Chapter - II

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Known facts build up the edifice of new theories and principles. Review of research studies serves as a buckle between the old and the new, between known and the unknown and between the already investigated and the to be investigated. Literature search is a milestone leading the researcher on the high road of future.¹

Literature provides a sort of factuality to the study. Morty Geoggai said, "The review of the literature promotes a great understanding of the problem and its crucial aspects and ensures the evidence of unnecessary duplication."²

Research has been proved to be an essential and powerful tool in leading men towards progress. There would have been very little progress without systematic research.

It becomes at times, of utmost significance for further investigation and research to gouge and assess the extent of originality in the present research work and to review to justify the utility, method and techniques, in order to make one's research more

meaningful and worthwhile. Researcher has to take note of deficiencies, similarities and differences among various literature produced so far.

The research scholar has made a sincere effort to go through professional literature related to the study. Research studies on the attitude of parents, student and teachers towards physical education programme are very limited in numbers. However, some related studies have been reviewed in this chapter.

Jacobson (1931)\(^3\) conducted that athletes are higher than non-athletes in terms of academic achievement as measured by the school's marks. Along this line similar result were obtained by McIntosh on British boys and girls. Furthermore, their academic achievement did not suffer during participation. It was pointed out by Jenny that, Meclay's motor quotient was closely correlated with intelligence.

It was concluded that, (1) boys who engaged in more than one sport or who played on teams engaging in school athletes contest received marks approximately equal to those received by boys of equal mental ability who were not members of such teams or who took no part in sports. (2) There was a slight tendency for intelligence related and (3) There was no evidence that achievement varied with the sport in which pupils indulged.

Anderson (1934)\textsuperscript{4} showed in his study the attitude of high school girls toward physical activities. As are results of interview questionnaire method was used with three groups of girls. The first group consisted of girls who were superior physical education students from the standpoint of interest ability and advertisement. The second group was average the third group was inferior. The bases used for the selection of three groups were: first day's motor ability test, second, results of achievement tests used in regular class work, third evidence of interest as determined by the amount of intramural and outside participation in physical activities by the girls, on the basis of scores, ten from the superior group were selected, ten from average and ten from the inferior group. 800 questionnaires were given to girls; the girls have had a program of physical education throughout their school carriers. The finding shows that a large percentage do not like squad practice on skills and it is shown that over half of the girls have much of their surplus energies and interest devoted to physical activities.

Thresa (1934)\textsuperscript{5} administered a questionnaire BCC twelfth grade girls in high school of Des Moines IOWA. Correlation and inter relations were computed statistically found that attitudes and interest of high school girls with relation to certain physical activities. The investigator finds that, if the girls themselves feel the


need of practice on certain skills they thoroughly enjoy working on them. It is interesting to note that the most popular activities have great carry over value of leisure time, much social approval, consist of big muscle activity and are in most scenes, fairly inexpensive. Most of the girls like to appear vigorous and snoopy and prefer to be trained to get and keep in good physical education.

Harold (1935)\(^6\) determined the relationship of school success of Physical Fitness index. PFI and other tests were given to 246 pupils in grades 5-8 in rural schools. He concludes that, there was no relationship between school success and the PFI. He obtained \(-.02\) for the boys and \(+.10\) for the girls, indicating no relationship between these two measures.

Park (1935)\(^7\) determined whether there is any relationship between physical fitness and success in physical education activities in a normal school department. The activities used were those required of all majors in physical education at the state normal school Cortland, New York Sixty-Five subjects were selected at random. The activities were swimming, gymnastics, dancing, play game and athletics. The author concluded that all fine correlation have low values. There was no correlation between physical fitness index and athletic award. Athletic success for men depends on mere strength than physical fitness.


\(^7\)Bessie I. Park, “Relationship Between Physical Fitness and Success in Physical Education Activities”, Research Quarterly, 6 (March 1935) : 263.
Jones (1935)\(^8\) compared the intelligence of high school; school athletes with non-athletes. 80 boys on one or another of athlete's team of the Washington High School in Indianapolis were compared in intelligence tests, with 493 boys from the same school without the athletic distinction. He found athletes as group were more intelligent.

Finch (1936)\(^9\) did a study on athletes and achievement in high school. For this study 174 boys graduated in 1924-31 from the University of Minnesota, measurers of Intelligence, extent of participation in athletics and scholarship were taken.

Seegers and Postipichal (1936)\(^10\) conducted a study on 656 boys and founds positive but low correlation between the I.Q. and the score on the athletic tests.

Smith and Miller (1938)\(^11\) compared the academic grade with intelligence scores. He found that high intelligence group had better academic achievement than low intelligence group.


\(^10\)J. C. Seegers and O. Postipichal, "Relationship between intelligence and certain aspects of physical ability", Journal of Education Research, 30 (1936) : 104.

\(^11\)C. W. Hacken Smith and L. Miller, "A Comparison of the Academic Grades and Intelligence Scores of Participants and Non-Participants in Intramural at University of Kentucky", Research Quarterly. 9 (September 1938): 94.
Ray (1940)\(^{12}\) points out that “athletes are not low in mental ability, although individuals of very high I.Q. frequently forgo athletics within the limits of an I.Q. group.

Physical ability is more reliable predictor of academic standing than is relative I.Q. The athletes not only superior in mental ability as measured by I.Q. but more superior as measured by academic averages and still more superior as measured by number of academic failures”.

Tuttle and Beebee (1941)\(^{13}\) did a study on the scholastics attainment of letter winners of the state university of Iowa. The investigators found that: the scholastic attainments of university athletes were approximately equal to the over age of the male group to which they belonged. Scholastic average tended to become lower as the season of competition progressed for the most past, the academic records of members of championship teams were higher than those of the member of non championship teams in the same sports.

Hinriche (1941)\(^{14}\) attempted to find correlation between health, intelligent quotient, extracurricular activities and Scholastic records. The investigator reported that no generalization should be

\(^{12}\)H.C. Ray, "Interrelationships of Physical and Mental Abilities and Achievements of High School Boys", Research Quarterly, 11, (1940)

\(^{13}\)W.W. Tuttle and F.S. Beebee, "A Study of the scholastic attainment of letter winners at the state University of Iowa", Research Quarterly, 12 (1941) : 222-225.

made regarding the effect of these factors on scholastic success. The academic standing of the student would depend upon his desire and ability to compensate for any of the possible detesting factor in his school career.

Johnson (1942)\(^\text{15}\) undertook the study of the relationship between physical skills and the general intelligence. 310 college freshmen (both men and women) were given a test to determine their academic status and to determine physical skill; Johnson physical skill test was administered. The coefficient of correlation between the Johnson test and the earned academic grades was 0.68 for the man with a standard error of .07, and a coefficient of correlation of .075. There was no woman with a standard error of correlation of .075. There was no significant relationship between physical skills and academic grades.

Smith and Eaton (1942)\(^\text{16}\) at the Indiana University studied achievements of athletes. The authors reported on an investigation of 217 athletes enrolled at the Indiana University from 1934-1940. The subjects included all the men who received official

\(^{15}\)G.B. Johnson, "A Study of the Relationship that exists between Physical and Intelligence as Measured by the General Intelligence Tests of College Students". Research Quarterly, 13, (1942).

\(^{16}\)H. L. Smith and M.T. Eaton, "The Scholastic Achievement of Athletes at Indiana University", Bulletin of School Education, Indiana University, 17 (1941) p.16, Quoted in Psychological Abstracts, 16 (1942), Article No. 365.
letter in basketball, baseball, football, golf, swimming, track and wrestling. They found, in general, the scholastic achievement of athletes was commensurate with their ability. In their conclusion they said" probably one of the most significant fact that these results show that the athletes in this study were very much like other average students as far as success was concerned.

Kulcinki (1945)\textsuperscript{17} pointed out that the relationship between intelligence and the learning of fundamental muscular skill was very quick and significant.

Somers (1951)\textsuperscript{18} made a comparative study of participation in extra curricular sports and academic grades. The class of 1948 at the Smith College was selected for the study. The academic grades of participations in intramural class team competition were compared with that of non-participants. Somers found that "Participation in class team Competition does not appreciably affect, either adversely or favorably, the academic grade of student participants," either in any single year or ever the entire four year period of collegiate education. She concluded that it is possible for a student to enjoy the benefits of intramural particular and at the same time maintain academic grades to those of non-participant.

\textsuperscript{17}L. E. Kulcinki, "The Relation of Intelligence to the Learning of Fundamental Muscular Skill", \textit{Research Quarterly}, 16 (1945): 266-276.

Waber (1953)\textsuperscript{19} in his study of 264 fresh women at university of IOWA reported on grade point average. Hence, it seems reasonable to conclude that a certain level of matter and organic functions favour academic achievement and success in intellectual pursuits.

Broer et al (1955)\textsuperscript{20} article presents the results of a survey of the attitude of 1,149 college freshmen women toward physical education as an activity. Study of the total scores show that they indicated a very favourable attitude. The students of swimming and tennis seem to have a more favourable attitude than overage and those in archery a less favourable attitude. The high percentage of these students who indicated that physical education activity classes contribute to social development, mental and physical education activity classes contribute to social development, mental and physical health agree with results found at the university of Michigan.

Pangle (1956)\textsuperscript{21} made a study on scholastic achievement of high school athletes. He found there was no significant difference in scholastic attainment between those who participate in the athletic programme and those who did not participate.

\textsuperscript{19}Robert Waber, "Relationship of Physical to Success in College and to Personality", Research Quarterly, 26 (1953): 71-74.


Booth (1958)\textsuperscript{22} compared the personality ratings of:
Freshmen and varsity athletes who participated in only team,
individual, or team and individual sports; and athletes who were rated
as poor or good competition and found that the non-athletes scored
significantly higher than the varsity athletes on the anxiety (A)
variable. Variable athletes and the upper class non-athletes scored
significantly higher than the freshmen athletes scored and non-
athletes on the dominance (Do) variable on the social responsibility
(Re) variable, the upper class non-athletes scored significantly higher
"than the freshman athletes and non-athletes and the varsity athletes.
Varsity athletes who participated in only individual sports scored
significantly higher on the depression (D) variable then those who
only participated in team sports scored significantly higher than the
athletes who participated in both team and individual varsity sports.

Isenberger (1959)\textsuperscript{23} was conducted the study to
determine the relationship between the self-attitudes of women
physical education teacher. Subjects used in the study were 277
women physical education major students from three institutions and
167 women physical education teachers. The "Who am I?" test a
twenty statements Test of Self Attitudes (TST), was used as a
measure of self attitudes. The results of this study indicated that there


\textsuperscript{23}Wilma Isenberger, "Self Attitudes of Women Physical Education Major Students and of Women Physical Education Teachers", \textit{Research Quarterly}, 30 (March 1959) : 44.
was a significant difference between the self-attitudes of student
groups within a school and between schools. It was also indicated
that the self-attitudes of teachers offered significantly from those of
students enrolled in a liberal arts college or a teachers college
connected with a university but mere similar to those of students in
teaching education institutions.

Wear (1960) conducted a study on the evaluation of
individual and group attitude towards physical education as an
activity course and also developed and inventory for measuring
attitudes towards physical education as an activity course and
developed an inventory for measuring attitude towards physical
education. He reduced the length of the inventory from 120 to 30
items and the correlation between the two forms was 0.96.

Hatcher (1960) carried out a study to determine the
relationship between physical fitness and academic achievement.
The sample consisted of 90 ninth grade boys. A moderate positive
relationship was found between these two variables. Highest mean
scores were recorded for the item measuring strength and endurance
of the extensor muscles of the arms and shoulders girdle, and the
item measuring paragraph meaning.

24 Charles L. Woar cited by Chester W. Harris ed., "Encyclopedia of Educational
25 Edward Q. Hatcher, “A Study to Determine the Relationship between Physical
Fitness and Academic Achievement of Ninth Grade Boys”. Completed Research in Health,
Fahrner (1960)$^{26}$ found little or no relationship between physical fitness, academic achievement and intelligence in his study an high school students.

Coleman (1960)$^{27}$ in his study on the Adolescent subculture and respective course. He found that basketball players who were highly proficient in there chosen sports were also above the average of their fellow students in academic performance.

Bucher (1961)$^{28}$ conducted a survey covering 100 teachers, parents representative of the general, superintendents and principals of school and directors of physical education to determine what they believed should be the role of physical education in American Schools and Colleges. Overwhelming support for physical education as a part of the education programme was indicated by 89 percent out of total persons surveyed. Sixty one percent believed that physical education should be scheduled once a day. Only two group professors and parents indicated that they might possibly be more in favour of three times a week. Most of the persons surveyed, thought that all types of activities including team sports, carry over activities, individual activities and recreational activities should be a part of education.

