CHAPTER II
LITERATURE REVIEW

... there appears to be little documentation in the literature of comprehensive systematic evaluation studies of physical education curricula.

—Jewett and Bain

One of the major problems encountered by researchers in India is the inadequate and unsatisfactory functioning of libraries. There is also the problem that many of the libraries are unable to provide for acquisition of publications, especially in a comparatively new discipline like physical education. Further, in India, research in physical education is just a decade old and most of the research departments are in a developing stage.

Hand search of literature for this study was made in the libraries of Pondicherry University, Alagappa University, Annamalai University, University of Madras, YMCA College of Physical Education (Madras), and Lakshmibai National College of Physical Education (Gwalior).


Apart from relevant books, reports, dissertations and theses available in the above libraries, the search included available issues of the following journals:

1) SNIPES Journal (India)

2) Journal of Physical Education & Sports Sciences (India).

3) Indian Dissertation Abstracts

4) Dissertation Abstracts International

5) Research Quarterly for Exercise and Sport

6) The Physical Educator

7) International Journal of Physical Education

8) Completed Research in Health, Physical Education and Recreation

A brief general review of the underlying theory of Curriculum Process in Physical Education and Curriculum Models was considered an appropriate background for this study and it is presented in the first section of this chapter.

The second section consists of a summary of selected research studies that have some bearing on the present study.
Curriculum Process in Physical Education

The term 'curriculum' has been given different meanings by different writers. Some of them have used the word synonymously with 'syllabus', 'course of study', 'subjects', and so on. A satisfactory definition, which this study supports is this: "curriculum is the organized whole of learning experiences provided by an educational institution to bring about the desired changes in the learners."³ Curriculum includes the totality of experiences which students receive through the innumerable activities that go on in the classroom, laboratory, library, and playground and in various informal contacts between the teachers and the students. More comprehensive definitions which include in-school as well as out-of-school situations are too wide to be functional.

The elements of curriculum, namely aims and objectives, content, methods, and evaluation, are built into a continuous cycle of activities in the process of curriculum development. In practice, one does not move directly from one activity to the other until one reaches evaluation. Instead, there is a constant interaction. It is appropriate in this backdrop to examine each of the main

elements of curriculum with a particular emphasis on physical education.

Aims and Objectives

Aims and objectives of a subject form a background, which influences all the other elements of the curriculum. Aims are long-range goals, reflecting the value judgement of the society and are general. In physical education, aims most often mentioned include motor skills, self-realization, leisure, emotional stability, moral development, social competence, organic development, cognitive development, and aesthetic appreciation. To learn whether students are moving towards the general goals, immediate objectives are determined, which are very precise and specific.

When an objective is stated in terms of student behaviour, it is referred to as a behavioural objective. Long-range goals, curriculum objectives and evaluation objectives are the three levels of behavioural objectives that have been identified to establish a link between long-range goals and immediate objectives.  

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The formulation of specific objectives generally follows the taxonomies that have been developed for the three domains of behaviour. The schema for the cognitive and affective domains are widely known and are available in the two Taxonomies of Educational Objectives (Bloom and others 1956; Krathwohl and others 1964). Schema for the psychomotor domain (Simpson 1966; Jewett and others 1971; Harrow 1972) are available but the extent of their application is not known.

As an alternative general, and specific objectives could be framed keeping in mind the abilities, needs and interests of the students, the demands of the society, and expert opinion.

In India, until recently, most of the physical education programmes had only long-range goals. Efforts to state curriculum objectives and evaluation objectives can be noticed in the recent revision of the physical education curricula.\(^5\)

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Whatever may be the level of objectives specified, they have to be achieved through the teaching of those practical areas of physical education. These areas reflect the content of the subject and it is the most tangible element of the curriculum. Beside the objectives, content selection will be dependent on several variables such as the stage of schooling, needs of the children, organization within the school, nature of the geographical area, facilities, and the abilities of the staff.

