served tests intended to be administered in succession to the same subject or group of subjects”.

Thus, a group of several tests intended to be administered in succession to the same subject or subjects, the tests are usually designed to accomplish a closely related set of measurement objectives.

1.18.3. OBJECTIVE TEST

Objective test is defined by Clarke and Clarke (1976), as “It means the degree of uniformity with which various individuals score the same test. In other words, in which no disagreement occurs among competent persons in scoring any given subjects while using the same test”.
“An objective test is an objectively scored test which eliminates in so far as possible, the influence of an examiner’s opinion or prejudices”. (Horrocks and Schoonouer, 1968)

1.18.4 SUBJECTIVE TEST

“The subjective evaluation of a student’s performance, the score assigned is determined by the personal opinion and judgment of the scorer. It is not determined by a scoring key or any other specifications” (Ebel, 1966).

1.18.5 SPEED

Speed is the performance prerequisite to a motor under given conditions (movement task, external factors, individual prerequisites) in minimum of time (Singh, 1991).

1.18.6 ABDOMINAL STRENGTH

According to Jenson and Fisher (1972), strength is the ability of the body or its segments to apply force. Strength is the ability of a sportsman to overcome resistance or to act against resistance. The abdominal is operationally defined as the number of sit ups performed and was measured as the total number of repetitions completed.
1.18.7 LEG STRENGTH

Leg strength or explosive power is the ability to release maximum muscular force in the shortest time as in executing a standing broad jump (Baumgartner, 1987).

1.18.8 MUSCULAR ENDURANCE

It refers to the capacity of a muscle or a group of muscles to do work with power. The muscular endurance is operationally defined as number of pull ups performed and was measured as a total number of repetitions completed (Yobu, 1991).

1.18.9 SKILL

“Skill is the ability to use the correct muscle at the correct time with exact force necessary to perform the desired movement in the proper sequence and timing” (Jenson and Fisher, 1972).

1.18.10 DRIBBLING

Dribbling refers to the maneuvering of a ball around a defender through short skillful taps by hands or foot. The purpose of such an action is to bring the ball past a defender legally and to create opportunities to score (Sharon, 1980).
1.18.11 PASSING

Passing skill is performed during the game to transfer the possession of the ball from one player to another avoiding defender. The purpose of such action is to bring the ball past to create opportunities to score (Sharon, 1980).

1.18.12 SHOOTING

Shooting is to propel the ball towards the goal in a specific direction or manner (Sharon, 1980).

1.18.13 PERFORMANCE

Mathew (1973), states that “the performance may be defined as the overall ability and mastery of one individual in executing the skills involved in the game or it is the ability to execute the skills in an effective manner in all situations of the game”.

1.18.14 RELIABILITY

Reliability is “the consistency of your measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. In short, it is the repeatability of your measurement. A measure is considered reliable if a person’s score on the same
test given twice is similar. It is important to remember that reliability is not measured, it is estimated”.

1.18.15 OBJECTIVITY

Objectivity is “the ability to perceive or describe something without being influenced by personal emotions or prejudices”.

1. 18.16. VALIDITY

Validity refers to “the accuracy of a measure. It is the extent to which a measuring instrument actually measures the underlying concept it is suppose to measure”.

1. 18.17 NORMS:

1. “A norm is a standard point of reference that can provide a basis for judgment” (Barrow and Gee, 1971).

2. “A norm is an abstract pattern”.