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physical education programme. Principals and superintendent thought that physical education class should be larger than the size of classes for academic subjects. A majority was of the opinion that physical education grades should be reported separately from the other educational offerings.

School administrators and professors were the only group who believed that it should correspond with the marking in other subjects.

Keogh (1962) was conducted the study to determine if students differed in their attitudes towards general benefit or values of physical education and if men and women differed in this respect. The responses of 136 men and 130 women to the wear physical education attitude Inventory (Form A) were analysed to determine if difference between men and women or size of agreement response were related to items with a common meaning. Subjects endorsed the social, physical and emotional values of physical education, but they conflicted in the opinion regarding the relative value of physical education programme in the school curriculum.

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Mc Millen (1962)\textsuperscript{30} observed a partial correlation of .26 between physical fitness and academic achievement holding 1.Q constant in his study of high school girls. The above abstract of review reveals that there seems to be low positive correlation between academic achievement and physical fitness and this hold true even when the 1.Q of the subject is kept constant. There is also low positive correlation between Academic Achievement and Intelligence. However no such study seems to have been undertaken in India to develop insight into the role and importance of physical fitness and physical education.

Hays (1962)\textsuperscript{31} made high school student into four groups on the basis of Mc Clay classification Index. He found positive but non-significant correlation between them.

University Competition championship held in Nagpur during the 1985-86 session. It was concluded that all most all the volleyball players of west zone Inter University competition were from the middle socio-economic strata.


Reid (1963)\(^{32}\) evaluated the attitudes towards physical education and studies the personnel, facilities and programmes in, selected high schools in South Carolina. He used the wear Attitude Inventory and a modification of the La-port score card to collect the data. His studies revealed that though there was a lack of activities and equipments in these high schools the personnel showed a favourable attitude towards physical education.

Keogh (1963)\(^{33}\) conducted the study to analyze stated attitude responses and selected descriptive information in relation to two groups of men and women who demonstrated extreme attitude toward physical education. From an original group of 226 subjects, 69 men and women were selected whose scores on the wear Physical Education Attitudes Inventory were extremes of high or low. Additional data were obtained through a group interview questionnaire. There were no male - female differences within the extreme groups. The low group offered some minimum support for the outcomes of physical education, but they vigorously questioned the relative value of physical education as a school programme. There was no evidence to indicate that negative attitudes were related to non-participation.


Mayer (1964) concluded that parental attitude towards physical education were not related to socio-economic status. Parents considered the activities and the outcomes of physical education either desirable or essential to the total development of their daughters.

Allerdice (1964) conducted a study on the relationship between the attitude towards physical education and physical fitness scores and socio-metric status. She administered the Kneer adaptation of the wear attitude inventory and AAHPER Youth Fitness Test on 202 girls in grades eight and nine at Fair Field Lowa, U.S.A. in 1962-1963. The entire group did not demonstrate any substantial relationship between attitudes towards physical education and degree of physical fitness. However, the girls with most favourable attitude towards physical education had a significantly higher degree of fitness that the girls with the most negative attitude. Allerdice conducted that an adverse attitude towards physical education did not seem either to lower a girl's social status in the physical education classes r to possess a positive place to raise her status.

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Wessel and Nelson (1964) conducted the study on college women. The purpose of the study was two fold: to investigate (a) The relationship between strength and attitudes towards physical education among 200 college women and (b) strength in relation to two groups of women whose stated responses towards physical activity were extremes of high or low, women enrolled in physical education classes at Michigan State University expressed a very favourable attitude towards physical education as an active courses as measured by the wear inventory. The validity and reliability findings of this study approximate findings of previously reported studies. Significant correlation was found between strength (hand grip, back lift, pull, push measures) with scores on wear's inventory, Self-Rating Scale, and the three questions used in his validity study, although the relationship was low. Back strength showed the highest relationship with all attitudes measures. Number of years of participation in high school physical education was not related to the strength measures, wear's Inventory, or Self-Rating Scale, however, years of high school physical education were found to be significantly related to the results of the three questions (high personal judgment). Grip strength was found to be directly related to the group of subjects who were consistently positive in their responses to the questionnaire.

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items. Based on descriptive information, the high could be characterized as being physically active, participating more in the intramural programme, enjoying co-recreational sports activities and valuing the importance of physical activity as part of their personal recreation programme.

Hart and Shney (1964) selected 60 sophomore women from Springfield College to determine the relationship between physical fitness and academic success. Each student was tested at the beginning of her freshman year and retested during the spring term. The SAT (Scholastic Aptitude Test) scores were obtained from the admission office, the cumulative academic index of the subjects from the registrar office, and physical fitness index scores were collected from the Springfield college, Physical Education Tests and Measurements laboratory. The relationship between academic success and physical fitness was significant beyond the .01 level of significance.

McCollum (1964) compared between the physically fit and the physically unfit in intelligence, academic achievement and attendance in school. The AAHPER Youth Fitness Test was administered to 172 male students in Greene country Technical High


School, Paragould, Arkansas. The 28 students with the highest scores were considered the "fit" group and the 28 with the lowest scores were considered the "unfit" students, with approximately equal numbers in the 4 grades. Comparisons of intelligence based on the California Test of Mental Maturity grade point average, and attendance were made difference at .05 level of confidence. The mean difference of intelligence between the fit and the unfit group was not significant. However, the mean grade point average of the fit group (2.68) was 40 percent higher than that of the unfit group (1.91) and the difference was significant although intelligence and attendance were essentially equal.

Chamber (1965) conducted a study on the appraisal of the attitudes of the principals, teachers and students towards physical education as a secondary school subject. The study revealed that teachers and students, unlike the principals, held a favourable attitude towards physical education as a secondary school subject. Teachers and students were aware of the importance of physical education in developing fitness. Activities, which were liked by pupils and teachers, were also the activities in which they desired instruction and in which they estimated their skills to be high.

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Lincoln (1965) undertook the study of relationship between physical fitness and grade point average. The Washington State Physical Fitness Test Battery for Junior Senior High School Boys was administered to 173 boys in grade 10. Their mean physical fitness scores and grade point average correlated positively and significantly at the .05 level. The high and low grade point average groups differed significantly at the 0.5 level in physical fitness. The mean physical fitness of the total group matched that of the middle grade point average group.

Zaichkowsky (1965) conducted the study to determine the difference in attitude toward physical education activity after participation in required service programmes in physical education at the college level between a foundation curriculum (Women = 87, Men = 129) and a life time sports curriculum (Women = 185, Men = 118). Pre = and Post = test measurements were carried on the three attitudinal components. Effect was measured using the semantic differential scales of Kenyon's Attitudes Towards Physical Activity Inventory. Tools specifically designed for this study were used to measure the behaviourable and cognitive components. A 2 × 2 multivariate ANCOVA indicated statistically significant differences (0.05 level) on the main effects of see and type of programme as well.

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41 Linda B. Zaichkowsky, “Attitudinal Differences in Two Types of Physical Education Programmes”, Research Quarterly, 46 (October 1965) : 364.
as significant introduction. Further evaluation using discriminate analysis indicated that there were 2 statistically significant discriminate functions. One function demonstrated distinct attitudinal differences between men and women regardless of the type of programme in which they were enrolled. The second function revealed that women in the foundations programme were different from the other three groups of subjects. It was concluded that a foundations programme was not more effective than a life-time sports programme in effecting a more positive attitude toward physical activity.

\textit{Brumbach and Cross (1965)}\textsuperscript{42} were conducted the study on male students entering the University of Oregon. The purpose of the study was to measure the attitude toward physical education of all male lower division students entering the University of Oregon in September 1960. The wear Attitude Inventory, short form A, was the instrument used. The results indicated that as a group, these students had a rather favourable attitude toward physical education. In comparing the mean score of this group with the means reported for two somewhat similar groups, the Oregon Students score was significantly higher. In comparing various subgroups, the following conclusions were made, athletes have better attitudes than non-athletes, the more years of physical education a student has had

in high school the better his attitude is likely to be and students who attended smaller high schools (enrollment under 300) have better attitudes than those from larger schools.

**Jarman (1965)** found that the multiple correlation between twenty-one physical variables and intellectual performance were too low to justify the prediction of scholastic success from physical tests. Thus, these investigation conduced that measures of height, weight, grip strength, physique type, dental 8tSe and carpal age contribute little to the prediction of academic performance.

**Moyer et al. (1966)** used a modified wear Attitude Inventory (2) was made to determine the attitudes of freshmen and junior women toward the required physical education programme at Northern Illinois University and to evaluate the physical education offerings in terms of student needs. The findings indicated a preference for individual sports, a highly favorable attitude toward physical education on the part of both freshmen and juniors, and a need for re-evaluation of methodology and interpretation in teaching the required programme.

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44 Lon Jean Moyer, John C. Mitchern and Mary M. Bell, "Women’s Attitudes Toward Physical Education in the General Education Programme at Northern Illinois University", *Research Quarterly*, 37 (December 1966) : 515.
McIntosh (1966)\textsuperscript{45} in his study on British boys and girls concluded their academic achievement did not suffer during participation in physical education programmes.

Pelton (1967)\textsuperscript{46} analysed the current practices and beliefs on physical education programme in higher education. He took three groups of subjects to conduct his study. They were college physical educators, a jury of physical educators, and Deans of Instruction. The six important basic concepts of physical education cited by all three groups were the development of strength and endurance: the achievement of personality satisfying level of motor skills, the development of an esthetic appreciation for the role of sports as a cultural course in the modern world : the acquisition of knowledge useful in solving personal health problems : classification of self-image and enhancement of self-esteem: and acquisition of physical skills and mental interpretation.

Vincent (1967)\textsuperscript{47} administered wear attitude inventory upon 188 college women in a variety of Physical Education activities. The final grade received for the activity course was used as the success factor. Attitude were analysed both as to values and as to activity groups and correlations were computed between attitude and

\textsuperscript{45}P.C. McIntosh, "Mental Ability and Success in Social Sports", Research in Physical Education, (October, 1966).


success. Attitudes toward physical education were generally favourable, with the contribution of physical education to the physiological physical values being higher than other values examined. There was a significant relationship between attitude and success at the 0.05 level. The higher significant occurred in the case of students having more favourable attitudes.

Conly (1967) in his comparative study of the scholastic achievement of athletes and non-athletes at the university of New Mexico mentioned that grade point averages of athletes, who were on scholarship and / or had own letters, were compared with those of a random sample of non-athletes in 1962-63. The non-athletes were superior but not significantly superior to the athletes at the .01 levels. Mean grade point average for athletes in physical education, arts and sciences and business did not differ significantly at the .01 level, but those in physical education differed significantly from those in university college. Grades of non-athletes in university colleges were significantly lower but those of students in other three colleges did not differ significantly. Comparison between teams showed that the basketball players were highest and tennis players lowest, but no difference was significant. Differences between athletes in team and individual sports were not significant.

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48 A.G. Conly, "A Comparative Study of the Scholastic Achievement of Athletes and Non Athletes Teams at the University of New Mexico", Completed Research in Health, Physical Education and Recreation, 7, (1967).
Jones (1967)\(^9\) in his study, collected data from 101 randomly selected male freshman at Indian university showed a significant correlation between physical fitness and high school athletic performance, but not between physical fitness and scholastic aptitude or grade point average. The low relation between SAT score as an admission requirement.

Roebuck (1967)\(^10\) in the comparative study of intelligent quotient and academic achievement or athletes and non-athletes compared senior male athletes (115) at Jonesboro high School with senior non-athletes in graduating classes, since 1959 on the basis of school records using 't' at the .01 level. Athletes had higher IQ's and grades than non-athletes. The grades of athletes in relation to mental ability were as high or higher than non-athletes.

Jorndt (1968)\(^11\) investigated the relationship between physical fitness and academic achievement. Freshman and senior high school boys (N = 358) who ranked in the upper and lower 25 per cent of their respective classes were used as subjects. The main west physical education department constructed the physical fitness test. Class rank was determined by grade point average. No significant differences (.05 level) were found between physical fitness and academic achievement for either freshman or senior boys.


Leathers (1968)\textsuperscript{52} used male students (N = 1070) from 5 classes for the study of the relationship between physical performance and academic achievement. A factorial analysis was used to investigate the relationship between physical and mental performance. Multiple regression equations and analysis of variance were also utilities to discover whether the results of the factor analysis were in agreement with other statistical procedures. It was concluded that this investigation has not definitely established relationship between components of physical performance and academic achievement.