Traditionally, many authors have classified the content of physical education as team sports, individual-dual sports, aquatics, dance, gymnastics, or some variation of this list. The physical education content in schools appears to have remained remarkably stable over quite a long period.\(^6\)

The National Plan of Physical Education and Recreation (1956), suggested a syllabus under seven groups of activities. The general plan of the National Fitness of Corps (1965) covered eight items. The Revised Syllabus of Tamil Nadu (1975) comprised of eight major heads of

activities. The Committee to Reform the Curricula in Tamil Nadu (1987) has recommended physical education content under eight heads. They generally comprised activities such as marching, body building exercises, yogasanas, rhythmmics and light apparatus, athletics, games, gymnastics, and indigenous exercises.

Most of the physical education teachers in schools are so familiar with the above activities that all the other elements of the curriculum are simply overlooked or ignored. In fact, the objectives of the physical education programme are viewed in terms of the coverage of the prescribed content or syllabus.

Methods

Whatever decision is made in the selection of content, the activities have to be taught to the pupils. In physical education this takes place in the gymnasium, the swimming pool, or the outdoor environment. In reality it is mostly in the open air under the shades of trees or even under the hot sun.

Different aspects of the physical education programme may best be taught by using a variety of teaching styles. The teaching methods will depend upon many variables such as the children being taught, the specific
nature of the activity and the objectives to be realised. A spectrum of distinct teaching styles (command, practice, reciprocal, self-check, inclusion, guided discovery, divergent/problem solving and going beyond) have been identified by Mosston.⁷

Every teacher needs a wide range of skills in his repertoire which will enable him to vary his teaching and avoid a stereotyped approach. This will enable the children to learn to the best of their ability. The prevalent and predominant mode of teaching in physical education is 'directive' in nature using the command style. There is some indication that teaching methods may be a slightly neglected area in schools.

Evaluation

Society, through its philosophers and educators, examines and ultimately selects essential values. Among these is the kind of a student who is judged to be best for that particular society. This student or learner is referred to as the 'product' and is considered as the end. The procedures of the learning environment or the means by

which this desired product is achieved are referred to as the 'process'. Basically, process is concerned with such matters as personnel, facilities, equipment, programme of activities, methods and materials, supervision, and administrative devices.\(^8\)

Once the objectives have been formulated and a programme has been planned and implemented, it is necessary to determine how well the objectives have been met, how efficient the process has been and how good the product is. This phase of the educational process is concerned with tests, measurements and evaluation.

Three different aspects of physical education that are important for evaluation purposes are 1) the student, 2) the teacher, and 3) the curriculum or programme. Evaluation takes place at every stage of the educational process rather than at the end. Both 'formative' and 'summative' types of evaluation are related to all the three aspects.

An essential part of the evaluation process is measurement. It is possible in physical education to quantify many performances with reference to standards such as time, distance, and weight. But its overall value cannot

be established merely by this quantification. Both 'objective' and 'subjective' categories of measurements are needed because of the nature of the teaching profession and the variety of subjects in physical education. However, an attempt should always be made to maximise the objectivity of measurements.

Student evaluation methods include written knowledge tests, skill tests, physical fitness tests, tournaments, expert judging or opinion, attitude and social behaviour inventories.

Teacher evaluation techniques include intuitive judgement, eyeballing, anecdotal records, checklist and rating scales, which are called traditional methods. Systematic observation includes event recording, duration recording, interval recording, group time sampling and self-recording.

Curriculum or programme evaluation is primarily concerned with establishing the direction for programme improvement. Goals and objectives form the basis for the evaluation process that will determine programme effectiveness. How can one evaluate a physical education programme? The answer to this question can only be gleaned from various sources.
Willgoose\(^9\) is of the opinion that if one is to evaluate ideally anything including physical education programmes, some attention should be given to an experimental design that will be instrumental in showing the general effects of a programme. He recommends school-based research.

Jewett and Bain\(^10\) state that programme evaluation usually includes evaluation of student performance, but evaluators are likely to be more interested in group means than in individual scores. Further, they summarise four programme evaluation models (desired-outcome, goal free, adversary, and artistic) which are not precisely defined and are not viewed as exhaustive.

Colfer and others\(^11\) suggest that an evaluation of the physical education curriculum involves determining the effectiveness of the curriculum content taught to students rather than the methods used for teaching the content.


Baumgartner and Jackson\textsuperscript{12} observe that the success of an instructional programme depends less on its physical characteristics than on the manner in which they are used in the instructional process. They conclude that student performance offers the most valid index of the success of a programme.