Arnett (1968)\textsuperscript{53} undertook a study to determine the interrelationship between selected physical variables and academic achievement of college women. He gave physical fitness test to 827 college freshmen women, which comprises the standing broad jump, flexed arm hang, Curl ups, and the 3-minute step test. Grade point averages determined for each fitness classification revealed statistically significant differences in GPA among those who were high, fair, or poor in physical fitness achievement. Those groups achieving higher GPA’s also were high on the fitness scores. The relationship was not high enough to be predictive, but the result suggests that greater health and vitality of a student aids him in achieving his academic potential.

\textsuperscript{52}R.K. Leathers, "A Study of relationship between physical performance and academic achievement of spring field college students". Completed Research in Health, Physical Education and Recreation, 10, (1968).

\textsuperscript{53}S.J. Arnett, "Interrelationship between Selected Physical Fitness Variables and Academic Achievement of College Women". Research Quarterly, 39, (May, 1968).
Campbell (1968) administered form A of the Wear Attitude Inventory to one randomly selected physical education class of seventh grade boys, one class of eighth grade boys, and one class of ninth grade boys in each of five junior high schools. The mean inventory score for each grade was found to be equal to or superior to the mean reported in Wear's validation study. A significant $\chi^2$ value was found for the distribution of Inventory scores of the three junior high school grades. A biserial co-efficient of correlation item analysis, which was computed for each of the three grades established that the 30 items correlated significantly with the total score and that the item score also had a significant correlation with the Inventory Category Score. On the basis of these results, the conclusion was advanced that the Wear Attitude inventory was an appropriate instrument to measure attitudes of junior high school boys towards physical education.

It was also found that physical educators and academic deans of instruction were in close agreement in most instances with regard to beliefs concerning the general college programme of physical education.

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54 Donald E. Campbell, "Wear Attitude Inventory Applied to Junior School Boys", Research Quarterly, 39 (December 1968) : 888.
Davis (1970) investigated the existing relationship between Socio-economic status of parent and the physical fitness scores of their fifth grade pupils. He collected data from unified school of Sacramento city found that physical fitness was not infused by socio-economic status.

Hart (1970) in his study of high school male student significant correlation between physical fitness and academic achievement in the entire group, as well as, in the students of the second and fourth year classes of high school of few years, but negative correlation - .43, in the students of the third year.

Young (1970) conducted the study on personal social adjustment, physical fitness, attitude towards physical education of high school girls by social economic level for that he used AAHPER physical fitness test to measure physical fitness and found no significant difference between socio-economic groups with reference to physical fitness.

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56 Edward Hart, "Relationship Between Physical Fitness Test Scores, Intelligence Quotient and Grade Point Average of Selected High School Students", Completed Research in Health Physical Education and Recreation, 12 (1970): 87.

Young (1970)\textsuperscript{58} compared the motor performance by pre-school children from middle and lower economic group and found no significant differences between classes or sexes in body weight, shuttle run, balance beam, or broad jump. However, middle classes were significantly better than the lower class and boy were indicating for both throwing accuracy and distance. Also, middle class boys scored better on the distance throw them girls of either class. Lastly, middle class girls and lower class boys were faster than middle class boys in running 30 yards dash.

Dinucci (1970)\textsuperscript{59} studied the longitudinal analyses of academic achievement and intelligence of the boys nine to seventeen year of age as related to selected physical variable and found a significant position relationship between academic achievement and intelligence in his study on boys, nine to seventeen years of age.

Loretta (1970)\textsuperscript{60} in one such study conducted on 897 men and 531 women, enrolled in physical education activity course at the university of Utah administered Kenyan's attitude towards physical activity scale from DM for men and form DW for women.


Correlation factorial analysis of variance for factorial design for repeated measures were computed. The study revealed difference in attitudes towards physical activity and its sub-domains.

(a) As a social experience
(b) For health and fitness
(c) As the pursuit of vertigo
(d) As an aesthetic experience

The data in the study indicated that while the dimension of physical activity show significant discriminates any difference in attitudes among the student's activity and class groups selected.

Dahl (1971)\(^6\) carried out an investigation to study the relationship between academic achievement and physical fitness of white and Negro students at two different levels. Three sub-tests (sit ups for cardio respiratory endurance, standing broad jump for muscular explosiveness and softball throw for gross body coordination) of AAPHER Youth Fitness Test score on the Stan form Achievement Test. Correlation was obtained between physical fitness and academic achievement. On physical fitness Negro boys obtained a low negative correlation. These findings were reversed at the high school level, with the Negro boys obtaining a low positive correlation and the white boys obtaining a low negative correlation.

Knutson (1971)\textsuperscript{62} compared the physical fitness and sports skills performance and academic achievement. He used one hundred and fifty five subjects, 82 boys and 73 girls, in sixth grade classes in three elementary schools. Each subject was administered the overhand softball throw for distance, underhand softball pitch for accuracy, pull up, jump and reach, rope skipping, sit up. Hanson shoulder test, 50- yard dash, standing broad jump and 600 yard walk–run. On hundred and twenty six of the original 155 subjects completed the Iowa Test of Basic Skills, of whom 64 were boys and 62 were girls. From the physical fitness and sports skills data, it was found that the subject’s adjusted mean performance was significantly higher under the leadership of classroom teacher on the overhand softball throw for distance, underhand softball pitch for accuracy. Hanson shoulder test, standing broad jump, and the 600 yard walk–run. For the sit up and 50 yards dash, the subject’s adjusted mean performance was significantly higher under the classroom teacher physical education consultant approach. The leadership of the physical education specialist resulted in the highest adjusted mean performance on the jump and reach. The boy’s adjusted mean performance was significantly higher than that of the girls on the overhand softball throw for distance, underhand softball pitch for accuracy, pull up, jump and reach, and the Hanson shoulder test.

The girl’s adjusted mean performance was significantly higher than that for the boys on the rope skipping and there was no significant difference between boys and girls on the sit up, 50-yard dash, standing broad jumps and 600 yard walk–run. On the test, which involved the learned skills of throwing and pitching, the boys’ for rope skipping. From the academic achievement data, it was found that the difference in adjusted mean performance under the various types of physical education leadership was not significant. This was also true between the sexes.

Ralph (1971)63 administered a semantic differential attitude towards physical education scale and AAPHERD Youth Physical Fitness Test to 100 Negro and 100 white 5th and 6th grade boys and the same numbers of the 9th and 10th grade boys from the same Texas school District in 1969-70. He utilized ‘t’ test for difference between means to test the difference between means to test the difference between Negro and White students on measure of physical fitness and attitude towards physical education and academic achievement. The significance of difference between correlation was determined by the Z technique. He found that Negro boys scored significantly higher than white boys on overall physical fitness at both levels. The difference was greater at the 9th and 10th

grade level correlation between attitude towards physical education and physical fitness were found to be positive and quite low for each of the four groups. A different type of investigation concerning the influence of social factors and environmental factors was carried out by Lowery administering AAPHERD youth physical fitness test to 1400 senior high school boys in 1967 from 59 schools in the state of Arkansas. The study concluded that high school boys in 1967 from 59 schools in the state of Arkansas. The study concluded that:

(1) There was a significant relationship between the fitness level of the students tested and the following factor:

(a) School locations,

(b) Athletic classification of the school,

(c) Number of year participation in junior high physical education,

(d) Educational preparation of the physical education instructors.

(2) There was no significant relationship between the following fitness level of the student tested and the following factors:

(a) Number of years participation in senior high physical education

(b) Number of physical education classes in which the student participated each week.

(c) Students places of residence: Urban and Rural.
Sighultz (1971) conducted a survey study to determine the relationship between athletic achievement and academic achievement of high school athletes. He discovered that the participation in athletes did not adversely affect academic achievement. Athletes achieved greater academic success than non-athletes. The better athletes were higher academic achievers than the average athletes. The additional time required for the better athletes to participate in practice games and sports had not apparent ill effects on their academic achievement.

Paul (1973) also took 119 subjects age 17 to 31 years dividing them into three groups to compare them on the Wear physical education attitude inventory and the Histon personal adjustment inventory. One way analysis of variance were computed to compare the groups and to determine if significant differences existed. 't' ratios were used to determine if significant changes had occurred on the criterion measures. Results indicated that normal control group was still significantly higher than the adopted control group on the variable of attitude towards physical education even though the adopted group did not make a significant improvement on the attitude toward physical education variable. There were no significant differences between the adopted sub-groups or any of the criterion measures.

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measures at the end of the programme. Nelson also found differences in attitude between high school boy staking ROTC and those taking physical education. Those who took physical education had a more favorable attitude towards competition, games and attitudes.

Delforge (1973) conducted a study where an attitude inventory using the Semantic differential technique was administered to 100 male and female graduate and undergraduate students, subjects were selected to random from each of the following students populations: i) Ambulatory physically handicapped ii) Wheel chair physically handicapped, iii) Non-handicapped and iv) College athletes. No significant differences in attitudes towards physical activity in general or toward each of the six dimensions of physical activity were found among the four main study groups.

No significant differences were detected between male handicapped and male non-handicapped, between female handicapped and female non-handicapped and between male handicapped and female handicapped students. Attitudes expressed by male and by male and female handicapped students towards physical activity as an ascetic experience were significantly less positive than for all other dimensions.

Warmer (1973)\(^{67}\), showed the relationship between class activity levels and stated attitudes towards physical activity. The purpose of the study was to examine the relationship of the class activity level to the stated attitude toward physical activity for community college students.

The subjects for the study were community college students enrolled in their first college level physical education classes. The activity level of each class was classified by the instructor as being either no aerobic activity, moderate aerobic activity or high aerobic activity. A modified version of Keynon's attitude toward physical activity was the instrument used as a pretest and again as a post test at the end of the one semester classes. The A.T.P.A. consists of 54 statements that required the selection of a response that falls on a seven items Likert scale.

The data were evaluated to determine whether the activity level of the class, the sex of the student or the age of the student was a factor of the mean score for the attitude change. A correlation matrix was developed which showed moderate correlation between pretest - pastiest scores. A multivariate analysis of variance indicated there was a difference was found. Class activity levels, sex and age are not factors of attitude change towards physical activity.

Badami (1974) in his study "A Comparative study of the educational attitudes of college students" has compared the attitudes of 297 male and female college students concerning instruction, curriculum, teaching methods, teachers and examination procedures.

For the purpose of sampling, method of quota sampling was used. The method of selecting college the responsibility of assisting either of the student was personally, explained to the person who was assigned by the authors. Finally, 297 forms were retained for analysis after canceling incomplete forms. A Scale for measuring attitudes of college students towards some aspects of education was administered individually. The data obtained were studied by the analysis of variance technique. Following conclusions were drawn

1. The Arts, Science and Commerce groups significantly differed in their attitudes towards studied aspects of education.

2. The female and the male students differ significantly in their attitudes towards education.

3. Arts, Science and Commerce groups have shown consistent trends in the attitudes expressed towards each aspect.

4. The female students have expressed more favorable attitude towards education.

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5. The male students have expressed more unfavorable attitude
6. The students have not indicated unitary attitude towards education.

Bhullar (1976)\textsuperscript{69} assessed the attitude of university students towards physical activity in relation to academic performance, intelligence, and personality characteristics. She concluded that individuals who score high on personality factor were inclined favourable towards physical activity and subjects with higher intelligence have more favorable attitude towards physical activity in general.

It was also revealed that subjects with favorable and less favorable attitude towards physical activity that is top 2.7 percent and bottom 27 percent cases differed significantly at .05 level on personality factors. Subjects having favorable attitudes were academically superior.

The difference was greater at the 9\textsuperscript{th} and 10\textsuperscript{th} grade level. Correlation between attitude towards physical education and physical fitness were found to be positive and quite low for each of the four groups.

\textsuperscript{69} J. Bhullar, "The Attitude of University Students towards Physical Activity in Relationship to Academic Performance Intelligence Socio-Economic Status and Personality Characteristics" (Unpublished Doctorate Dissertation, Punjab University, Chandigarh, 1976).
Selby and Lewko (1976) conducted the study to measure grade school children's attitudes toward female involvement in sports and their relationship with participation, sex and grade level. A Likert type questionnaire (CATFIS) was administered to 106 girls and 264 boys in grades 3-16 at the beginning of their participation (P) in a YMCA sponsored sports programme. Similarly, 344 girls and 287 boys in grades 3-9 who did not participate (NP) in this sports programme were administered the questionnaire in their school classrooms. Five month later the P group and the NP group (only grades 3-6) were retested to investigate whether any change attitude had occurred. The results of the study indicated that females at all grade and participation levels hand significantly more favourable attitudes than the males. At grades 3 and 4 male P and NP were quite similar in their attitudes, as were female P and NP, but at grades 5 and 6 the attitudes of each sex group diverged. Male NP was more positive than male P, while female NP were less positive than female P. The significant three-way interaction between participation, sex and grade was explained in terms of a psychological contrast effect and sec roles. Overall, the groups became more positive towards female involvement in sports from the time of the pretest to the post test.

Cooper (1977) pointed out that intelligence and skill could function at the peak of their capacity only when the body was healthy and strong and it was physical fitness that was the most important key to a healthy body. Thus physical fitness is the basis of dynamic and creative intellectual activity.

Acceptance of concept as, related to Biological integration and interrelationship of physical, mental, and emotional characteristics of human organism would tend to support the conclusion that other things being equal mental processes will proceed more efficiently in an individual, whose body is healthy and when all parts are functioning normally. One reason why some athletes in spite of their being physically fit, make poor achievement in studies. The reasons may be that they pay much attention to the practice of sports or physical activities and not enough is given to the class work.

Nicholas (1978) exhibits in his study of attitudes of selected high school student and related school community members. Toward varsity interscholastic sports participation and the factors that effect those attitudes. The purpose of this case study was to determine student attitudes towards varsity interscholastic sports participation and factors that affect those attitudes.

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The study addressed the following:

1. Over the past 20 years what trends can be identified in varsity sports participation?

2. What are the factors heat influence attitude towards participation in varsity interscholastic sports?

3. What is the attitude of students towards participation in varsity interscholastic sports? What are the attitudes of coaches, faculty, parents and community members toward participation in varsity interscholastic sports?

Data was gathered from high school yearbooks, Pennsylvania department of education, a survey questionnaire administered to 155 high school student non-participants, coaches, faculty, parents of participants, parents of non-participants and community members.

Results Indicated

1. Level of sports participation remained approximately 25% over the period of 1965-1985.

2. Several factors appear to affect attitudes of students towards participation in inter scholastic sports. Parental influence was the most definite factor. Other factors noted were peer influence and coach influence, perceived athletic ability, sports as fun, priority of sports, and the relationship of sports to academic achievement.
3. Students especially participants, reacted favourably to the school's interscholastic sports program and believed that sports were worthwhile because they taught such concepts as cooperation, sportsmanship, competition, and learning responsibility. Sports were perceived as beneficial for physical fitness and socialization. Students reacted negatively to the overemphasis on competition and winning, pressure from coaches, and sports not being fun.

4. Coaches, faculty, parents, and community members believed that sports participation was beneficial to students. Sports taught cooperation, responsibilities, competition, and sportsmanship. There was negative reaction to the overemphasis on competition and winning, pressure from coaches, "bench sitting" by many students, sports burnout, and lack of fun in sports.

The research suggested development of a sports philosophy emphasizing educational aspects of sports and participation for enjoyment and self-satisfaction. Coaches should be oriented to this philosophy and evaluated on its supported rather than win-loss records. Additional sports should be added to the interscholastic program, and the intramural sports program should be revitalized.
Mullins (1978)\textsuperscript{74} assessed the attitudes towards physical activity of secondary students in co-education and non-co-education physical education programs. He administered Kenyon's attitudes inventory related to six dimensions of physical activity to 480 subjects. He found that secondary students in southern Illinois had a generally favorable attitude towards physical activity. Its health and fitness value was ranked on five or six measures there were no differences in attitude between students in co-education and non-co-education programs on the health and fitness measures, non co-education students had a significantly more positive attitude than did students in co-education programme on four of six measures there were significant differences in attitude towards physical activity between boys and girls, handicapped students towards physical activity as an ascetic experience were significantly less positive than for all other dimensions.

Prince (1978)\textsuperscript{75} conducted a study on the attitudes of the campus community towards the intramural programme of California State College, San Bernardino. Among the community groups were administrators, participating faculty, non-participating faculty, participating male student, participating female students, non-participating male and female students. The semantic differential technique was utilized as a research tool in assessing attitudes.


The students, faculty and administrators indicated positive attitude toward the intramural programme. Those who participate in the intramural programme expressed more positive attitude than their counterparts who did not participated in the programme.

Wright (1978)\(^7\) to determine of significance differences between the expressed attitude of students and the teachers, perception of the students attitudes differences between the expressed attitudes of the teachers and students perception of teachers attitudes were also investigated. Analysis revealed that teachers had a better attitude toward physical education than and did the classes as a group. There was no significant difference in the attitudes of students and their teacher's perception of their attitudes however, there was a differences in the expressed attitudes of teachers and the students perception of the teachers attitudes, students perceived a less favourable attitude then the teachers expressed.

Mall et al. (1979)\(^8\) made comparative analysis of physical fitness with some physical and socio-psychological variables of schoolboys. One hundred and fifty male students, who secured 60% and above marks in the previous annual examination were taken from the IX and X classes. They were divided equally (N = 50)

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according to three age groups i.e. 13, 14 and 15 years., age, height, weight, three skin fold measures and parents’ annual income were recorded. All the subjects were given six PF tests of Fleishman Battery. For inter group comparison, ‘t’ test was administered at .05 level of significance.

The mean percentile total P.F. score of the three age groups was less than 48.7 and thus much below the academic achievement. 13 years ago groups scored significantly higher in total percentage P.F. factors. 14 years group was significantly better in flexibility. 15 years group scored the lowest in all the P.F. tests. The performance of all the groups in flexibility was very low. In academic achievement, the mean of all the age groups was above 60%. The 13-years age group secured 64%, highest among the groups.

Although the difference was not significant, it showed the trend that the students possessing better P.F. might also be better academically. However, the mean percentile total P.F. scores of 48.7 of 13 years age group cannot be considered as good. The middle-income group scored the highest in total percentile P.F. scores as well as in Balance, Endurance, Speed, Arm strength and Flexibility. The low-income group scored better in coordination. The differences were however not significant. In the academic achievement all the three income groups were equal.
Sodhi (1979) studied the Attitudes of High School students Towards Discipline. The objective of the study is to investigate the attitudes of students toward discipline as a function of sex and rural/urban background. For the present study, a list of the recognized and government schools get from the D.P.I's of the respective states. In all 51 schools were selected at random which include 21 boys' schools and 22 girls' schools. Those students included 22 rural schools and 21 urban schools. In schools, where there was the whole group was selected. From those schools which had more than one section of students, one section was selected for the purpose of the study. As a result, 2152 students of 10th grade were selected, sexwise breakup of data was 1056 boys and 1096 girls. This group consisted of 937 urban and 1215 rural students.

Sodhi's Attitude Scales (1974) were used in their original format which contained all the items in three languages i.e. Hindi, English, and Punjabi. These scale have been extensively used in a good number of studies at M.Ed. level. The text-retest reliability of the tool is, .82 and validity is, .85. As no tool to validate it was available, its validity was worked out with the teacher's, friend's and parents opinions. This was found to be, .80, .88 and .85 respectively. The language used was quite appropriate to the level of the students is all

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the languages, i.e. Hindi, English, Punjabi. The data collected was computed for the mean and standard deviations for various sub-groups divided on sex and habitation.

1215 Urban students were compared with 937 rural students a "t - ratio" for the difference in means of the groups was found significant at .01 level. Similarly results were revealed when 616 urban boys were compared with 440 rural boys. These results were also confirmed when 616 urban boys were compared with 599 urban girls, however, when the group of 616 urban boys compared with 497 rural girls, no statistically significant difference was noticed.

As a result of the comparison of 1056 boys consisting of combined rural and urban population with a similar mixed population of 1096 girls "t-ratio" for the difference in means of the group was found to be significant at .01 level. However no statistically significant difference was noticed when the group of 599 urban girls was compared with the groups of 497 rural girls. Similarly, a "t-ratio" for the difference between the means of 440 rural boys with 599 urban girls indicated that no statistically significant difference existed between the means of both the groups. However, a "t-ratio" for the difference between the means was found to be significant at .01 level of confidence when the group of 497 rural girls was compared with 440 rural boys.

From this study it was concluded that the atmosphere in the urban schools was more congenial for the development of a positive attitude towards discipline then the atmosphere in rural schools.
The male population was more favourably inclined in their attitude towards discipline than the female population.

The rural girl population was found to have a more favourable attitude towards discipline than the rural male population.

Singh (1981) Studied professional Teacher Attitude of B.Ed. and M.Ed. student teachers and its correlation. The population and the samples of the study were selected by stratified random sampling, two samples of 546 B.Ed and 78 M.Ed. students of the University of Madras were taken for this study, and they constituted 38% and 66% of the B.Ed. and M.Ed. student - populations of that University. Ahluwalia's Teacher Attitude Inventory was administered at the end of the B.Ed. and M.Ed. courses in the respective colleges of education of the University of Madras for the purpose of measuring the teacher Attitude of these student - teachers. Dr. B. Kuppuswamy's socio economic status scale (urban) was use for determining socio-economic status. It was hypothesised that

1) M.Ed. students would have higher teacher attitude than B.Ed. student.

2) Student teacher of (a) urban colleges, (b) with post graduates qualifications, (c) with science degrees, (d) with higher SES, (e) with teaching experience, (f) with first class degrees,

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(g) with scholarship/stipend and (h) women student - teacher would have higher teachers attitude when compared to student teachers of (i) rural colleges (ii) without post graduates qualifications, (iii) with Arts degrees, (iv) with lower SES, (v) without teaching experience, (vi) with other lower class degrees, (vii) without scholarship/stipend and (viii) men student teacher respectively.

3) There would be difference between the teacher attitude of student teacher of (a) govt. and non-government colleges, (b) above 35 and below 35 years of age and (c) independent and dependent status.

4) There would be a positive relationship between teacher attitude and the Grade point average (GPA) of the B.Ed. students in the University semester examinations. Such a relationship would not be there in the case of M.Ed. students.

5) Age and teaching experience of B.Ed. and M.Ed. student - teacher would be having positive relationship with there teacher attitude.

After analyzing the data by Ahluwalia's teacher Attitude inventory which is a 5 point scale from 0 to 4, having 90 Likert type of items.

On the basis of data analysis following conclusions were drawn -

1) The colleges of education in University of Madras had been quite successful in building favourable teacher attitude on the part of B.Ed. and M.Ed. student - teachers.
2) Though there was no significant difference between the Mean Teacher Attitude of B.Ed. and M.Ed. students, yet there were distinct differences in the pattern of the frequency distribution of the attitude scores.

3) Among the B.Ed. student-teacher, those belonging to non-government colleges of education had significantly large variance than their counterparts of the government colleges in Teacher Attitude even though there was no significant difference in their mean attitude.

Similarly those above 35 years of age had large variance than those below that age. Those of independent status had larger variance in attitude compared to those with dependent status.

B.Ed student teachers with high SES had not only larger variance, then those of middle SES but also had significantly higher mean attitude student-teacher of urban colleges had higher attitude than those of rural colleges. Women excelled men in attitude. Those of high SES had better attitude compared had better attitude compared to those of low SES.

Those with more than 12 years of teaching experience had significantly higher attitude than those without such experience.

The two independent variables namely the possession of a I class/other class degree and the financial assistance for studies-either received or not received did not have any effect on the attitude of B.Ed. students.
Among the M.Ed. student-teachers, those belonging to non government colleges had significantly larger variance in Attitude compared to those of government colleges.

The post graduate had higher variance in attitude than the graduates.

The Arts degree-holders showed larger variance in their attitude than the science degree holders. Those with high SES had significantly higher Teachers Attitude compared to their colleges of low SES.

Teachers Attitude of B.Ed. student-teachers had significantly and positive intercorrelation with their GPA and did not have significant inter-correlation with their Age and Teaching experience.

Teacher Attitude of M.Ed. student-teachers had significant intercorrelation with their GPA, Age and Teaching Experience.

Alston (1981)\textsuperscript{79} collected data from 421 fifth grade children enrolled in sixteen North Carolina schools. They were given the Simon–small scale assessing children’s attitudes towards physical activity general linear models procedures for the hierarchical design and all results were tested at the .05 level of significance. It was related that: -

(a) Fifth grade children who have been taught physical education by physical education specialists in combination with classroom teachers are more positive in their attitudes towards taught physical education by classroom teachers above.

(b) Fifth grade boys are more positive in their attitude towards the sub-domain, pursuit of vertigo than of fifth grade girls, while fifth grade girls are more positive in their attitude towards the sub-domain aesthetic experience than are fifth grade boys.

(c) Fifth grade students are more positive in their attitudes towards the sub-domain catharsis than block students.