Vedanayagam\textsuperscript{13} observes that there are different approaches to curriculum evaluation, the most common model being the Tylerian evaluation model. The thesis for this model is to find out whether a given programme or curriculum has achieved its intended purpose. Therefore, evaluation activities comprise 1) defining objectives, 2) indicating situation, 3) selecting suitable appraisal techniques, and 4) finding out by measuring whether the objectives have been achieved.

The basic distinction between evaluation of student, teacher, and programme is related to the decisions that are to be made. Programme evaluation is considerably


broader than student evaluation or teacher evaluation. A satisfactory total programme evaluation would consist of data collected from both sources—the 'product' and the 'process'.

Curriculum Models

Jewett and Bain\(^{14}\) have discussed in detail the Physical Education Curriculum Models, a summary of which is given below.

Physical education, from the status of an extra-curricular activity, has become a co-curricular activity, and now it is regarded as an essential part of the school curriculum. Even now it is not unusual to encounter questions on its necessity, nature and worth. Generally, responses to these questions are based on one's narrow personal experience. Obviously, there must be, and there are several alternative ways of designing physical education programmes.

Curriculum models make specific assumptions about human beings, the role of education in society, and the nature of the subject matter. "Physical education

Curriculum models are designed to provide a basis for decisions regarding the selection, structuring and sequencing of educational experiences." Seven generic category of physical education curriculum models are: Developmental Education, Humanistic Physical Education, Fitness, Movement Education, Kinesiological Studies, Play Education, and Personal Meaning. Though all the models are at different stages of development, a few of them have clearly defined and delineated elements.

Curriculum models are described on the basis of goals, beliefs, conceptual framework and programme design. Each model can be analysed in terms of its value orientations and dimensions. Disciplinary mastery, social reconstruction, learning process, self-actualization and ecological validity are the five different value orientations identified by curriculum theorists. Individual development, social-cultural goals and subject matter content are the three dimensions used to classify the value orientations.

By nature, a curriculum design cannot be exactly duplicated in another setting. Curriculum models are intended not to provide a recipe but to stimulate, clarify and aid the thinking of curriculum planners.
Summary of Assessment and Evaluation Studies

Studies on physical education programme evaluation are found in abundance in older literature, while a marked decline is noticeable in the last two decades. Probably, it indicates a shift in focus or trend in physical education research, and probably owing to some disagreement whether programme evaluation should indeed be classified as research or not.

A series of relevant research studies were located and it was decided somewhat arbitrarily to consider for analysis those studies from 1960 onwards. Most of these studies are allied in nature and relate to the situation abroad.

An-across-the-studies observation reveals the prevalence of two major approaches to programme evaluation. An attempt to synthesize the studies based on these approaches was made. Studies based on student achievement (products) and studies based on programme characteristics (process) were grouped separately and an analysis of these is presented in Table 1 and 2 respectively. Studies on some aspects of related tests/instruments were grouped separately and is presented in Table 3.
In physical education research, curriculum area appears to be comparatively untouched in India. However an analysis of the few studies available is presented in Table 4.