Crow (1981) the study determined the relationship that existed among academic achievement, strength, motor skills, and self-control in second grade children.

Three hypotheses were tested in the study. The Null hypothesis was tested for the relationships academic achievement, strength, motor skills, and self-control. The Null hypothesis was also tested for the difference between schools in the nine assayed variables. It was also hypothesized that a significantly positive difference would exist between the sexes in the academic variables.

In the area of arousal and performance, the review of the literature indicated that a majority of the studies used physiological measures to explain the activation continuum. Evidence pointed out

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80 Thomas Alan Crow, "Relationship among Academic Achievement Strength, Motor Skill and Self Control". D.A.I., 37,09, (Sep. 1981).
that for any activity there was an optimal level of arousal. Research pointed out that academic achievement cannot be predicated from motor ability. Several researchers supported the integrated development theory, in which the various developments of the child are interrelated, instead of separated entities. A review of the literature showed that females were superior in tasks requiring rapid repetition of over learned responses. Males were superior on complex tasks, which required inhibition of impulses.

Each of 217 randomly selected subjects was administered the CTBS, Strength, Test Battery, Motoric Skills Battery, Walk A Line Test, and Draw a line test.

Results of the study indicated a significant relationship \( p < .05 \) between mathematics and strength. However, only 3.842\% of the variance of the variable mathematics was predictable from the variance of the variable strength. Significant differences were noted between the sexes in reading and total achievement. A highly significant difference was noted in language. There were significant differences among the schools in the variable motor skills and walk a line. Highly significant differences were observed in the variables reading, language, total achievement, strength, and draw a line. The only significant predictor was motor skills for the criterion mathematics. The invariant F score 7.416, which was highly significant, but accounted for only 3.610\% of the variance.
Haywood (1981)\textsuperscript{81} computed a canonical correlation analysis to treat data collected from 302 freshmen students in a private church related university at Sanford. The study reported that (i) there was no significant education for both men and women. (ii) There were no significant relationship between the men’s fitness performance and their attitudes and self-concepts.

Skolnick (1981)\textsuperscript{82} conducted the study, the purpose of this study was to determine whether physical activities (i.e. exercise and for a physical game) influence academic performance in elementary school children as measured by a specific instrument—namely, Language Usage and Mathematics Computations subjects of Iowa-Test of basic skill.

Three classes of student, which constituted the entire sixth grade population (N = 88) of one elementary school, were administered pretests. The classes were randomly assigned to one of three treatments. One group received fundamental body conditioning exercises. A second group participated in physical game. The third group, serving as a control was shown in a film. The group was given the 10-minute treatment in the school gymnasium one-week after presetting, during their regularly scheduled physical education classes. Each group was administered the posttest immediately following the treatment.


The same statistical procedures were cased on analyzing the data from both the language usage and mathematics computation scores. Congruent with the quasi-experimental design single classification analysis of covariance was used to analyze both sets of data with the appropriate pretest used as the covariant in each analysis. If either analysis of covariance revealed significant difference among the three groups, the student Newman-Keuls Multiple Range Test was employed to make pair wise comparisons among the means. Non-directional t-test of correlated means was utilized to determine if the posttest data were significantly different from the present data for each group language usage and mathematics computation. All analysis was tested of the .01 level of significance.

The finding indicates significant difference among the three groups with respect to both language usage and mathematical computation. In comparing differences between pairs of groups the result indicated that in terms of enhancing language usage and mathematics computation, having exercise or a game were more effective than seeing a film for the sixth grade students. Since no significant differences were found between the exercise and game groups. It is concluded that both physical activities are equally effective in enhancing immediate performance in elementary school children.

Within group comparisons also indicated significant positive changes in both language usage and mathematics
computation for the exercise and game group. The control group experienced no significant change pre to post. Thus, the findings indicate that academic achievement in sixth grade student may be greatly enhanced by using exercise of game activities immediately proceeding.

Linda (1982) analyzed the attitudes and career awareness of selected six grade students who were participants in a career education programme in south Carolina. The problem statement was "will the students who have been exposed to a career education have more positive attitudes, better self concepts, and an overall better knowledge of career awareness than those who have not been exposed to such a program?"

The selected sample consisted of 200 sixth grade students from two middle schools in the state of South Carolina. Both the control group and experimental group were matched according to the scores achieved on the comprehensive Test of Basic Skills in the areas of math and reading. The two groups represented the four highest classes of sixth grades based on ability grouping.

Self concept was measured by the How I see Myself Scale; attitudes were measured by the school sentiment index; and career awareness was measured by the career orientation Battery.

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The exact testing procedures were followed for the two groups with the test given in the same sequence. In order to test the hypotheses and research questions investigated in this study it was necessary to use t-test, person correlations and multiple regression analyses at the .05 level of significance.

The results indicated that the experimental group scored significantly higher on the self-concept scale than the control group. Also, the student's performances on the career orientation Battery showed that children who were exposed to career education do have a higher level of career awareness than those students who were not exposed to such a program. There was a significant difference between the experimental and control groups on the school sentiment index with the control group scoring higher possibly with the "how effect being a determinant factor. However, there was no significant difference between the scores for either groups on the sub test of the "Attitudes Towards learning" and "career planning"

As evidenced by the results of this study, implementation of a career education program does have an impact on the career awareness level, career knowledge, and self concepts of students who participate in such a program. To be aware of the total impact, more research is needed to substantiate the influence of career awareness on the elementary level.
Dounglomchant and Somphol (1982)\textsuperscript{84} assessed the students attitudes towards Humanistic Education in selected University in Thailand. The purpose of the study was to determine the extent of acceptance of certain concepts of humanistic education by students in four selected universities in Thailand. It was also believed that Thai students would accept and support humanistic education concepts presented by this study. While it was would be equally, accepted, the study would help to identify those aspects which would be more acceptable and less threatening to educators, thus making it earlier for administrations to accept the idea of humanistic education and to begin implementation of these concepts gradually. A questionnaire was designed to identify student perceptions toward humanistic concepts of education. It was field tested with Thai students in Greley, Colorado, with their suggestions for improvement incorporated in the final instrument.

The population for this study included 1,000 randomly selected students, 250 students from each of the selected universities. The attitudes of students towards humanistic education were solicited and analyzed according to sex and type of university: traditional, open or teacher training. The rate & return was 12.0% of all questionnaire administered. A "chi square" test of significance was

used to interpret the data in the 43 tables presented in the study. The .05 level of significance was used to evaluate the statistical significance of all analysis.

Conclusions drawn from the study states that greater than 65.5% of all students responding to the 21 questions responded positively to 20% the 21 humanistic concepts presented for their responses. The over wheeling positive responses of Thai students to the humanistic education concepts presented in the questionnaire supports the researcher's belief that humanistic education concepts have a place in Thai education. The highest percentage of positive responses (93.9%) or acceptance of a humanistic concept was in relationship to the premise that the teacher should pay as much attention to his/her relationship with the students as he/she does to the content material of the course. The only concept with a greater percentage of rejection than acceptance (47.5%) was in relationship to the premise that grades are not absolutely necessary as a means to motivate students to learn.

Langford (1982)\(^8\) compared perceived physical abilities, attitudes towards physical activities selected measure of physical fitness and self-concept of the following:

i. Female physical education majors and female non-majors.

ii. Male physical education majors and male non-majors.

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iii. Female physical education majors and male non-majors.

iv. Male physical education majors.

v. All physical education majors and non-majors.

vi. All physical education majors and non-majors.

The subject were 19 female and 22 male physical education majors along with 15 female and 15 male non-physical education majors enrolled in the university of Alamba as undergraduates during spring semester of 1981. His findings were that female and male physical education majors were:

i. More attracted to physical activity.

ii. Had higher generalized appreciation to physical activity.

iii. Had higher affirmation of possessing physical endorsements.

iv. Had higher confidence at performing physical an ability in running endurance and speed endurance to female non-majors.

Mostafa (1983)\(^8^6\) Surveyed the attitudes toward the professional preparation scheme of sports coaches in Egypt by the country's sports leaders; the coaches, and the instructors of the four colleges of physical education in Cairo and Alexandria.

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The population selected for this study included 215 employed male coaches in 25 sports organizations which were randomly selected from the cities of Cairo and Alexandria. The remainder of the population consisted of 220 male and female faculty members of the four colleges of physical education.

The survey reveals demographic data of the respondent coaches, professional preparation assessment data, and attitudinal data. The content of the attitudinal part of the survey was a compilation of 11 common competencies identified from the professional preparation programs of the United States, Canada, Australia, West Germany, and the former program of Egypt.

Descriptive statistical techniques were used to analyze the demographic and the professional preparation assessment data. Inferential statistics were used to analyze the attitudinal data. The conclusions of the study are -

1. The majority of the Egyptian coaches (80.0%) did not have a coaching certificate and more than half of the certified coaches were professionally prepared in foreign countries.

2. Incentive for professional development was indicated by the highest salaries being given to the coaches who hold doctorates in physical education and who have successfully trained championship level athletes.

3. Employing factor analysis on the 11 competency areas three factor headings were identified as fundamental, scientific, and administrative aspects of preparation.
(4) The fundamental aspects of coaching were considered to be a continuum of increased content as the levels of coaches increases.

(5) The scientific aspects of coaching were considered more important for the higher levels of coaches than for the lower levels.

(6) The administrative aspects of the coaching were considered less important for the higher levels of coaches than for the lower levels.

Based on the results, it appears that there should be a different approach for the preparation of the lower level of coaches than for those of the higher level.

Lee (1983)\(^7\) took up study to analyze the attitudes of senior high school students and senior high school coaches towards youth football. For the purpose of the study, youth football was defined as a participation on a non school sponsored team at the sixth grade level and below. 724 senior high school students and 38 senior high school football coaches were surveyed.

The researcher constructed survey were based on experience and the literature utilizing a Likert type response scale. The data was statistically analyzed by a 't' test at the .05 level of confidence. Another basis for statistical analysis was thirteen identical

items on the coach and student surveys. Mean responses to the student and coach survey items were statistically analyzed to determine significantly different mean responses between the various groups. Findings showed that comparison of senior high players and groupings of students who had terminated football participation revealed statistically significantly different results for thirteen of twenty-five items: Students responded "agree"(53%) and "strongly agree"(25%) to statements concerning benefits attributed to youth football. Some conclusions drawn on the basis of the study were (1) Students want to play for fun rather than winning. (2) Students derived benefits from playing youth football. (3) Coaches and students had different views on youth football.

Cavanaugh and Robert (1983) surveyed students study habits and attitudes towards school. For the survey students in grade nine through twelve from a metropolitan mid west community comprised the population of the study. A stratified random sample of 509 students representing about 10% of the population, was administered the student study habits and attitudes survey SSHA and completed a demographic information form containing the items related to the research problem. ANOVA and 'T' test were utilized to compare the means of groups. An alpha level of .05 was employed to test the difference between means.

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Females scored higher than males on the SSHA when the means of both groups were compared. Students grade comparison indicated that, regardless of grade placement, study habits and attitudes towards school were similar. Analysis of student scores by class rank and grade point average indicated that students in the upper quarter of the class and students with grade point averages between 3.51 and 4.00 scored highest on SSHA. Seventeen extra class activities were compared on a participant-non participant basis. Students involved in community service, interscholastic athletics, publication and student government scored significantly than students non-participants in those activities.

Students planning to attend a college/university scored higher on SSHA than students with other plans-students with no plans following high school and those students planning to get jobs immediately following education, scored lowest on SSHA.

Adian and Franklin (1984) assessed the attitudes of instructors and students to determine the extent to which Emily Griffith opportunity school (EGOS) was meeting the needs of these enrolled in vocational programmes and if the programmes were equally accessible to the population served.

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The study had four specific objectives:

1. To develop a profile of the student population.
2. To assess the attitudes of vocational instructors toward administration, supervision, and support services,
3. To ascertain if the present location of the school was desirable, and
4. To determine if a difference existed between attitudes of instructor's competencies, facilities and equipment, counseling, and job development.

Questionnaires were developed and constructed so that a comparison could be made between instructor's and students responses. The population surveyed included all students and instructors in attendance on a predetermined data. The responses were considered to be 100 percent.

Data from the student profile questionnaire and part II of the instructor's questionnaire regarding attitude toward administration was reported in frequency of responses in percent. A t-test was utilized to determine if a significant difference existed between attitude of instructors and students. The null hypotheses were tested at the .05 confidence level of significance.

The following major conclusions were made after analyzing the data:

1. EGOS was ideally located for equal access to programmes.
(2) Supervision should be increased.

(3) Supervisors should be more knowledgeable in preparation of instructional material.

(4) Utilization of program advisory committees should be expanded.

(5) There was a significant difference in attitudes between students and instructors in health education regarding job development activities.

(6) There was a significant difference in attitudes of students and instructors in office occupations regarding curriculum and job development.

(7) A significant difference existed between students and instructors in technical education regarding facilities and equipment, and

(8) In trades and industry, a significant difference existed between attitudes of instructors and students regarding instructor's competitions.

Bunthirasmi and Somphong (1984) took study to determine the attitudes of teachers toward female public school administrators in the province of Phisanulok, Thailand. The purpose of this study was (a) to identify the attitudes of public school teachers

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on the elementary and secondary levels toward women in administrative positions; (b) to identify whether or not there are significant differences between the attitudes of men teachers towards women in public school administrative positions and the attitudes of women teachers toward women in public school administrative positions according to age, level of education, years of experiences marital status, and previous experience working for a women administrator and (c) to identify whether or not there are significant differences between the attitudes of elementary school teachers towards women in public school administrative positions and the attitudes of secondary school teachers toward women in public school administrative positions according to age, level of education, years of experience, marital status, and previous experience working for a women administrator. To accomplish these purposes, a questionable was mailed to a random sample of 324 teachers who currently teach in grades one through twelve in Phisunulok province, Thailand. Two hundred seventy seven teachers, representing 85.49 percent of the sample, returned completed questionnaires.

Part I of the questionnaire is designed to gather relevant demographical data to determine the attitudes of teachers toward women schools administrators. Part II of the questionnaire contains the Attitude Research Instrument (AR₁) which was used to measure the attitudes of teachers. Analysis of variance was used to test the data according to the independent variables.
Two statistically significant differences were found among the data: (a) there was a significant difference between the attitudes of women and men teachers towards women in administrative positions and (b) there was a significant difference between the attitudes of secondary school teachers who have worked for a women school administrator and secondary school teachers who have never worked for a women school administrator.

Holden (1986)\(^9\) showed investigation of attitudes of high school students towards women’s participation in sports, approximately 700 Losangies high school students were surveyed regarding their attitudes towards women’s participation in sports. This group agreed that sports were an acceptable human activity and could not be labeled as masculine or feminine.

The students were divided into ethnic sex, and age groups, and comparisons were the most accepting of women in sport, blacks were in the middle, and his panics were the least accepting. The biggest difference occurred in white males between the ages of 15 and 18 white females started at the highest level and had only slight differences. Hispanics were reflective of the male dominated culture and supported a strong sex role stereo type. Black males have viewed sports as an escape from the ghettos and were hesitant about allowing females the same access to sport.

Desai (1986)\(^2\) took study to know the attitude of school going adolescent towards physical education programme in the school with reference to personality characteristics. The objectives of the study were (i) to construct a valid and reliable scale to measure the attitude towards physical education of school going adolescents, (ii) to study the attitude of school going adolescents in the context of their body build, (iii) to study the attitude towards physical education of school going adolescents from rural and urban areas, (iv) to study the attitudes towards physical education of school going adolescent in the context of personality characteristics, (v) to investigate whether there were any sex differences with regard to attitude towards physical education and (vi) to investigate whether family interest in sports and games had any relation to attitude towards physical education of school going adolescents.

Self constructed attitude scale was used for measuring attitude towards physical education programme by adopting the Likert method of summated ratings. The statements were constructed on the basis of six aspects of physical education namely, physical aspect, psychological aspect, sociological aspect, educational aspect, moral aspect, and organizational aspect. There were 60 statements based on these aspects 30 of which were positive and 30 were negative. For measuring personality trait, 16 PF was used. The

study was based on a sample of 773 students. 2x2x3 factorial design was contemplated and analysis of variance approach and multiple regression technique were used for analysis of data.

The findings of the study showed that the sex of the students did not influence significantly their attitudes towards physical education. The students of classes VIII, IX and X did not differ significantly in their attitude towards physical education. The students from urban areas excelled in their attitudes towards physical education as compared to the students from rural areas.

The parent's interest did not play an important role in developing the attitude towards physical education. The students having normal weight did not significantly differ in their attitude towards physical education from the students who were overweight and underweight.

It is also found that there was no significant interaction effect of the facility of the school and the area of the school on the student's attitude towards physical education.

**Williams and Mortan (1986)**\(^93\) studied the change in selected cardio-respiratory responses to exercise.

In the study cardio-respiratory and body composition change were evaluated in twenty five sedentary females, aged eighteen to thirty-five years, following twenty weeks of aerobic dance

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training programme produced effect were indicated by significant improvements in O2 pulse, V heart rate perceive exertion during sub maximal exercise.

At last it was concluded that these twelve week aerobic dance program was successful in promoting beneficial change in cardio-respiratory fitness and body-composition. No significantly improvement in any of these variable were found for the control group.

Sham (1987) undertook a study to determine students attitudes, varsity inter scholarship sports participation & factors that affects their attitude. The data was gathered from high school 155 students with the help of interview schedule and a questionnaire. Several factors appeared to affect the attitude of students towards participation in inter scholarship sports. The main and most definite factor was the influence of parents. The most interesting finding was that coaches, teachers, parents and community members believed that sports participation was beneficial to students, because it increases physical fitness and is a source of socialization.

Barrett (1987) investigated the study; the purpose of this study was to determine the relationships between selected variables of physical fitness, and academic achievement for elementary

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and secondary students. Specially each variable of physical fitness, which included a one-mile run, skin fold fat measurements at the recap and sub scapular sites, sit-ups, and a sit and reach activity, was correlated with standardized math and reading scores.

The instrument for the measurement of physical fitness was the American Alliance for Health, Physical Education, Recreation and Dance health related physical fitness test. The standard achievement test was the source of the math and reading scores 8, 10, and 12 at a university laboratory school, and represented a cross section of the school's student population. A total of 186 students participated in the study.

The Pearson's product moment correlation statistic was used for (a) the measurement of relationships between physical fitness and academic achievement variables, (b) the inter correlation of the physical fitness variables, and (c) the correlation between the reading and math variables. The 't' test for independent sample was used to measure difference between the mean scores of the male and female students.

There were no significant relationships between the reading scores and the physical fitness scores for any of the grade levels. Significant relationships between the math scores and physical fitness were measured as follows: between the one-mile run and math for males and females in grade 6, between the sit-ups and math for the male in grade 2 and 10, and between the sit and reach activity and math for the males in grade tenth.
Significant relationships between the various physical fitness measurements were sporadic, no consistent patterns were found across the grade levels for either sex group. Relationships between the math and reading scores were significant for males and females at all grade levels, except for the males in grades 4 and 8.

Based upon the findings, it was concluded that the physical fitness measurements used in this study to determine relationships with academic variables across a broad span of student grade levels provided negligible results.

Meredith (1987) conducted the study, purpose of the study. The investigation was undertaken to determine the degree of relationship among physical fitness, absenteeism, and academic achievement. A second purpose was to determine if students in the upper and lower quartiles of the physical fitness distribution exhibit similar relationships. A final purpose was to ascertain whether or not significant differences existed in absenteeism and academic achievement between students in the upper and lower quartiles of the fitness distribution.

Two hundred and twelve fifth and sixth grade children enrolled at Trinity Christian Academy, Dallas, Texas were subjects for the investigation Cardiovascular – respiratory endurance with the One-Mile Walk/Run. The percentage of attendance was the measure

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\textsuperscript{96}Marilu Dooley Meredith, "The Relationship among Physical Fitness, Absenteeism and Academic Achievement in Fifth and Sixth Grade School Children", 
of absenteeism. Academic achievement was measured by standard scores on the California Achievement Tests, Forms C and D.

Pearson’s product moment correlation demonstrated that a significant inverse relationship existed between physical fitness and absenteeism. No significant degree of relationship was found to exist between any other variables for the total group or the upper and lower quartiles of the physical fitness distribution. The t-test demonstrated a significant difference between the means in absenteeism between the girls in the upper and lower fitness quartiles. All other differences were not significant.

Conclusions established after statistical analysis included:

(1) Students in this study who perform better on the cardiovascular–respiratory endurance measure may also be expected to exhibit a higher percentage of attendance.

(2) Neither absentees nor performance on the cardiovascular–respiratory endurance measure may be expected to impact the performance on academic achievement standardized test for students in this study.

(3) Students in the upper quartile of the physical fitness distribution may not be expected to exhibit attendance percentage or academic achievement scores, which are higher or lower that other students in this study.

(4) Girls who achieve the upper quartile for the physical fitness measure may be expected to exhibit a significantly higher attendance percentage than girls in the lower quartile.
Vickers (1987)\textsuperscript{97} conducted the study. The purpose of this study was to determine if relationships exist in fourth grade students between achievement in the performance of common sports skills and mathematics and reading achievement and the influence of selected physical and social factors on these relationships.

One hundred and ninety-seven students were randomly selected from thirty-three elementary schools in Utah County. Each student was tested in broad jumping, performing a cartwheel, catching, punting, striking and throwing, and sections I and II of the Peabody Individual Achievement Test and then Pearson correlation coefficients were drawn.

Although numerous statistically significant relationships were found, the correlation coefficients were generally low. Specific indicated that there was a relationship between the position of the child in the family and his level of achievement and that the influence of height and the socio economic factors on achievement was too low to be of practical value.

Kashem (1988)\textsuperscript{98} compared the attitude towards the six-sub dimension of physical activity as proposed by Kenya (1986 b) among adults from China, Japan, Korea, Malaysia, Thailand and U.S.A. A comparison was also made of the attitude towards the six sub-domains of physical activity are: -

\textsuperscript{97}Betty Jane Vickers, "A Comparative Analysis of Motor Skill Performance with Academic Achievement Score of Forth Grade Students", \textit{D.A.I.}, 37, (Sep. 1987).

\textsuperscript{98}Nakomkhet Kashem, "Physical Activity Attitude as a Function of Socio Cultural Differences", \textit{Dissertation Abstract International}, 48 (March 1988); 9.
• Physical activities as social experience.
• Physical activity for health and fitness.
• Physical activity as pursuit of vertigo.
• Physical activity as an aesthetic experience.
• Physical activity as catharsis.
• Physical activity as ascetic experience.

The subjects of the study were 606 adults from six different countries who had enrolled in classes at selected university in the state of Indian. The data were selected to discriminate analysis technique. The result of the study indicated that the attitude towards physical activity i.e. function of socio-cultural difference, but it is not a function of gender. The American subjects have a more positive attitude to physical activity than those subjects from East Asia and South-East Asia.


The objectives of the study was to:

(1) Study the attitudes and aspirations of university sportsmen and women towards sports.
(2) Study the influence of the pattern of residence on their aspirations.

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For studying these main objectives it was decided to study only the students actively participating in sports. The study was restricted to the summer sports camps organised by the Punjab Govt. for coaching and training the young sports men and women in various activities. Data were collected through a pretested questionnaire distributed to 200 sports participants (100 male 100 female) coming from the student population of the University of Punjab in 1984.

Interviews were conducted in a relaxed comfortable atmosphere away from other people.

It was concluded from the present study that:

(1) The present day students who are participating in competitive sports are doing so with the idea of achieving national or international level recognition.

(2) Urban students aspire for international level recognition whereas more of rural students aspire for national level.

(3) More girls than boys are interested in adopting sports as a career.

Mize (1989) determined the relationship between attitudes towards physical activity and sex role orientation of college student. Source on the Kenyan Attitude Towards Physical Activity inventory (ATPA) and the Bem Sex Role orientation Inventory (BSRI)

were processed by inter correlation t-test, ANOVA, Duncan's Multiple Range Test and Chi-Square. Her subjects were 267 college age students (M = 179, F = 88). All variables of ATPA were interrelated except chance and athletics for the total group. Analysis of the male and female groups yielded some difference results for various factors of the (ATPA). Significant difference between male and female of ATPA and sex role orientation in vertigo for males and aesthetics for females was found.

Synder (1989) A study of the academic performance of male athletes at the University of Illinois at Urbana-Champaign from 1967 through 1975. Male athlete academic performance is compared to that of male non-athletes for the academic years 1968, 1971 and 1974. Ten Conference Eligibility Lists for the eleven male intercollegiate athletic teams at the University of Illinois for the academic years 1967-68 through 1975-76. The non-athlete male population consists of all freshmen male undergraduate students for the 1968-69, 1971-72 and 1974-75 academic years. Variables studied include ACT scores, high school percentile ranks, first semester grade-point-averages, cumulative grade-point-averages, and graduation rates. A major analysis of the study compares the academic performances of athletes versus non-athletes when entering abilities (ACT scores and high school percentile ranks) are

taken into account. The major hypotheses of the study, i.e. the graduation rates of athletes will be greater than those of non-athletes and the overall academic performance of athletes will be greater than that of non-athletes when entering abilities are considered, are supported by the data reported.