**Table 4**

**Analysis of Assessment and Evaluation Studies (products)**

<table>
<thead>
<tr>
<th>Studies</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stube 1990</td>
<td>To determine the difference between two curricula on selected measures of physical fitness and motor skills - 119, 6 and 7 year old boys and girls - 10 weeks - pretest posttest-Seeboeldt Harebeusricher's Basic Motor Skill Instrument - AAHPERD HRPFT - ANCOVA - Significant improvement in 3 out of 4 fitness components in fitness oriented programme with decline in motor skills. Significant improvement in 3 out of 5 skill components in skill oriented programme with a decline in fitness performance. Results suggest curriculum content is specific to its stated goals.</td>
</tr>
<tr>
<td>Slava Laurie and Corbin 1984</td>
<td>To evaluate the attitudes, knowledge and activity behaviour of college graduates who completed lecture-laboratory (concepts) course in PE during their undergraduate study - college graduates of the same university who were under traditional course served as controls - both groups were compared to college graduates who quizzed out - questionnaire containing an attitude test a knowledge test and an activity checklist - multivariate analysis - concepts groups personal attitude-knowledge-activity profiles differed from those of either of the other groups.</td>
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</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Studies</th>
<th>Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Johnson 1969</td>
<td>To compare the effects of daily PE as opposed to two- or three-days a week on physical fitness, activity skills, subcutaneous adipose tissue, and physical growth - 151 boys and 133 girls had PE daily and 221 boys and 239 girls had PE 2 or 3 days per week over a period of two consecutive school years - physical fitness test battery of 6 items for boys and 4 items for girls and the triceps skinfold were given - 3 day subjects were superior in physical fitness, activity skill and less subcutaneous adipose tissue than the 2 and 3 day subjects - no significant difference in the growth curve.</td>
</tr>
<tr>
<td>Drowatzkey and Madry 1966</td>
<td>To evaluate the physical and motor fitness of 1,400 boys and girls and to evaluate the effectiveness of the current PEP in the development of fitness - fitness levels of boys tested were favourable but not pronounced - boys who participated in additional physical activity outside the regular PE classes were significantly more fit than who did not.</td>
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<tr>
<td>Taddnio 1966</td>
<td>To compare the physical fitness of two 5th grade self-contained classes - one with no PE curriculum and the other with a 15 min daily periods of calisthenics - physical fitness was determined by AAPHER youth fitness test - pre and post experimental results yield some significant changes within groups - no significant difference between groups - one significant difference in mean change in favour of experimental group (50yd dash).</td>
</tr>
<tr>
<td>Rosenstein and Frost 1964</td>
<td>To compare initial and final fitness scores of senior high school students participating in PEP rated high with those rated low to determine the relationship between physical fitness scores and number of hours out of school physical activity - the New York Physical Fitness Test was administered in October and May to pupils of 13 senior high schools which was rated low by.</td>
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</table>
members of the Bureau of PE and 16 whose programme rated high - La Porte Score card was utilized to validate ratings - amount of physical activity outside of class was recorded by each pupil and effect analyzed - pupils participating in good programme improved significantly in physical fitness than participants in poor programmes - greatest improvement was in strength with some gain in agility, balance and endurance.

White 1963

Forty students randomly selected from each good fair and poor programmes were given following tests: dodging run, push-ups, standing broad jump volleyball wall volley, 50yd dash, softball for throw, sports knowledge and situation response attitude scale - students in better programme as rated by LaPorte score card No II appeared to possess higher degree of agility, arm strength, power and hand eye coordination, more knowledge of sports, skills and game strategy, and better attitude toward PE than students from poor schools - definite relationship appeared between score card ratings of programme and the achievement of programme objectives

Keough 1963

Iowa test of Motor fitness was administered to grade 3 and 5 students in two parochial schools before and after 20 well organized and varied PE periods of 30 min duration - children in the daily programme were also tested 3 and 7 weeks after classes discontinued - two period per week programme appeared as effective as the daily programme of equal content and total duration since significant gain in composite motor fitness resulted in both grades from both programmes - the composite and individual test mean gains showed little difference for boys and girls - gain from the daily programme were maintained for at least 7 weeks after participation was discontinued.
## TABLE 2

### Analysis of Assessment and Evaluation Studies (process)

<table>
<thead>
<tr>
<th>Studies</th>
<th>Characteristics (problem-subject-instrument-procedure-finding)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savage 1988</td>
<td>To survey PEP in the public elementary schools in Indiana - 50 item questionnaire - 218 randomly selected PET - 56% response - additional data from personal interviews with 20 teachers and principals - PE perceived to be a legitimate part of total school curriculum; specialist teachers were primarily employed; classes appropriately sequenced; decline in time afforded to PE within the curriculum; PET lack of status within the school faculty, lack of training to instruct a typical students were the areas of concern.</td>
</tr>
<tr>
<td>Eager 1969</td>
<td>To investigate the number of hours devoted to preparations and probation by the PET in relation to the student participation in school PE instructional, intramural and interschool athletic programme - schools with greater amounts of preparation time available to PET received higher rating with regard to total PEP.</td>
</tr>
<tr>
<td>Allsen 1966</td>
<td>To evaluate PEP of 9 junior colleges in Idaho, Utah - Neilson-Comer-Allsen Score card-visititation - instructors good professional preparation and experience but membership in professional organization and attendance at meetings substandard, indoor facilities superior to outdoor facilities; difficulty in obtaining gymnastic corrective and testing equipment, good record keeping, limited time allotment; weak intramural programme.</td>
</tr>
<tr>
<td>Guess 1963</td>
<td>To determine the extent to which the independent secondary schools of California included and implemented recommendations of the State for boys PEP - survey by questionnaire - majority of</td>
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Table 2 (continued)