Masih (1991)\textsuperscript{102} tried to know the attitude of school children towards science. The objective of the study were to study the differences in attitude towards science, understanding of the nature of science and concept-attainment in science among Grade VIII children who had followed the HSTP curriculum or the NCERT curriculum and (ii) to evaluate the HSTP and the NCERT curriculum on three criteria, viz. attitude towards science, understanding the nature of science and concept attainment. A sample of 1, 147 Grade VIII students (HSTP - 546, NCERT - 583) was taken from 28 government middle schools from three districts of Madhya Pradesh. The tools used to collect data were adapted version of B.J. Fraser's Science Related Attitude Test (TOSRA), Hindi adoption of Klopfer, carrier and Geis Test of understanding science, Test of concept attainment in science developed by the investigator and Jalota's Group Test of Mental Ability. The findings showed that the HSTP students performed better than the NCERT curriculum students on TOSRA. The HSTP students had a significantly more favourable

attitude towards scientific enquiry than those who followed the NCERT curriculum. Both groups lacked a sound understanding of the nature of science.

Abraham (1991)\(^{103}\) took study of awareness, attitudes and skills of secondary school students of Hyderabad and Ranga Reddy district on population issue. The study was designed to find out the awareness of Hyderabad and Ranga Reddy secondary school students on population study. To find out whether religion, sex, age, income of parents, income of father and income of mother have any correlation with the awareness of the students about population issues. To find out the attitude of Hyderabad and Ranga Reddy secondary school students towards population issues. To find out the graphic skills of Hyderabad and Ranga Reddy secondary school students relating to population issues. Eight hundred students (400 from each of the two districts) were selected from schools with a view to assigning representation to all communal and religious groups.

A self constructed questionnaire, comprising a knowledge test, and attitude inventory were used. Statistical techniques such as item analysis, frequency distribution, mean, SD, 'T' test, 'F' test and chi square test were used in the study.

Findings revealed that the performance scores of knowledge test indicated a significant role being played by religion, sex and educational background of father and mother. In the attitude test, only sex had a significant correlation. Religion and sex seemed to have a significant correlation with performance scores on graphic skills.

Rosaly (1992)\textsuperscript{104} tried to know the relationship between attitude of students towards mathematics and achievement. Objectives of the study were to construct an attitude scale to measure the attitude of high school students towards learning of mathematics. To construct an achievement test in mathematics. To find out the relationship between attitude and achievement in mathematics. The sample comprised 200 students of class X in eight high schools in Dindigul town. A mathematics attitude scale and an achievement test in mathematics were constructed and used in the study. The statistical technique used were the mean, SD, Chi-square, Pearson's product moment correlation and 't' test.

The findings of research shows that the attitude of high school students towards learning mathematics and their achievement in mathematics were related. Urban girls had a more positive attitude towards mathematics than rural girls. Similarly, urban boys had a more positive attitude towards mathematics than rural boys. Girls were higher than boys in their achievement in mathematics. Urban girls were higher than rural girls in mathematics.

Hall (1994)\textsuperscript{105} Study Investigated. The purpose of this study was to compare the grade point averages on varsity athletes with the grade point averages of the non-athletes to determine if there were significant statistical differences. It was also the purpose of this study to compare the grade point averages of varsity sports with each other as well as comparing men with women and comparing various grade levels. Further, this Ex Post Facto case study compared the grade point average in the fall of 1985 to the fall of 1991 to determine if there were any significant differences after the NCAA's Propositions 48 was implemented at SBU.

Data on full time students at SBU were collected from the fall semesters of 1985 and 1991. These data were used to provide number of different academic comparisons. These comparisons were made using a series of two-way analysis of variance and Fisher LSD statistical tests to determine differences and interactions.

The researcher found a statically significant difference between the grade point averages of athletes and non-athletes, male and female students, male and female athletes, non-athletes at different grade levels, and among the varsity sports, the researcher also found there was no significant interaction between grade point averages of athletes or the individual athletic teams in 1985, which was pre-position 48, to 1991 which was post-preposition 48.

\textsuperscript{105}James Weldon Hall, "Intercollegiate Athlete Academic Success at Southwest Baptist University". Dissertation Abstracts International, 54, (March 1994).
Mand (1994)\textsuperscript{106} conducted the study to examine the relationship between the academic preparation in high school and scores on the SAT or ACR and the academic performance in College of Florida State Football and men's Basketball players, who initially enrolled from 1986-1990 on an athlete's scholarship. These relationships were determined first for all subjects and then for subjects split by ethnic origin.

Multiple regression analysis concluded that high school academic grade point average was found to be the most important independent variable for predicting how subjects of both white and black ethnic origin will do on the SAT and ACT as well as how they will perform academically during the first two years in college. Also, t-test determined that subject of white ethnic origin demonstrated a significantly higher level of academic preparation in high school than did subject of black ethnic origin, but there was no such significant.

Panda (1996)\textsuperscript{107} conducted a study on Attitude of Teacher-Trainees towards Teaching Profession - A Differential Study. Objective of the study was to assess the attitude of the teacher-trainees towards teaching profession. To find out the differences between Male and female teachers-trainees, Pre-service and inservice teacher trainees and Teacher-trainees of Humanities.


and Sciences, with regard to their attitude towards teaching profession. The Sample of the present study consisted of 70 teacher-trainees studying in B.Ed. class of college of Teacher Education, Balangir in the state of Orissa. In order to measure the attitude of teacher-trainees towards teaching profession, only 15 items related to the first area of teacher attitude inventory prepared by Ahluwalia [1974], viz. Attitude Towards teaching profession were selected and a scale was prepared and administered. The data regarding sex, educational qualification, and type of teacher-trainees [pre service, in service; Humanities, Sciences] were collected by using a General Data sheet.

The statistical techniques used were mean, S.D. and chi-square test. The variable of attitude towards teaching profession was trichotomised into high, moderate and low on the basis of mean and s.d. The teacher-trainees scoring one s.d. above the mean were placed in the high group, those scoring one s.d. below the mean were placed in the low group and the remaining ones who scored between ± 1 sd from the mean were placed in the moderate group.

Ultimately, the chi-square values were computed to tests the hypotheses taking 0.05 level as the standard for statistical significance. In aggregate, 15.71% of teacher trainees have high positive attitude, 64.29% moderate positive attitude, and 20% low positive attitude towards teaching profession. Male teacher trainees were superior to teachers trainees; Graduate teacher trainees are
superior to post-graduate teacher trainees; pre service teacher trainees are superior to in-service teachers trainees. And teacher trainees of Humanities respect of their attitude towards teaching profession.

Rajput (1996)\textsuperscript{108} conducted, “A study of attitude of females of various occupations towards sports and physical education in Jammu province”. The purpose of the study was to study the significance of differences in the attitudes of females of various occupation having different pay scales, marital status, family size and length of service towards each components of sports and physical education. Total subjects 1500 were selected as sample. Analysis of data was analysed by using “t” test and critical ratio. The following were the conclusion of the study.

1) Female engaged in various occupations but with differences in length of service and marital status have favourable attitude towards sports and physical education from the point of self control, spiritual and more qualities and sociability but have unfavourable attitude toward sports and physical education from the point of positive mental qualities, ethical qualities, qualities of efficiency and social action standards.

2) Females of various occupations with varying pay scale and family size have favourable attitude towards sports and

physical education from emotional point of view, positive action qualities and self control while women working in education institutions and engaged in professions like doctors and lawyers with large income and small family had more favourable attitude towards sports and physical education from the point of self control.

3) Educated women believed that participations in sports and physical education is useful and should occupy a prominent part in the life of working female for over coming fatigue.

Harres (1996)\textsuperscript{109} studied, "Attitude of students towards women's athletic competition". Purpose of the study was to as certain and to analyze the attitudes of man and women undergraduate's students at the University of California, Santa Barbara, concerning the desirability of intensive athletic competition for girls and women. In January 1996, a questionnaire and an attitude inventory were administered to random stratified sample 300 under graduate students. The attitude inventory consisted of 38 statements, which were divided, in four categories viz social, cultural, mental, emotion, physical and personality.

Although the population was found to be favourable in attitude, the range of scores indicated that considerable differences of opinion existed concerning the desirability of athletic competition for girls and women. The McGee and the Heak and Smith attitude

scales were used as basis for the development of statements for this study. 62 statements were included in the original attitude inventory, which was used as a pilot study with in the limits of this study conclusions were made –

1) Participation in athletic competition did have a part in the formation of a more favourable attitude toward the desirability of athletic competition for girls and women.

2) The observation of girls and women in athletic competition, both including and excluding television, did not affect the attitudes of the respondents toward the desirability of athletic competition for girls and women.

Sinha (1997) conducted a study on "Attitude of students, their teachers and guardians toward the academic, evaluative and administrative aspects of the existing system of examination." on 560 students. The investigator used 'Likert' type of scale to judge the opinions. It was found from the investigation that :

(1) The existing examination systems have both merits and demerits.

(2) It was the opinion of the students, teachers and guardians that the system had more demerits than merits. A very high percentage of them agreed with suggestion for improvement in the examination system.

Most of the students, teachers and guardians were dissatisfied with existing examination system and wanted improvement in it.

Shephard (1999)\textsuperscript{111} Studied that a positive relationship of physical activity and academic performance has been explored when a substantial amount of school time is dedicated to physical activity, academic performance meets and may even exceed that of students and not receiving additional physical activity.

Linder (1999)\textsuperscript{112} studied Sport Participation and Perceived Academic Performance of School Children and Youth. He used a questionnaire together data on both physical activity and academic performance of 4,690 9-18 year old students in Hong Kong. Trained data collectors to classrooms of students administered both tests. Each student personally completed his/her questionnaires by rating their own physical activity and academic performance. After data analysis through the Stat view computer program, results showed a significant but low correlation (more for the girls than for the boys) indicating that students who perceive they to have high academic performance generally participate in more physical activity. It is obvious that no direct correlations or causations can be assumed from this study, however a positive relationship between physical activity and perceived academic performance was found.


Exercise and Sport show that physical education does not interfere with schoolwork and may actually help children learn. The SPARK Program of San Diego State University assessed 759 fourth and fifth graders from seven elementary schools in San Diego County. SPARK is a physical education program, designed to promote higher levels of physical activity during physical education classes and promote physical activity in and out of school.

School were randomly assigned to one of three conditions:

1. Physical education specialists implementing the SPARK program
2. Classroom teachers trained to implement the SPARK program
3. Schools that continued with their usual PE (non-SPARK), whether taught by a specialist or classroom teacher.

Children in the first two settings enjoyed 20 to 30 per cent more time in physical education, while children in setting three remained in the classroom, presumably, to work on academics. However, despite devoting many more minutes in the classroom, children in setting three did not do better on Metropolitan Achievement Tests. In fact, some did not do as well as the SPARK kids.

113Paul Rosengard, "Relationship of Physical Activity and Academic Performance" http://www.cde.ca.gov/re/nr/hr/yr03rel74.asp (1999).
Mitchell (1999) performed a research study, "The relationship between rhythmic competency and academic performance in first grade children". The findings supported a link between academic achievement and the motor skills of maintaining a steady beat. Also motivated by Phyllis Weikart are Kuhlman & Schweinhart, who report in their discussions that children's timing has been found to be positively related to children's overall school achievement, as well as mathematics and reading achievement.

Jeon (2000) study was to find out relationship existed between attitudes toward physical education and level of physical activity based on private and public school, college classification and gender among selected students at the Yeungnam University and Chungnam National University in Korea through the administration of the Adam scale and Godin physical activity questionnaire subject were selected from Yeungnam University and Chungnam National University, Korea. Twenty-six undergraduate classes were randomly selected, the subject for this study were 1,293 students. The data were analyzed by employing a statistical package for the social sciences (SPSS-X). Both descriptive and inferential statistics were used to analyze the data gathered for this study. The 0.05 level of significance was selected. The conclusions of this study were as: college students tended to possess positive attitudes toward physical

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115Bal Jeon, "Relationship between attitudes of College Students in Korea toward Physical education and level of Physical Activity", Dissertation Abstract International, 60 (February 2000) : 2850-A.
education, the attitudes of subjects toward physical education were related to their levels of physical activities. Yeungnam University students tended to participate in physical activities more than public school students, subjects grouped by college classification did not differ in attitudes toward physical education or in level of physical activity, Male and Female subjects did differ in attitudes towards physical education.

Cocke, (2002) Studied that Youth receiving additional physical activity tend to show improved attributes such as increased brain function and nourishment, higher energy/concentration levels, changes in body build affecting self esteem, increased self-esteem and better behaviour which may all support cognitive learning. Improved brain attributes associated with regular physical activity consist of increased cerebral blood flow, changes in hormone levels, enhanced nutrient intake, and greater arousal.

Young (2002) studied the relationship between physical activity and academic performance, he gave physical fitness test, known as Fitness Gram, 2001 to students in grade five, seven and nine, which measured cardiovascular endurance, body composition, abdominal strength and endurance, trunk strength and flexibility, upper body strength and endurance and overall flexibility. A score of 6 indicates that a student is in the healthy fitness zone in all six performances area, and meets standards to be considered physically fit.


In the study, reading and mathematics scores were matched with fitness scores of 353000 fifth graders, 322000 seventh graders, and 279000 ninth graders.

Higher achievement was associated with higher levels of fitness at each of the three grade levels measured.

The relationship between academic achievement and fitness was greater in mathematics than in reading, particularly at higher fitness levels.

Students who met minimum fitness levels in three or more physical fitness areas showed the greatest gains in academic achievement at all the three grades levels.

Females demonstrated higher achievement than males, particularly at higher fitness levels.

Bawa and Singh (2002) in his study, attitude of young generation towards religious values has found in his research that human relation move along values and values are the windows of understanding society. The objectives of this study was to know the attitude of young boys and girls is towards religious values. To find the difference in the attitude of rural and urban young generation towards religious values. To explore the impact of education of parents on the attitude of young generation towards religious values.

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It was hypothesized that young generation has less favourable attitude towards religious values, no significant difference exist in the attitude towards religious values. There is a significant difference in the attitude of rural and urban young generation towards religious values and education of parents does not have any impact on the attitude of young generation towards religious values.

100 boys and girls were selected randomly for this study. All the students were from Hoshiyarpur district of Punjab. The age of the subjects varied from 18 years to 25 years. The sample comprised of 50 boys and 50 girls. After stratification the sample consisted of 25 rural girls and 25 rural boys, 25 urban girls and 25 urban boys. On the basis of the level of the education of the parents, 4 groups were formed, (i) below Matric, (ii) Matric, (iii) Graduate and (iv) PG/Professional, t-test ANOVA was applied to find out the significant differences between different groups, if any. For this study, a questionnaire of 32 items to measure the religious values of the subjects was prepared. This questionnaire was based on 5 point Likert scale as strongly agree, agree, indifferent, disagree and strongly disagree. The finding of the study confirm the first hypothesis that young generation has unfavourable attitude towards religious values. The attitude of girls is more favourable towards religious values. The result of the study showed that there is a significant impact of level of education of fathers of young generation than their mothers.
Sharma and Malik (2003)\textsuperscript{119}, in their research work, Attitude of school teachers towards B.P.Ed. teaching practice programme. Objective of the study were to study the nature of attitude of teachers towards teaching practice programme. To evaluate the teaching practice programme in the light of needs and demands from teachers in the school. To bring in to focus the weakness of present day teaching practice programme in the light of the results regarding the attitude of teachers towards the programme. The data were collected by following the survey method of investigation for this study and by utilizing the attitude scale to measure the attitude of school teachers towards B.P.Ed. teaching practice programme. Sample of the study consisted of 90 secondary school teachers working in the Government schools of Bhiwani district. An attitude scale based on Likert's style was prepared, scale consisted of 38 statements measuring attitude of teachers towards B.P.Ed. teaching practice programme in eight areas i.e. general, comparison, curriculum, methods, number of lesson, time, discipline and home task. Every statement was measured on five point scale i.e. strongly agree, agree, indifferent, disagree and strongly disagree. Out of these five, strongly agree and agree was counted towards favourable attitude and strongly disagree and disagree was counted under unfavourable attitude.

Otomo and Ogawa (2003)\textsuperscript{120} studied factors influential on students not positive toward physical education practice. The goal of this study was to identify factors influential on the behaviour of boys and girls not positive toward physical education practice. Three categories of factors were confirmed in having influences to learning behaviour of these students. Four boys and four girls in total each one from 3rd to 6th grade elementary school students took part in this study. They dislike the physical education practice. Seventy classes were observed. Journals, interviews to teachers and discussion with teachers were added. Analysis of these data clarified that three categories of factors, i.e. (i) difficulty level of motor task, (ii) learner group, (iii) teaching principles of teachers.

These three categories had strong relation with motor skill while they did not work positively for students, whose tendencies toward physical education is relatively low, to improve their learning behaviour and also they did not worked for students motor skills for being improved.

Langford and George (2004)\textsuperscript{121} investigated high school students attitudes toward physical education. This study investigated the attitude toward physical education of 1107 high school students from four countries, Czech Republic, Austria England, and the United States.


The sample, which totaled 1107 student participants, was drawn from six high schools in four countries. Two institutions were located in the Czech Republic, two in England and one each in Austria and the United States, while the sample was based on convenience, all selected high schools had two things in common; they were located within city limits, and each served students from its surrounding rural areas. Of the 1107 total participants, 487 were from the Czech Republic, 303 were from the United States, 217 from England, and 100 from Austria.

The aggregate data indicate an overall favorable attitude toward the physical education. Respondent scores ranged from 56 at the low end of the Adams scale to the maximum of 112. The sample mean of 84.7 is comfortably above the indifference point value of 64. Only 23 of the 1107 respondents had a score below 64 and eight recorded the maximum value.

The most striking dissimilarity found in the aggregate data is the attitude toward physical education in individual countries. A Univariate ANOVA test using country of origin, produced a statistically significant difference in mean scores. Czech students had statistically significant higher attitude scores than both U.S. students and English students at the 001 level of significance, and Austrian students had significantly higher attitude score than English students.

Meaningful differences in attitude were also found between genders. The finding also reveal several meaningful gender differences in individual countries with the exception of the Czech
Republic, male students had better attitudes toward physical education than females.

**Premlata and Bhatia (2005)**\(^{122}\) studied the attitude of parents towards Physical Education and Sports participation. The major objective of study is to find out the attitude of parents towards physical education and sports participation of their children. Attitude scale was used for the study. The data was collected through a questionnaire containing 50 questions to the parents of 60 girls students of different colleges of Kurukshetra District. The girl's were asked to bring the duly filled questionnaires from their parents. So the 60 responses were collected.

The furnished data was tabulated, analysed through frequency and percentage and interpreted through suitable graphical illustrations for meaningful description.

The findings of the present study support the general opinion that parents have unfavourable attitude towards physical education and participation in sports competitions by their wards.

**Gupta et al. (2005)**\(^{123}\) explored how much attitudes are affected by various variables such as mass-media exposure, interpersonal communication etc. in their study on Farm women's Attitudes Towards Training As related to various parameters.

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On the basis of various criteria five KVKs were selected from different agro-climatic zones of U.P. Area of operations of all five selected KVKs was sampled out. Two blocks from each KVKs where it has sufficient contacts were selected. Exhaustive lists of families who have been the beneficiary of any of Home Science Training Programme were made from each selected block. 25 families from each block were selected randomly. So a total of 50 families from each KVK and a total 250 farm families form the sample for this study. A pilot study was conducted and interview schedule was prepared for this purpose. This was pretested on 25 beneficiaries of KVK Aonla. On the basis of experience in pretesting and analyses of data so collected, appropriate changes in format and content of the schedule were made. The data were along with form women who attended trainings.

The coefficient of correlation between the socio-economic status score and scores of attitudes toward training programmes was equal to 0.08 (N=250) which is not significant. This shows that there is no relationship between the socio-economic status and attitudes towards training programme. The results show that t-value of more exposure of respondents with radio and television and books as regard to attitudes towards training programmes have negative and significant effect. It means that those women who had more exposure with radio, television and books had less favorable attitudes towards training programmes as compare to those who had less exposure with radio, television and books. Thus
radio, television programmes and books seem to faster unfavorable attitudes towards training programmes.

Results of this study surprisingly indicate that form women who have more contacts with friends and relatives and village development officer, have more exposure to radio, television and books have less favorable attitudes towards training programmes. Perhaps the respondent's friends and relatives and radio, television and book message faster unfavourable attitudes towards training programmes.

Blatz et al. (2006)\textsuperscript{124} conducted pilot study on school related factors that may influence healthy fitness behaviours in fifth grade students. The purpose of this pilot study was to investigate and determine if specific school related factors were associated with passing scores on the fitness gram test for fifth grade students. Elementary schools were divided into pairs with one high performing and one low performing school as indicated by percentage of students in the school whose sports were within the healthy fitness zone.

Variables investigated in this study included:

1] Adequacy of profession of teachers to conduct the fitness gram test.

2] Teacher knowledge about procedures to conduct the test.

\textsuperscript{124}P. Blatz, S. Kelly and A. Rios, School related factors that may influence healthy fitness behaviours in fifth grade students, \textit{A Pilot Study under Foundation for the promotion of Health Lifestyle}, www.cahperd.org (2006).
3] Level of support for physical education by administrator or teacher leaders.


5] Evidence of a coordinated physical education curriculum.

6] Use of a structured grading system for physical education.

7] Time allotment given to regular structured physical education lessons.

8] Availability of facilities and equipment for physical education activities.

9] Community/Out of school activity programmes available to students.

10] Attitudes of teachers and administrators toward physical education.

11] Participation of teachers and administrators in physical activity.

The study was conducted in the Long Beach Unified School District. The two pairs of schools were considered to be equivalent in regards to socio-economic level and ethnic group percentages. Two of the schools had percentage of students passing the fitness gram test in the highest quartile and two had percentages of passing scores in the lowest quartile. A letter of invitation and composition was sent to each site principals. Teachers and administrators from the four schools were interviewed and surveyed to gather supportive data. Eight fifth grade classroom teachers and
four administrators agreed to participate in this study. The schools were selected on the basis of free or reduced meals and publicly posted fitness gram scores of students. All teachers participating in the study were randomly selected from each school site.

Two surveys were administered in this study. The first survey was the healthy school environment survey, consisted of fifteen questions and was completed by each schools site administrator (the Principal). The questions included the school wellness policy, food and drinks offered and purchased throughout the schools, extra curricular physical activity programmes and educational information regarding health and wellness. The second survey teachers survey consisted of twenty questions and was completed by each of the eight teachers. The questions included their background, experience, qualification, the number of students and classes tested, the testing procedure and organisation, the perceived support of the site administrator and the amount of physical education the students are involved in.

Results revealed that, none of the four schools had a school wellness policy. The only school that offered a physical activity programme before or after school was a highly fit school. Information regarding proper nutrition, harmful substances, elements of physical fitness and developing and maintaining a health lifestyle were presented in the curriculum during some point in elementary schools years. All eight fifth grade teachers completed the survey and answered all of the interviewed questions. The investigator found that
three of the four schools had recreational aids who facilitated or assisted in their physical education programmes. Those schools that had more opportunities to practice the various items of the fitness test prior to the formal testing and add more instructions from the teacher or recreational aid had higher fitness scores. The two schools that scored well had more organized games as opposed to the other two schools that had a more unstructured class. Equipment and school play areas varied from school to school. Most of the school bought or expect to obtain more equipment and facilities since last year and may that affect the fitness scores of the students in the future. Students who scored below the healthy fitness zone also had similar characteristics according the teachers interviewed. These students were more likely to be overweight, obese, not involved in sports outside of school, have unsupportive parents, poor nutrition and were thought to have a negative attitude toward sports and physical activity.

Dogra (2006)\textsuperscript{125} in her study “Attitude of higher secondary students of Kendriya Vidyalayas towards participation in physical education and sports programmes in Maharashtra” has compared the attitude of 700 male and female subjects selected by random sampling studying in XI and XII standard in Kendriya Vidyalayas. The main objectives of the study were to compare the significance difference of attitude of male-female, rural and urban.

sportsmen and non-sportsmen and rich and middle classes of society. The investigator used “Likert” type of scale to judge the opinions.

Following were the conclusion of the study:

1) Male and female students of higher secondary classes studying in Kendriya Vidyalayas of Maharashtra state do not differ in respect to their attitude towards participation in physical education and sports programmes.

2) Higher secondary students of Kendriya Vidyalayas of Maharashtra state belonging to rural and urban areas differ significantly in respect to their attitude towards participation in physical education and sports programmes.

3) Sportsmen and non-sportsmen higher secondary students of Kendriya Vidyalayas of Maharashtra state differ significantly in respect to their attitude towards participation in physical education and sports programmes in school.