<table>
<thead>
<tr>
<th>Studies</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td>Wise 1963</td>
<td>To evaluate the PEP in secondary schools of Alliance, Ohio - interview with physical educators and administrators - the programme was limited primarily by inadequate facilities and equipment.</td>
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<tr>
<td>Baker 1962</td>
<td>To secure an estimate of the frequency of certain administrative problems in the PE of elementary and secondary schools of each State in US - questionnaire with recommended standard in respect of time allotment space allotment, equipment, programme and personnel - majority of the schools were in need of both classification and implementation of recommended administrative standards.</td>
</tr>
<tr>
<td>Nesom 1960</td>
<td>To evaluate PE in public high schools of Louisiana - stratified random sample of 100 schools - survey covered personnel, required class, intramural sports, interscholastic athletics, health education, facilities and equipment, financial support and community resources - 24% of all the teachers were teaching or coaching at least one PE class or variety sport, 63% of the schools required daily PE and less than 20 used written curriculum plan; definite plan for measurement to determine achievement of programme objectives was used in only about 1/4 th of the schools.</td>
</tr>
<tr>
<td>Studies</td>
<td>Characteristics</td>
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<tr>
<td>Parham 1960</td>
<td>To evaluate programme of PE in the white public secondary schools of Arkansas - 51 statements of principles dealing with the curriculum, staff, facilities and general organization of programme were formulated by the author - a jury of 20 Arkansas educators appraised each principle - stratified random sample - 40 schools - visitation.</td>
</tr>
<tr>
<td>Cameron 1960</td>
<td>To survey PE curriculum, facilities and administrative organization - La Porte Score card No 11 with minor adoptions for Saskatchewan - 20 out of 25 schools returned score cards - curriculum, facilities, and administrative organization were below standards recommended by La Porte for an adequate PEP.</td>
</tr>
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</table>
### Table 3

**Analysis of Studies on Certain Aspects of Related Tests**

<table>
<thead>
<tr>
<th>Studies</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morrow Fridge and Managhen 1986</td>
<td>Variation associated with testers, instruments, and repeated trials in the assessment of skinfolds as suggested by the AAHPERD HRPFT was investigated. Components of variance and G coefficients indicate that the skinfold measures vary little depending upon the above facets.</td>
</tr>
<tr>
<td>Smith and Miller 1985</td>
<td>The head-up position was found to produce significantly greater sit and reach flexibility performance than the head-down position in the AAHPERD HRPFT. However this difference was quite small that it may have no practical significance.</td>
</tr>
<tr>
<td>Capuano 1979</td>
<td>Two panels of experts from 21 states served as consultants in the construction and validation of an assessment guide for Elementary school PEP. To test the validity 9 schools were evaluated. Schools with excellent and poor programmes were selected. A t-test showed significant difference between mean scores of the 2 groups of schools indicating the validity of the instrument. Reliability testing involved evaluation of 13 schools. The principal and 1 classroom teacher evaluated their school's PEP using assessment guide. As result of this procedure the items in the final assessment guide showed 70% agreement.</td>
</tr>
<tr>
<td>Mays 1979</td>
<td>Goodness of the Penman-Adams &quot;Athletic Programme Assessment Instrument&quot; was tested. It was a 246 item rating scale consisting of 5 major and 21 sub-categories. The criterion measure was developed from the subjective ratings of 'experts' made up of an AD from each of the 12 Spokane area HS. Seven participants 1 principal, 1 AD, 1 male head coach, 1 female</td>
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</table>
head coach, 1 faculty member, 1 alumnus and 1 booster from each of the schools completed the instrument. Spearman-rho coefficient between the two ratings was obtained. Original test design indicated that the validity was not satisfactory. However when the sample size was reduced to homogenous group by sequential analysis acceptable validity was obtained. Based upon the findings the most feasible person to evaluate the HS athletic programme is the principal.

Woods 1971

Two forms of Test were constructed to measure the physical fitness knowledge of senior physical education major students. Experimental test items (184) the contents of which were based on 60 physical fitness facts secured from recent literature and on the opinions of 73 members of the Research Council of AAMPERD were administered to 1,360 PE major student enrolled in 35 collegiate institution in the US. Two parallel forms were constructed after item analysis. Validity and reliability, and national norms were established based on the data obtained from the administration of the final test to 4,167 students enrolled in 150 colleges in the US.
### TABLE 4

Analysis of Studies done in India on Assessment and Evaluation of Physical Education Programmes

<table>
<thead>
<tr>
<th>Studies</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td>Debnath 1990</td>
<td>To evaluate PEP of boys and co-educational high and higher secondary schools in the North Eastern Zone of India - stratified random sample of 1392 school heads - questionnaire, personal interviews and observation - response 1088 - percentages and ANOVA - relationship of the PEP to the total educational programme was not very good, quite poor fiscal management; community relationship not upto the desired level; very poor facilities, quite poor administration; fairly good curriculum.</td>
</tr>
<tr>
<td>Ramakrishna 1987</td>
<td>To identify the various problems of PET working in government schools of Andhra Region - questionnaire - 177 PET - 78.5% response - PE has not been accepted as a compulsory and an examination subject - inadequate pupil teacher ratio, play ground facilities, equipments, and indoor facilities.</td>
</tr>
<tr>
<td>Singh 1987</td>
<td>To determine the attitude of principals of government schools off Manipur state towards compulsory PE - opinionnaire consisting of 40 statements - descriptive statistics - majority of the principals had positive attitude towards the inclusion of PE as compulsory subject in school curriculum.</td>
</tr>
<tr>
<td>Khan 1984</td>
<td>To evaluate the revised syllabus, 1982, of PE of secondary schools of West Bengal - questionnaire data on personnel, facilities and curricular practice - 200 randomly selected school heads - 51% response - descriptive statistics - deficiency in professional leaders for effective implementation (60% in men and 65%...</td>
</tr>
<tr>
<td>Studies</td>
<td>Characteristics</td>
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<tr>
<td>Singh 1984</td>
<td>To survey the facilities and personnel in relation to the compulsory PEP in the secondary school of Punjab State - questionnaire supplemented by personal visits - 225 heads of schools - 60% response - percentages - all the schools had introduced compulsory PEP, majority had 1 PET irrespective of strength, majority of the schools did not have indoor sports hall/swimming pool facility, all the schools participated in inter-school sports competitions.</td>
</tr>
<tr>
<td>D'Souza 1969</td>
<td>To survey PEP of girls' secondary schools of Tamil Nadu - questionnaire to the headmistress, PET, and students on matters related to needs, interests, and attitude of students, the process and the problem of conducting PEP and the facilities, personnel, time allotment, finance and attitude of administrative head - 113 recognised exclusively girls' schools - headmistress 33% response - PET 38% response - random sample of 194 students from Madras city - logical analysis - lack of recognition and incentive for higher training in PE, preference for bifocal PET, large classes, soft syllabus, incomplete implementation of syllabus, concentration of participation periods, absence of indoor facilities, inadequate play fields, poor response to intramural programmes, lack of true participation periods, neglect of medical inspection, lack of public facilities for recreation, students aspiration limited to minor games, absence of specific plan of examination.</td>
</tr>
</tbody>
</table>
Programme evaluation studies with a product approach have focused on students' achievements of the stated objectives of the programme. Students' performance in stated objectives were measured by appropriate tests and the effectiveness of the programme was determined by suitable experimental design or by comparison with norms and standards. These studies have dealt with specific activities and individual phases of the programme rather than on the total programme. Students' progress towards goals is the most valid index of the success of a programme but it is only one dimension of the total programme evaluation.

Programme evaluation studies with a process approach have focused on the physical characteristics of the programme and have not weighed the students' achievements. Score cards, rating scales, questionnaires, inventories, interviews and visitation were some of the common tools used to determine whether the programme aspects meet specified standards. Programme evaluation based on process alone is incomplete because, as Barrow points out, a good process is a good process only if it meets its responsibility in the matter of the students' achievements.